Material Safety Data Sheet
According to 91/155 EEC

Printing date 07.12.2005 Reviewed on 07.12.2005

1 Identification of substance

Distributed By:
Struktol Company of America
201 E. Steels Corners Road
P.O. Box 1649 • Stow, Ohio 44224-0649
(330) 928-5188 • (800) 327-8649
www.struktol.com
Quality Additives for Performance

· **Product details**

· **Trade name** Perpristol RCO

· **Article number:** 107260

· **Application of the substance / the preparation** Leather auxiliary

· **Manufacturer/Supplier:**
Schill + Seilacher Aktiengesellschaft
Schönaicher Str. 205
D-71032 Böblingen

Tel.: +49 7031 282-0
Fax: +49 7031 282-160

· **Informing department:** Product Safety Department

· **Emergency information:**
During normal opening times: product safety department
at other times: factory fire brigade

2 Composition/Data on components:

· **Description:** Mixture of oils and silicon compounds

· **Dangerous components:** Void

3 Hazards identification

· **Hazard designation:** Void

· **Information pertaining to particular dangers for man and environment** void

4 First aid measures

· **General information** No special measures required.

· **After skin contact** Instantly wash with water and soap and rinse thoroughly.

· **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.

· **After swallowing** In case of persistent symptoms consult doctor.

5 Fire fighting measures

· **Suitable extinguishing agents**
CO_2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

· **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

· **Person-related safety precautions:** Wear protective clothing.

· **Measures for environmental protection:** Do not allow product to reach sewage system or water bodies.

· **Measures for cleaning/collecting:** Collect mechanically.

· **Additional information:** No dangerous materials are released.

7 Handling and storage

· **Handling**

· **Information for safe handling:** No special measures required.

· **Information about protection against explosions and fires:** No special measures required.

· **Storage**

· **Requirements to be met by storerooms and containers:** No special requirements.

· **Information about storage in one common storage facility:** Not required.

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· **Further information about storage conditions:** None.

8 Exposure controls and personal protection

· **Components with critical values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures should be adhered to in handling the chemicals.
· **Breathing equipment:** Not required.
· **Protection of hands:** Protective gloves.
· **Material of gloves** Nitrile rubber, NBR
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **General Information**	
Form:	Viscous liquid
Colour:	Yellow
Smell:	Light
· **Change in condition**	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
· **Flash point:**	> 100°C
· **Self-inflammability:**	Product is not self-ignitable
· **Danger of explosion:**	Product is not explosive.
· **Density at 20°C**	ca. 0.9 g/cm³
· **Solubility in / Miscibility with Water:**	Unsoluble

10 Stability and reactivity

· **Conditions to be avoided:** No decomposition if used according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous products of decomposition:** None

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	> 2000 mg/kg (rat)

· **Remark:**
The product has not been tested. This information is based upon the properties of the individual components.
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritant effect.
· **Sensitization:** No sensitizing effect known.
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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(Contd. on page 3)

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Trade name Perpristol RCO

(Contd. of page 2)

12 Ecological information:

· **General notes:** Do not allow product to reach ground water or water bodies.

13 Disposal considerations

· **Product:**
· **Recommendation**
Must not be disposed of together with household waste. Do not allow product to reach sewage system.
Must be specially treated under adherence to official regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**
· **ADR/RID-GGVS/E Class:** -

· **Maritime transport IMDG/GGVSea:**
· **IMDG/GGVSea Class:** -

· **Air transport ICAO-TI and IATA-DGR:**
· **ICAO/IATA Class:** -

15 Regulatory information

· **Designation according to EC guidelines:**
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).

16 Other information:

· **Department issuing data specification sheet:** Product Safety Department
· **Contact:** Dr. Krämer, Hr. Ilkaya

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MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
PRODUCT SAFETY & REGULATORY AFFAIRS
100 Bayer Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (412) 923-1800
BAYER INFORMATION PHONE.: (800) 662-2927

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Persoftal ASA Concentrate
PRODUCT CODE.....: 82908
CHEMICAL FAMILY.....: Aqueous solution of organosilicone

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)

***** HAZARDOUS INGREDIENTS *****

This product contains no hazardous ingredients as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION:

****
* EMERGENCY OVERVIEW *
*
* Color: Clear; Form: Liquid; Odor: Faint; May cause skin *
* irritation; May cause eye irritation. *
****

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Eye Contact; Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

Continued on next page

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3. HAZARDS IDENTIFICATION (Continued)

ACUTE SKIN CONTACT.....: Contact with this product may cause skin irritation resulting in symptoms of reddening and itching.
ACUTE EYE CONTACT.....: Contact with this product may cause eye irritation resulting in symptoms of tearing, reddening, and stinging.
CHRONIC EFFECTS OF EXPOSURE...: No applicable information was found concerning any adverse chronic health effects due to overexposure from this product.

CARCINOGENICITY.....: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye or skin conditions may be more susceptible to the effects of this product.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
FIRST AID FOR SKIN.....: Flush skin with soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately. Wash clothing before reuse. Call a physician.
FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
FIRST AID FOR INGESTION.: If swallowed, call a physician.

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Greater than 244 F (118 C)
EXTINGUISHING MEDIA.....: Water; Dry Chemical; Carbon Dioxide; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Utilize recommended protective clothing. Spills should be taken up with an appropriate absorbent and placed in approved containers. Spill area can be washed with water. Collect wash water for approved disposal.

Continued on next page

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): Store in a cool dry area between 34 and 110 F
SHELF LIFE.....: Not Established
SPECIAL SENSITIVITY.....: Protect from freezing.
HANDLING/STORAGE PRECAUTIONS: Avoid breathing mist and vapors. Avoid contact with eyes and skin. Wash thoroughly after handling. Store in a dry place away from excessive heat, in original or similar waterproof containers. Reseal containers immediately after use. Keep from freezing.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles
SKIN PROTECTION REQUIREMENTS.....: Rubber gloves and long sleeved shirts and pants to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.
VENTILATION REQUIREMENTS.....: Under normal conditions of use, special ventilation is not required.
RESPIRATOR REQUIREMENTS.....: Under normal conditions of use, respiratory protection is not required.
ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
COLOR.....: Clear
ODOR.....: Faint
pH .....: 4.5 - 5
BOILING POINT.....: Not Established
MELTING/FREEZING POINT....: Not Established
SOLUBILITY IN WATER .....: Miscible
SPECIFIC GRAVITY .....: 1.0
BULK DENSITY.....: Not Established
VAPOR PRESSURE .....: Not Established
VOC BY WEIGHT .....: 15.7 % - Tested by EPA Method 24A

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10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: Oxidizing and reducing agents.
INSTABILITY CONDITIONS.....: None Known
DECOMPOSITION PRODUCTS.....: In case of fire CO, CO2, oxides of nitrogen, oxides of silicone, and other potentially toxic fumes.

11. TOXICOLOGICAL INFORMATION:

NO ANIMAL TOXICITY INFORMATION AVAILABLE

12. ECOLOGICAL INFORMATION:

CHEMICAL OXYGEN DEMAND.....: 565 mg/L

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Waste disposal should be in accordance with existing federal, state and local environmental regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Aqueous solution of organosilicone
FREIGHT CLASS BULK.....: Fabric Softener, NOI
FREIGHT CLASS PACKAGE.....: Fabric Softener, NOI (NMFC 60000)
PRODUCT LABEL.....: Persoftal ASA Conc

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

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14. TRANSPORTATION INFORMATION (Continued)

IMO / IMDG CODE (continued)

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: On TSCA Inventory
CERCLA REPORTABLE QUANTITY..: None
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None
SECTION 311/312
HAZARD CATEGORIES.....: Non-hazardous under Section 311/312
SECTION 313
TOXIC CHEMICALS.....: None
RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Amino Silicone Fluid	Less than 30 %	PA3, NJ4
Alcohol NJTSRN (31765300002)-8535P	Less than 5 %	PA3, NJ4
Alcohol NJTSRN (31765300002)-8537P	Less than 5 %	NJ4
Alcohol NJTSRN (31765300002)-8536P	Less than 3 %	NJ4

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15. REGULATORY INFORMATION (Continued)

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Water 7732-18-5	Greater than 1 %	PA3, NJ4

NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
NJTSRN = New Jersey Trade Secret Registry Number
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

16. OTHER INFORMATION:

HMIS RATINGS:

Health	Flammability	Reactivity
1	1	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Add VOC and COD Data
PREPARED BY.....: Dawn M. Martin
APPROVED BY.....: J. M. Mostowy
APPROVAL DATE.....: 01/21/1998
SUPERSEDES DATE.....: 03/22/96
MSDS NUMBER.....: 17418

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

**** MATERIAL SAFETY DATA SHEET ****

Petroleum Ether
18330

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Petroleum Ether
Catalog Numbers:
E120-4, E120-400, E1204LOT001, E1204LOT002, E1204LOT003, E120550, E12055115 E12055200, E120552B, E1205550, E120J4, E139-1, E139-20, E139-200, E139-4, E139-500, E1394LC, E139FB115, E139FB19, E139FB200, E139FB28, E139FB50, E139J4, E139RB115, E139RB19, E139RB200, E139RB50, E139RS115, E139RS200, E139RS28, E139RS50, E139S-4, E139SK-4, E139SS115, E139SS200, E139SS28, E139SS50, FLP480RS-115, FLP480RS-200, FLP480RS-28, FLP480RS-50, FLP481RS-200, NC9480472, P480-4, P4804LC, P4804LOT001, P480RS115, P480RS200 P480RS28, P480RS50, P480SS115, P480SS200, P480SS28, P480SS50
Synonyms:
Naphtha Solvent; Naphtha Petroleum
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
0-00-1	Various Isomers	<1.0	unlisted
75-83-2	Neohexane	<4.0	200-906-8
78-78-4	Isopentane	<2.0	201-142-8
79-29-8	2,3-dimethylbutane	<4.0	201-193-6
96-14-0	3-methylpentane	<6.0	202-481-4
107-83-5	Isohexane	<11.0	203-523-4
109-66-0	Pentane	<73.0	203-692-4
287-92-3	Cyclopentane	<2.0	206-016-6

Hazard Symbols: XN F N
Risk Phrases: 11 38 51/53 65 67

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: colourless. Flash Point: -50 deg F.
Danger! Flammable liquid and vapor. May cause central nervous system depression. Aspiration hazard. Poison! Causes eye and skin irritation. Causes digestive and respiratory tract irritation. Harmful or fatal if swallowed. Vapor harmful.
Target Organs: Kidneys, central nervous system.

Potential Health Effects
Eye:
Causes eye irritation. May cause conjunctivitis and corneal inflammation.
Skin:
Exposure may cause irritation characterized by redness, dryness, and inflammation.
Ingestion:
Aspiration hazard. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.
Inhalation:
Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. High vapor concentrations may cause drowsiness. Aspiration may cause respiratory swelling and pneumonitis.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. May cause kidney damage.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician:
Gastric lavage by qualified medical personnel may be considered depending on quantity of material ingested.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Vapor may cause flash fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.
Extinguishing Media:
Use water spray to cool fire-exposed containers. Water may be ineffective. This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained. Do NOT use straight streams of water. For small fires, use dry chemical, carbon dioxide, water spray or regular foam. Cool containers with flooding quantities of water until well after fire is out. For large fires, use water spray, fog or regular foam.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material, (e.g., vermiculite, dry sand or earth), then place into a chemical waste container. Do not use combustible materials such as saw dust. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Prevent build up of vapors to explosive concentration. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage:
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Various Isomers	none listed	none listed	none listed
Neohexane	none listed	none listed	none listed
Isopentane	none listed	none listed	none listed
2,3-dimethylbutane	none listed	none listed	none listed

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3-methylpentane	none listed	none listed	none listed
Isohexane	none listed	none listed	none listed
Pentane	600 ppm	120 ppm TWA; 350 mg/m3 TWA 1500 ppm IDLH (10 percent lower explosive limit)	1000 ppm TWA; 2950 mg/m3 TWA
Cyclopentane	600 ppm	600 ppm TWA; 1720 mg/m3 TWA	none listed

OSHA Vacated PELs:
Various Isomers:
No OSHA Vacated PELs are listed for this chemical.
Neohexane:
No OSHA Vacated PELs are listed for this chemical.
Isopentane:
No OSHA Vacated PELs are listed for this chemical.
2,3-dimethylbutane:
No OSHA Vacated PELs are listed for this chemical.
3-methylpentane:
No OSHA Vacated PELs are listed for this chemical.
Isohexane:
No OSHA Vacated PELs are listed for this chemical.
Pentane:
600 ppm TWA; 1800 mg/m3 TWA
Cyclopentane:
600 ppm TWA; 1720 mg/m3 TWA

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Appearance:	colourless
Odor:	mild odor - gasoline-like
pH:	Not available.
Vapor Pressure:	485 mm Hg @ 20C
Vapor Density:	2.5
Evaporation Rate:	>1.0 (butyl acetate=1)
Viscosity:	Not available.
Boiling Point:	37-56C
Freezing/Melting Point:	Not available.
Autoignition Temperature:	500 deg F (260.00 deg C)
Flash Point:	-50 deg F (-45.56 deg C)
NFPA Rating:	Not published.
Explosion Limits, Lower:	1.1
Upper:	5.9
Decomposition Temperature:	Not available.
Solubility:	Insoluble.
Specific Gravity/Density:	0.74
Molecular Formula:	Hydrocarbon
Molecular Weight:	Not available

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, ignition sources, excess heat.
Incompatibilities with Other Materials:
May explode with nitrogen tetroxide, potential violent reaction with strong oxidizers.
Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 0-00-1 unlisted.
CAS# 75-83-2: EJ9300000
CAS# 78-78-4: EK4430000
CAS# 79-29-8: EJ9350000
CAS# 96-14-0 unlisted.
CAS# 107-83-5: SA2985000
CAS# 109-66-0: RZ9450000
CAS# 287-92-3: GY2390000
LD50/LC50:
Not available.
Not available.
CAS# 78-78-4: Oral, rat: LD50 = 1600 - 3200 mg/kg.
CAS# 79-29-8.
CAS# 96-14-0.
CAS# 107-83-5.
CAS# 109-66-0: Inhalation, rat: LC50 =364 gm/m3/4H.
CAS# 287-92-3.
Carcinogenicity:
Various Isomers -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Neohexane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Isopentane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
2,3-dimethylbutane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
3-methylpentane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Isohexane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Pentane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Cyclopentane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
Epidemiological studies involving petroleum refinery workers indicate persons with routine exposure to petroleum or one of its constituents may be at an increased risk to the development of benign neoplasms, digestive tract cancer, and skin cancer.
Teratogenicity:
No information available.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
This chemical is expected to cause some oxygen depletion in aquatic systems. It has a low potential to affect aquatic systems. It has a low potential to affect aquatic organisms, secondary waste treatment microorganisms and the germination of some plants. It has a moderate potential to affect the germination and growth of some plants.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: PETROLEUM DISTILLATES, N.O.S.
Hazard Class: 3
UN Number: UN1268
Packing Group: II
Canadian TDG
Shipping Name: PETROLEUM ETHER
Hazard Class: 3
UN Number: UN1271
Other Information: FLASHPOINT -40C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 0-00-1 is not listed on the TSCA inventory.

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It is for research and development use only.
CAS# 75-83-2 is listed on the TSCA inventory.
CAS# 78-78-4 is listed on the TSCA inventory.
CAS# 79-29-8 is listed on the TSCA inventory.
CAS# 96-14-0 is listed on the TSCA inventory.
CAS# 107-83-5 is listed on the TSCA inventory.
CAS# 109-66-0 is listed on the TSCA inventory.
CAS# 287-92-3 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 78-78-4: acute, flammable.
CAS # 96-14-0: acute, flammable.
CAS # 107-83-5: acute, flammable.
CAS # 109-66-0: acute, chronic, flammable.
CAS # 287-92-3: flammable.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Various Isomers is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Neohexane can be found on the following state right to know lists: New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Isopentane can be found on the following state right to know lists: New Jersey, Florida, Pennsylvania, Massachusetts.
2,3-dimethylbutane can be found on the following state right to know lists: New Jersey, Florida, Pennsylvania, Massachusetts.
3-methylpentane can be found on the following state right to know lists: Florida, Pennsylvania, Massachusetts.
Isohexane can be found on the following state right to know lists: Florida, Pennsylvania, Minnesota, Massachusetts.
Pentane can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Cyclopentane can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN F N
Risk Phrases:
R 11 Highly flammable.
R 38 Irritating to skin.
R 51/53 Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.
R 65 Harmful: may cause lung damage if swallowed.
R 67 Vapors may cause drowsiness and dizziness.
Safety Phrases:
S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.
S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.
S 62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
WGK (Water Danger/Protection)
CAS# 0-00-1: No information available.
CAS# 75-83-2: No information available.

CAS# 78-78-4: 1
CAS# 79-29-8: No information available.
CAS# 96-14-0: 1
CAS# 107-83-5: 1
CAS# 109-66-0: 1
CAS# 287-92-3: 1
United Kingdom Occupational Exposure Limits

Canada
CAS# 75-83-2 is listed on Canada's DSL/NDSL List.
CAS# 78-78-4 is listed on Canada's DSL/NDSL List.
CAS# 79-29-8 is listed on Canada's DSL/NDSL List.
CAS# 96-14-0 is listed on Canada's DSL/NDSL List.
CAS# 107-83-5 is listed on Canada's DSL/NDSL List.
CAS# 109-66-0 is listed on Canada's DSL/NDSL List.
CAS# 287-92-3 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B2, D2B.
CAS# 0-00-1 is not listed on Canada's Ingredient Disclosure List.
CAS# 75-83-2 is not listed on Canada's Ingredient Disclosure List.
CAS# 78-78-4 is not listed on Canada's Ingredient Disclosure List.
CAS# 79-29-8 is not listed on Canada's Ingredient Disclosure List.
CAS# 96-14-0 is not listed on Canada's Ingredient Disclosure List.
CAS# 107-83-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 109-66-0 is not listed on Canada's Ingredient Disclosure List.
CAS# 287-92-3 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 78-78-4: OEL-DENMARK:TWA 500 ppm (1500 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV
CAS# 109-66-0: OEL-AUSTRALIA:TWA 600 ppm (1800 mg/m3);STEL 750 ppm (2250 mg/m3)
OEL-BELGIUM:TWA 600 ppm (1770 mg/m3);STEL 750 ppm (2210 mg/m3)
OEL-DENMARK:TWA 500 ppm (1500 mg/m3)
OEL-FINLAND:TWA 500 ppm (1500 mg/m3);STEL 625 ppm (1800 mg/m3)
OEL-FRANCE:TWA 600 ppm (1800 mg/m3)
OEL-GERMANY:TWA 1000 ppm (2950 mg/m3)
OEL-HUNGARY:TWA 500 mg/m3;STEL 1500 mg/m3
OEL-JAPAN:TWA 300 ppm (880 mg/m3)
OEL-THE NETHERLANDS:TWA 600 ppm (1800 mg/m3) JAN9
OEL-THE PHILIPPINES:TWA 1000 ppm (2950 mg/m3)
OEL-POLAND:TWA 100 mg/m3
OEL-RUSSIA:TWA 300 ppm;STEL 300 mg/m3
OEL-SWEDEN:TWA 600 ppm (1800 mg/m3);STEL 750 ppm (2000 mg/m3)
OEL-SWITZERLAND:TWA 600 ppm (1800 mg/m3)
OEL-TURKEY:TWA 1000 ppm (2950 mg/m3)
OEL-UNITED KINGDOM:TWA 600 ppm (1800 mg/m3);STEL 750 ppm
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV
CAS# 287-92-3: OEL-AUSTRALIA:TWA 600 ppm (1720 mg/m3)
OEL-BELGIUM:TWA 600 ppm (1720 mg/m3)
OEL-DENMARK:TWA 300 ppm (850 mg/m3)
OEL-FRANCE:TWA 600 ppm (1720 mg/m3)
OEL-THE NETHERLANDS:TWA 600 ppm (1720 mg/m3) JAN9
OEL-SWITZERLAND:TWA 600 ppm (1720 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 3/10/1999 Revision #7 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

WWW_104(e)_017371

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

PETROLEUM ETHER

PRODUCT IDENTIFICATION:

Synonyms: Ligroin

Formula CAS No.: 8032-32-4

Molecular Weight: ca. 100

Chemical Formula: Not applicable.

Hazardous Ingredients:
A mixture of n-pentane and n-hexane.

PRECAUTIONARY MEASURES

DANGER! EXTREMELY FLAMMABLE. HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED. MAY AFFECT CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION.

Keep away from heat, sparks and flame.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
Avoid breathing vapor.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
DO NOT OPEN Unless Contents Are At Room Temperature (72°F) or Below For At Least 24 Hours.

EMERGENCY/FIRST AID

If irritation develops call a physician. If swallowed, do not induce vomiting. Call a physician immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Flammable Liquid

SECTION 1 Physical Data

Appearance: Clear, colorless liquid.

Odor: Gasoline or kerosene.

Solubility: Insoluble.

Boiling Point: 35°C to 60°C (95° to 140°F).

Melting Point: < -73°C (-99°F).

Specific Gravity: 0.63-0.68

Vapor Density (Air=1): Approx. 3

Vapor Pressure (mm Hg): ca. 40 @ 20°C (68°F).

Evaporation Rate: (BuAc=1): ca. 10

SECTION 2 Fire and Explosion Information

Fire:
Extremely Flammable. Flashpoint: -57°C (-70°F) (CC).
Autoignition temperature:
232° to 260°C (450° to 500°F).
Flammable limits in air, % by volume:
lel: 1; uel: 6.
Dangerous fire hazard when exposed to heat or flame.

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with oxidizable substances may cause extremely violent combustion.

Fire Extinguishing Media:
Dry chemical, foam or carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect men attempting to stop leak. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Vapors can flow along surfaces to distant ignition source and flash back.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Strong oxidizers, heat, flame. Will attack some forms of plastics, rubber and coatings.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Remove all sources of ignition. Clean-up personnel require protective clothing and respiratory protection from vapors. Contain and recover liquid when possible. Collect as hazardous waste and atomize in a suitable RCRA approved combustion chamber, or absorb with vermiculite, dry sand, earth or similar material for disposal as hazardous waste in a RCRA approved facility. Do not flush to sewer!

Ensure compliance with local, state and federal regulations.

24-156

NFPA Ratings: Health: 1 Flammability: 4 Reactivity: 0

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation may cause symptoms of intoxication and peripheral nerve disorders and central nervous system depression. Symptoms of overexposure include loss of appetite, muscle weakness, impairment of motor action, dizziness and drowsiness. May also cause throat irritation.

Ingestion:
Local irritation with burning sensation in mouth, esophagus, and stomach. Vomiting, blurred vision, and diarrhea may also occur. Cases of chemical pneumonia have been reported from ingestion of this substance. Nervous system disorders paralleling those from ingestion exposure may also occur.

Skin Contact:
May cause irritation. The liquid acts as a defatting agent on the skin.

Eye Contact:
Vapors may cause irritation. Splashes may cause redness or pain.

Chronic Exposure:
Prolonged overexposure may cause drying and cracking of the skin and associated dermatitis. No chronic systematic effects have been reported from widespread industrial use.

Aggrevation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
Aspiration hazard. DO NOT INDUCE VOMITING! Get medical attention immediately. If spontaneous vomiting occurs, hold victim's head lower than hips to resist aspiration.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Petroleum Spirits [8030-30-6]: Inhalation rat LC50: 3400 ppm/4H. Irritation data: eye human 880 ppm/15M.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):
300 ppm (TWA), 400 ppm (STEL)

-ACGIH Threshold Limit Value (TLV):
300 ppm (TWA)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the PEL is exceeded a full facepiece chemical cartridge respirator may be worn up to the maximum use concentration specified by the respirator supplier. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Protect against physical damage. Store in a cool, dry well-ventilated location, away from direct sunlight and any area where the fire hazard may be acute. Store in tightly closed containers (preferably under nitrogen atmosphere).Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet. Separate from oxidizing materials. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment. DANGER! DO NOT OPEN Unless Contents Are At Room Temperature (72°F) or Below. Allow at least 24 hours for material to cool to room temperature before opening container.

WWW_104(e)_017373

Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061.

PHENOL, CRYSTALS

PRODUCT IDENTIFICATION:

Synonyms: Carbolic acid; phenic acid; phenylic acid; hydroxybenzene

Formula CAS No.: 108-95-2

Molecular Weight: 94.11

Chemical Formula: C_6H_5OH

Hazardous Ingredients: Not applicable.

PRECAUTIONARY MEASURES

DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES SEVERE BURNS. EXPOSURE MAY PRODUCE LIVER, KIDNEY, AND NEUROLOGICAL DISORDERS. COMBUSTIBLE.

Avoid breathing dust.
Do not get in eyes, on skin, or on clothing.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
This substance is classified as a POISON under the Federal Caustic Poison Act.

EMERGENCY/FIRST AID

In all cases call a physician immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.
SEE SECTION 5.

DOT Hazard Class: Poison-B

SECTION 1 Physical Data

Appearance: Colorless to light pink crystals.

Odor: Sharp medicinal sweet tarry.

Solubility: 1 g/9 ml of water; very soluble in alcohol.

Boiling Point: 182°C (360°F)

Melting Point: 40.5°C (104.9°F)

Specific Gravity: 1.07

Vapor Density (Air=1): 3.2

Vapor Pressure (mm Hg): 0.4 @ 20°C (68°F)

Evaporation Rate: (BuAc=1) < 0.01

SECTION 2 Fire and Explosion Information

Fire:
Combustible. Flash Point: 78°C (173°F)
Autoignition Temperature: 605°C (1121°F)
Flammable Limits in Air, % by Volume:
lel: 1.7; uel: 8.6

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with oxidizers may generate explosive mixtures.

Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage. Heat will contribute to instability.

Hazardous Decomposition Products:
Toxic gases and vapors may be released if involved in a fire.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Oxidizers, aluminum chloride and nitrobenzene, calcium hypochlorite butadiene. Hot liquid phenol will attack aluminum, magnesium, lead, and zinc metals.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel require protective clothing and respiratory protection from dust.

Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust.

Disposal: Whatever cannot be saved for reclamation may be disposed in a RCRA approved hazardous waste facility. Do not flush to the sewer.

Reportable Quantity (RQ)(CWA/CERCLA) : 1000 lbs.

Ensure compliance with local, state and federal regulations.

NFPA Ratings: Health: 3 Flammability: 2 Reactivity: 0

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Breathing vapor or dust results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite).

Ingestion:
Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, headache, dizziness, muscular weakness, irregular breathing, coma, and possibly death.

Skin Contact:
Corrosive. May be absorbed through the skin with systemic poisoning effects to follow. Discoloration and severe burns may occur.

Eye Contact:
Corrosive. Redness, pain, blurred vision may occur. May cause severe damage and blindness.

Chronic Exposure:
Repeated exposure may cause symptoms described for acute poisoning as well as liver damage.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

Oral rat LD50: 414 mg/Kg Inhalation rat LC50: 316 mg/m^3 Irritation data: skin rabbit 500 mg/24H severe eye rabbit: 5 mg severe Mutation references cited. Reproductive effects referenced cited. Tumorigenic data references cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):
5 ppm (TWA) (skin)

-ACGIH Threshold Limit Value (TLV):
5 ppm (TWA) (skin)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container.Protect from physical damage. Store in a cool,dry, ventilated area away from sources of heat, moisture and incompatibilities. Outside or detached storage is preferred. Separate from other storage. Do not allow untrained workers to handle phenol.

OLCRY

WWW_104(e)_017375

R-0638

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1. PRODUCT IDENTIFICATION

CATALOG NO.: R-0638
PRODUCT NAME: Phenolphthalein Indicator
CHEMICAL FAMILY: Alcoholic organic dye solution

2. INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
Isopropyl alcohol	67-63-0	<50	Flammable
Phenolphthalein	77-09-8	<1	Irritant Suspect carcinogen
Deionized water	7732-18-5	to 100	None

3. PHYSICAL/CHEMICAL CHARACTERISTICS

STATE: Liquid APPEARANCE: Clear, colorless ODOR: Alcohol
BOILING PT (F): 180 pH: NA SPECIFIC GRAVITY: .9
VAPOR PRESSURE (mm Hg): 25 VAPOR DENSITY (AIR=1): 1.6
PERCENT VOLATILE BY VOLUME: 99 SOLUBILITY IN WATER: Soluble

4. FIRE, EXPLOSION HAZARD AND REACTIVITY DATA

FLASH PT: 62 F METHOD: Closed cup
FLAMMABLE LIMITS: LEL: 2% UEL: 12%
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray, or alcohol foam
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and full-protective clothing. Cool exposed containers with water spray. Knock down vapors with water spray.
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: Vapors flammable. May be ignited by heat, sparks, or flames. May emit toxic fumes.
NFPA CODE: Health: 1 Flammability: 3 Reactivity: 0 Specific: NA
CONDITIONS TO AVOID: Extreme heat, temperatures. Protect from sparks, flames, oxidizers.

5. HEALTH HAZARD DATA

INGREDIENT: Isopropyl alcohol
TOXICITY: LD50(orl-rat): 5840 mg/kg
PEL: 980 mg/m3 TLV: 980 mg/m3
STEL: NE

INGREDIENT: Phenolphthalein
TOXICITY: LD(orl-rat): >1 gm/kg
PEL: NE TLV: NE
STEL: NE

5.HEALTH HAZARD DATA - continued

ROUTE(S) OF ENTRY: Inhalation X Ingestion X Skin X

TARGET ORGAN(S): Eyes, skin, respiratory tract, kidneys, liver, adrenal gland, reproductive organs.

CARCINOGENICITY: NTP Yes IARC No OSHA No

HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:

EYES: Irritant.

SKIN: Irritant.

INGESTION: Irritant. May cause severe gastrointestinal disturbance.

INHALATION: Irritant. May cause narcosis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye, skin, and respiratory conditions

6.PRECAUTIONARY MEASURES

PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat

HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.

STORAGE: Cool, dry, well-ventilated area. Avoid direct sunlight.

7.EMERGENCY AND FIRST AID PROCEDURES

EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with soap and water.

INGESTION: Give large amounts of water. Call physician. Induce vomiting under direction of physician.

INHALATION: Remove to fresh air. Call physician.

8.SPILL AND DISPOSAL PROCEDURES

SPILL OR RELEASE: Absorb with vermiculite or other inert material. Containerize for later disposal.

DISPOSAL: Incineration or other method to comply with all local, state, and federal regulations.

NA = Not applicable
ND = Not determined
NE = Not established

This Material Safety Data Sheet has been prepared in accordance with 29 CFR Part 1910.1200 and contains information believed to be accurate and complete at the date of preparation. However, no warranty is expressed or implied. Advice given under "Spill and Disposal Procedures" assumes compliance with federal, state, and local regulations regarding the disposal of hazardous waste.

DATE PREPARED: April 1998

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

PHLOROGLUCINOL DIHYDRATE

PRODUCT IDENTIFICATION:

Synonyms: 1,3,5-Benzenetriol; benzene-s-triol

Formula CAS No.: 6099-90-7 (hydrated)

TSCA CAS No.: 108-73-6 (anhydrous)

Molecular Weight: 162.14

Chemical Formula: $C_6H_6O_3 \cdot 2H_2O$

Hazardous Ingredients: Phloroglucinol dihydrate

PRECAUTIONARY MEASURES

WARNING! CAUSES IRRITATION TO SKIN AND EYES. MAY BE HARMFUL IF SWALLOWED OR INHALED.

Do not breathe dust.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. In case of contact, immediately flush skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, call a physician immediately.
SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White powder.

Odor: No information found.

Solubility: Soluble in 100 parts water.

Boiling Point: No information found.

Melting Point: 218-221°C (424-430ca. F)

Specific Gravity: No information found.

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage. Discolors in light. Sublimes with decomposition.

Hazardous Decomposition Products:
May form carbon oxides and nitrogen oxides when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong oxidizers.

SECTION 4 Leak/Spill Disposal Information

Remove all sources of ignition. Ventilate area of leak or spill. Clean-up personnel may require protection from inhalation of dust.

Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools. Pick up spill for recovery or disposal and place in a closed container.

Disposal: Whatever cannot be saved for recovery may be burned in an approved incinerator or disposed in an approved waste facility.

Ensure compliance with local, state and federal regulations.

24-000150

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Information on the human health effects from exposure to this substance is limited.

Inhalation:
No information found, but compound should be handled as a potential health hazard.

Ingestion:
No information found, but compound should be handled as a potential health hazard.

Skin Contact:
Causes skin irritation.

Eye Contact:
Causes irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, call a physician immediately.

Skin Exposure:
Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

For Anhydrous Phloroglucinol : Oral rat
LD50: 5200 mg/kg mutation references cited

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
A local exhaust system which captures the contaminant at its source is recommended to prevent dispersion of the contaminant into the workroom air.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances.

OR404

WWW_104(e)_017379

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Lab

44-

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Phosphate Acid Reagent Vials
Catalog Number: 27429

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M01616
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: Causes eye burns. Harmful if inhaled. Carcinogen.
Date of MSDS Preparation:
Day: 05
Month: August
Year: 1998

2. COMPOSITION / INFORMATION ON INGREDIENTS

Demineralized Water
CAS No.: 7732-18-5
TSCA CAS Number: 7732-18-5
Percent Range: 90.0 - 100.0
Percent Range Units: volume / volume
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: No effects anticipated.

Sulfuric Acid
CAS No.: 7664-93-9
TSCA CAS Number: 7664-93-9
Percent Range: 1.0 - 5.0
Percent Range Units: volume / volume
LD50: Oral rat LD50 = 2140 mg/kg.
LC50: Inhalation rat LC50 = 87 ppm/4 hr
TLV: 1 mg/m^3 (TWA); 3 mg/m^3 (STEL)
PEL: 1 mg/m^3
Hazard: Causes severe burns. Harmful if inhaled. Recognized carcinogen.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless liquid
Odor: None
CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION
CANCER HAZARD CONTAINS SULFURIC ACID WHICH CAN CAUSE CANCER

HMIS:
Health: 4
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 3
Flammability: 0
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: Causes eye burns.
Skin Contact: No effects are anticipated
Skin Absorption: None reported
Target Organs: None reported
Ingestion: Causes: irritation of the mouth and esophagus May cause: vomiting diarrhea
Target Organs: None reported
Inhalation: May cause: respiratory tract irritation teeth erosion mouth soreness difficult breathing
Target Organs: Lungs
Medical Conditions Aggravated: Pre-existing: Eye conditions Respiratory conditions
Chronic Effects: Chronic overexposure may cause erosion of the teeth chronic irritation or inflammation of the lungs cancer
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes.
This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn. During a fire, irritating and highly toxic gases may be generated by thermal decomposition.
Flash Point: Not applicable

Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: This product will not burn or explode.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9. Use sulfuric or citric acid to lower pH. Use soda ash or sodium bicarbonate to increase pH. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Mixture contains a component which is regulated as a water pollutant. Product is regulated as RCRA hazardous waste.
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: 154

7. HANDLING / STORAGE

Handling: Avoid contact with eyes Do not breathe mist or vapors. Use with adequate ventilation. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Store between 10° and 25°C.
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin Do not breathe: mist/vapor Use with adequate ventilation. Protect from: heat
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: None
pH: Not determined
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: Not determined
Melting Point: Not applicable
Specific Gravity (water = 1): Not determined
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
- ***Water:*** Soluble
- ***Acid:*** Not determined
- ***Other:*** Not determined

Metal Corrosivity:
- ***Steel:*** Not determined
- ***Aluminum:*** Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures Heating to decomposition.
Reactivity / Incompatibility: Incompatible with: alkalies oxidizers reducers
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
- ***LD50:*** None reported
- ***LC50:*** None reported
- ***Dermal Toxicity Data:*** None reported
- ***Skin and Eye Irritation Data:*** Skin irritation testing performed on 10% sulfuric acid showed SLIGHT to NO IRRITATION effects
- ***Mutation Data:*** None reported
- ***Reproductive Effects Data:*** None reported

Ingredient Toxicological Data: Sulfuric acid: oral rat LD50 = 2140 mg/kg; inhalation rat LC50 = 87 ppm/4h

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002
Special Instructions (Disposal): Work in an approved fume hood. Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (< 10% Sulphuric Acid Solution)
DOT Hazard Class: 8
DOT Subsidiary Risk: NA
DOT ID Number: UN3264
DOT Packing Group: III
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (<10 % Sulphuric Acid Solution)
ICAO Hazard Class: 8
ICAO Subsidiary Risk: NA
ICAO ID Number: UN3264
ICAO Packing Group: III
I.M.O.:
I.M.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (<10 % Sulphuric Acid Solution)
I.M.O. Hazard Class: 8
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: UN3264
I.M.O. Packing Group: III

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Sulfuric Acid 1000 lbs.
304 CERCLA RQ (40 CFR 302.4): Sulfuric Acid 1000 lbs.
304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Sulfuric acid - RQ 1000 lbs.
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Standard solution
References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. In-house information. Technical Judgment. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. Vendor Information. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY ©1999

PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

WOLVERINE WORLD WIDE INC
TANNING DIVISION,RX-1-01
123 N MAIN STREET
ATTN: SHARON DELANEY
ROCKFORD ,MI 49351

UNIVAR USA INC. (425)889-3400
17425 NE UNION HILL RD , REDMOND , WA 98052

---------- EMERGENCY ASSISTANCE ----------

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

PRODUCT NAME: PHOSPHORIC ACID

MSDS NUMBER: MZP3973

DATE ISSUED: 2/15/2006

SUPERSEDES: 12/10/2004

ISSUED BY: 008614

==========
PHOSPHORIC ACID
==========

1. PRODUCT IDENTIFICATION

SYNONYMS: ORTHO-PHOSPHORIC ACID; WHITE PHOSPHORIC ACID
CAS NO: 7664-38-2
MOLECULAR WEIGHT: 98.00
CHEMICAL FORMULA: H_3PO_4 IN H_2O

Distributed by:
Univar USA Inc.
17425 NE Union Hill Road
Redmond, WA 98052

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PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

425-889-3400

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2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO	PERCENT	HAZARDOUS
PHOSPHORIC ACID	7664-38-2	55 - 95%	YES
WATER	7732-18-5	5 - 45%	NO

==========

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED.

POTENTIAL HEALTH EFFECTS

INHALATION:
INHALATION IS NOT AN EXPECTED HAZARD UNLESS MISTED OR HEATED TO HIGH TEMPERATURES. MIST OR VAPOR INHALATION CAN CAUSE IRRITATION TO THE NOSE, THROAT, AND UPPER RESPIRATORY TRACT. SEVERE EXPOSURES CAN LEAD TO A CHEMICAL PNEUMONITIS.

INGESTION:
CORROSIVE. MAY CAUSE SORE THROAT, ABDOMINAL PAIN, NAUSEA, AND SEVERE BURNS OF THE MOUTH, THROAT, AND STOMACH. SEVERE EXPOSURES CAN LEAD TO SHOCK, CIRCULATORY COLLAPSE, AND DEATH.

SKIN CONTACT:
CORROSIVE. MAY CAUSE REDNESS, PAIN, AND SEVERE SKIN BURNS.

EYE CONTACT:
CORROSIVE. MAY CAUSE REDNESS, PAIN, BLURRED VISION, EYE BURNS, AND PERMANENT EYE DAMAGE.

CHRONIC EXPOSURE:
NO INFORMATION FOUND.

AGGRAVATION OF PRE-EXISTING CONDITIONS:
PERSONS WITH PRE-EXISTING SKIN DISORDERS OR EYE PROBLEMS, OR IMPAIRED RESPIRATORY FUNCTION MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THE SUBSTANCE.

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PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

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4. FIRST AID MEASURES

INHALATION:
REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN IMMEDIATELY.

INGESTION:
IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE LARGE QUANTITIES OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN, IMMEDIATELY. WASH CLOTHING BEFORE REUSE.

EYE CONTACT:
IMMEDIATELY FLUSH EYES WITH GENTLE BUT LARGE STREAM OF WATER FOR AT LEAST 15 MINUTES, LIFTING LOWER AND UPPER EYELIDS OCCASIONALLY. CALL A PHYSICIAN IMMEDIATELY.

==========

5. FIRE FIGHTING MEASURES

FIRE:
NOT CONSIDERED TO BE A FIRE HAZARD. CONTACT WITH MOST METALS CAUSES FORMATION OF FLAMMABLE AND EXPLOSIVE HYDROGEN GAS.

EXPLOSION:
NOT CONSIDERED TO BE AN EXPLOSION HAZARD.

FIRE EXTINGUISHING MEDIA:
USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE. WATER SPRAY MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL. IF WATER IS USED, USE IN ABUNDANCE TO CONTROL HEAT AND ACID BUILD-UP.

SPECIAL INFORMATION:
IN THE EVENT OF A FIRE, WEAR FULL PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

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6. ACCIDENTAL RELEASE MEASURES

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VENTILATE AREA OF LEAK OR SPILL. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS SPECIFIED IN SECTION 8. ISOLATE HAZARD AREA. KEEP UNNECESSARY AND UNPROTECTED PERSONNEL FROM ENTERING. CONTAIN AND RECOVER LIQUID WHEN POSSIBLE. NEUTRALIZE WITH ALKALINE MATERIAL (SODA ASH, LIME), THEN ABSORB WITH AN INERT MATERIAL (E. G., VERMICULITE, DRY SAND, EARTH), AND PLACE IN A CHEMICAL WASTE CONTAINER. DO NOT USE COMBUSTIBLE MATERIALS, SUCH AS SAW DUST. DO NOT FLUSH TO SEWER! US REGULATIONS (CERCLA) REQUIRE REPORTING SPILLS AND RELEASES TO SOIL, WATER AND AIR IN EXCESS OF REPORTABLE QUANTITIES. THE TOLL FREE NUMBER FOR THE US COAST GUARD NATIONAL RESPONSE CENTER IS (800) 424-8802.

==========

7. HANDLING AND STORAGE

KEEP IN A TIGHTLY CLOSED CONTAINER. PROTECT FROM PHYSICAL DAMAGE. STORE IN A COOL, DRY, VENTILATED AREA AWAY FROM SOURCES OF HEAT, MOISTURE, INCOMPATIBILITIES, AND DIRECT SUNLIGHT. CORROSIVE TO MILD STEEL. STORE IN RUBBER LINED OR 316 STAINLESS STEEL DESIGNED FOR PHOSPHORIC ACID. DO NOT WASH OUT CONTAINER AND USE IT FOR OTHER PURPOSES. WHEN DILUTING, THE ACID SHOULD ALWAYS BE ADDED SLOWLY TO WATER AND IN SMALL AMOUNTS. NEVER USE HOT WATER AND NEVER ADD WATER TO THE ACID. WATER ADDED TO ACID CAN CAUSE UNCONTROLLED BOILING AND SPLASHING. PROTECT FROM FREEZING. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (VAPORS, LIQUID); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT.

==========

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS:
-OSHA PERMISSIBLE EXPOSURE LIMIT (PEL):
1 MG/M3 (TWA)

-ACGIH THRESHOLD LIMIT VALUE (TLV):
1 MG/M3 (TWA), 3 MG/M3 (STEL)

VENTILATION SYSTEM:
A SYSTEM OF LOCAL AND/OR GENERAL EXHAUST IS RECOMMENDED TO KEEP EMPLOYEE EXPOSURES BELOW THE AIRBORNE EXPOSURE LIMITS. LOCAL EXHAUST VENTILATION IS GENERALLY PREFERRED BECAUSE IT CAN CONTROL THE EMISSIONS OF THE CONTAMINANT AT ITS SOURCE, PREVENTING DISPERSION OF IT INTO THE GENERAL WORK AREA. PLEASE REFER TO THE ACGIH DOCUMENT, "INDUSTRIAL VENTILATION, A MANUAL OF RECOMMENDED PRACTICES", MOST RECENT EDITION, FOR DETAILS.

PERSONAL RESPIRATORS (NIOSH APPROVED):

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IF THE EXPOSURE LIMIT IS EXCEEDED, A FULL FACEPIECE RESPIRATOR WITH HIGH EFFICIENCY DUST/MIST FILTER MAY BE WORN UP TO 50 TIMES THE EXPOSURE LIMIT OR THE MAXIMUM USE CONCENTRATION SPECIFIED BY THE APPROPRIATE REGULATORY AGENCY OR RESPIRATOR SUPPLIER, WHICHEVER IS LOWEST. FOR EMERGENCIES OR INSTANCES WHERE THE EXPOSURE LEVELS ARE NOT KNOWN, USE A FULL-FACEPIECE POSITIVE-PRESSURE, AIR-SUPPLIED RESPIRATOR. WARNING: AIR PURIFYING RESPIRATORS DO NOT PROTECT WORKERS IN OXYGEN-DEFICIENT ATMOSPHERES.

SKIN PROTECTION:
WEAR IMPERVIOUS PROTECTIVE CLOTHING, INCLUDING BOOTS, GLOVES, LAB COAT, APRON OR COVERALLS, AS APPROPRIATE, TO PREVENT SKIN CONTACT.

EYE PROTECTION:
USE CHEMICAL SAFETY GOGGLES AND/OR A FULL FACE SHIELD WHERE SPLASHING IS POSSIBLE. MAINTAIN EYE WASH FOUNTAIN AND QUICK-DRENCH FACILITIES IN WORK AREA.

==========

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA BELOW REFERS TO CONCENTRATED PHOSPHORIC ACID.

APPEARANCE:
CLEAR, COLORLESS SYRUPY LIQUID.

ODOR:
ODORLESS.

SOLUBILITY:
MISCIBLE IN ALL PROPORTIONS IN WATER.

SPECIFIC GRAVITY:
1.69 @ 25C

PH:
1.5 (0.1 N AQUEOUS SOLUTION)

% VOLATILES BY VOLUME @ 21C (70F):
100

BOILING POINT:
158C (316F)

MELTING POINT:
21C (70F)

VAPOR DENSITY (AIR=1):
3.4

VAPOR PRESSURE (MM HG):
0.03 @ 20C (68F)

EVAPORATION RATE (BUAC=1):
NO INFORMATION FOUND.

==========

10. STABILITY AND REACTIVITY

STABILITY:
STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE. SUBSTANCE CAN

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PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

SUPERCOOL WITHOUT CRYSTALLIZING.

HAZARDOUS DECOMPOSITION PRODUCTS:
PHOSPHORUS OXIDES MAY FORM WHEN HEATED TO DECOMPOSITION.

HAZARDOUS POLYMERIZATION:
WILL NOT OCCUR.

INCOMPATIBILITIES:
LIBERATES EXPLOSIVE HYDROGEN GAS WHEN REACTING WITH CHLORIDES AND STAINLESS STEEL. CAN REACT VIOLENTLY WITH SODIUM TETRAHYDROBORATE. EXOTHERMIC REACTIONS WITH ALDEHYDES, AMINES, AMIDES, ALCOHOLS AND GLYCOLS, AZO-COMPOUNDS, CARBAMATES, ESTERS, CAUSTICS, PHENOLS AND CRESOLS, KETONES, ORGANOPHOSPHATES, EPOXIDES, EXPLOSIVES, COMBUSTIBLE MATERIALS, UNSATURATED HALIDES, AND ORGANIC PEROXIDES. PHOSPHORIC ACID FORMS FLAMMABLE GASES WITH SULFIDES, MERCAPTANS, CYANIDES AND ALDEHYDES. IT ALSO FORMS TOXIC FUMES WITH CYANIDES, SULFIDE, FLUORIDES, ORGANIC PEROXIDES, AND HALOGENATED ORGANICS. MIXTURES WITH NITROMETHANE ARE EXPLOSIVE.

CONDITIONS TO AVOID:
INCOMPATIBLES.

==========

11. TOXICOLOGICAL INFORMATION

ORAL RAT LD50: 1530 MG/KG; INVESTIGATED AS A MUTAGEN.

--------/CANCER LISTS/----------

INGREDIENT	---NTP CARCINOGEN--- KNOWN	ANTICIPATED	IARC CATEGORY
PHOSPHORIC ACID (7664-38-2)	NO	NO	NONE
WATER (7732-18-5)	NO	NO	NONE

==========

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
WHEN RELEASED INTO THE SOIL, THIS MATERIAL MAY LEACH INTO GROUNDWATER. WHEN RELEASED TO WATER, ACIDITY MAY BE READILY REDUCED BY NATURAL WATER HARDNESS MINERALS. THE PHOSPHATE, HOWEVER, MAY PERSIST INDEFINITELY.

ENVIRONMENTAL TOXICITY:
NO INFORMATION FOUND.

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PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

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13. DISPOSAL CONSIDERATIONS

WHATEVER CANNOT BE SAVED FOR RECOVERY OR RECYCLING SHOULD BE HANDLED AS HAZARDOUS WASTE AND SENT TO A RCRA APPROVED INCINERATOR OR DISPOSED IN A RCRA APPROVED WASTE FACILITY. PROCESSING, USE OR CONTAMINATION OF THIS PRODUCT MAY CHANGE THE WASTE MANAGEMENT OPTIONS. STATE AND LOCAL DISPOSAL REGULATIONS MAY DIFFER FROM FEDERAL DISPOSAL REGULATIONS.

DISPOSE OF CONTAINER AND UNUSED CONTENTS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS.

==========

14. TRANSPORT INFORMATION

DOMESTIC (LAND, D.O.T.)

PROPER SHIPPING NAME: PHOSPHORIC ACID SOLUTION
HAZARD CLASS: 8
UN/NA: UN1805 PACKING GROUP: III

INTERNATIONAL (WATER, I.M.O.)

PROPER SHIPPING NAME: PHOSPHORIC ACID SOLUTION
HAZARD CLASS: 8
UN/NA: UN1805 PACKING GROUP: III

==========

15. REGULATORY INFORMATION

--------/CHEMICAL INVENTORY STATUS - PART 1/----------

INGREDIENT	TSCA	EC	JAPAN	AUSTRALIA
PHOSPHORIC ACID (7664-38-2)	YES	YES	YES	YES
WATER (7732-18-5)	YES	YES	YES	YES

--------/CHEMICAL INVENTORY STATUS - PART 2/----------

INGREDIENT	KOREA	--CANADA-- DSL	NDSL	PHIL.
PHOSPHORIC ACID (7664-38-2)	YES	YES	NO	YES
WATER (7732-18-5)	YES	YES	NO	YES

--------/FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 1/----------

INGREDIENT	-SARA 302- RQ	TPQ	------SARA 313----- LIST	CHEMICAL CATG

WWW_104(e)_017392

PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

PHOSPHORIC ACID (7664-38-2)	NO	NO	NO	NO
WATER (7732-18-5)	NO	NO	NO	NO

--------/FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 2/----------

INGREDIENT	CERCLA	-RCRA- 261.33	-TSCA- 8(D)
PHOSPHORIC ACID (7664-38-2)	5000	NO	NO
WATER (7732-18-5)	NO	NO	NO

CHEMICAL WEAPONS CONVENTION: NO TSCA 12(B): NO CDTA: NO
SARA 311/312: ACUTE: YES CHRONIC: NO FIRE: NO PRESSURE: NO
REACTIVITY: NO (PURE / LIQUID)

AUSTRALIAN HAZCHEM CODE: 2R
POISON SCHEDULE: S5

WHMIS: THIS MSDS HAS BEEN PREPARED ACCORDING TO THE HAZARD CRITERIA OF THE CONTROLLED PRODUCTS REGULATIONS (CPR) AND THE MSDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

16. OTHER INFORMATION

NFPA RATINGS:
HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0

WWW_104(e)_017393

PRODUCT: PHOSPHORIC ACID

ORDER NO: 260218
PROD NO : 320130

---------- FOR ADDITIONAL INFORMATION ----------

CONTACT: MSDS COORDINATOR UNIVAR USA INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

02/16/09 11:57 PRODUCT: 320130 CUST NO: 149380 ORDER NO: 260218

---------- NOTICE ----------

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* * * E N D O F M S D S * * *

WWW_104(e)_017394

Material Safety Data Sheet

HAVILAND®

PHOSPHORIC ACID 75%

SECTION I - IDENTIFICATION

MANUFACTURER'S NAME ..... Haviland Products Company
MANUFACTURER'S ADDRESS ..... 421 Ann St., N.W., Grand Rapids, MI 49504
PHONE NUMBER ..... (616) 361-6691
EMERGENCY PHONE NUMBER ..... CHEMTREC (800) 424-9300
EFFECTIVE DATE 01/29/03
TRADE NAME ..... **PHOSPHORIC ACID 75%**
CHEMICAL FAMILY ..... Mineral Acid

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	OSHA PEL	TLV (Units)	CAS NUMBER
Phosphoric Acid (75% by wt)	1 mg/m3 TWA	1 mg/m3 TWA	7664-38-2

SECTION III - PHYSICAL DATA

BOILING POINT ..... 275.5°F (135.3°C)
FREEZING POINT ..... 0°F (-18°C)
VAPOUR PRESSURE ..... 6.5 @ 25°C
VAPOUR DENSITY (air=1) ..... Not Available
SOLUBILITY IN H20 ..... Completely
ODOUR AND APPEARANCE ..... Clear, Colorless Liquid; Odorless
SPECIFIC GRAVITY 1.574
pH ..... <2

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT AND METHOD OF DETERMINATION ..... Will Not Burn
LOWER EXPLOSIVE LIMIT (% by Volume) Not Applicable
UPPER EXPLOSIVE LIMIT (% by Volume) Not Applicable
MEANS OF EXTINCTION ..... As for Surrounding Fire.
SPECIAL FIRE FIGHTING PROCEDURES ..... Wear self contained breathing apparatus. If heated to decomposition, product emits toxic phosphorus pentoxide fumes.
UNUSUAL FIRE HAZARD ..... Phosphoric acid will not burn but can react with metals to liberate hydrogen gas that can form flammable or explosive mixtures with air.

SECTION V - HEALTH HAZARD DATA

CARCINOGENICITY, REPRODUCTIVE EFFECTS ..... None
NTP? ..... No
IARC MONOGRAPHS? ..... No
OVER EXPOSURE EFFECTS ..... Irritation, slightly toxic when inhaled or ingested. Causes redness and burns to exposed tissues.
PRIMARY ROUTE(S) OF ENTRY ..... Inhalation
SPECIFIC FIRST AID PROCEDURES ..... In case of contact: Immediately flush eyes and skin with plenty of water for at least 15 minutes. For eyes get medical attention. If inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get

WWW_104(e)_017395

Material Safety Data Sheet

medical attention. Ingestion: Do not induce vomiting. If conscious, give large quantities of water to dilute. Call a Physician Immediately.

EXPOSURE AGGRAVATED MEDICAL CONDITIONS: None Currently Known

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY	Stable
CONDITIONS TO AVOID	Not Applicable
INCOMPATIBLE MATERIALS	Alkalis, many metals.
HAZARDOUS DECOMPOSITION PRODUCTS	Toxic fumes of phosphorus pentoxide.
HAZARDOUS POLYMERIZATION	Will Not Occur
POLYMERIZATION AVOID	Not Applicable

SECTION VII - SPILL OR LEAK PROCEDURE

LEAK AND SPILL PROCEDURES	Wear acid vapor respirator and gloves. Soak up small spills with sand, earth, or absorbent. Scoop up and place in clean, dry, marked, lined steel containers. Neutralize with soda ash. Flush away residue with large quantities of water applied to entire spill area.
WASTE DISPOSAL	Dispose of spilled or waste material, contaminated soil and other contaminated material in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION	Supplied air or self contained breathing apparatus with full facepiece.
VENTILATION	To maintain vapors below limits.
PROTECTIVE GLOVES	Rubber or other impervious material.
EYE PROTECTION	Splash proof chemical goggles.
OTHER PROTECTIVE EQUIPMENT	For operations where spills or splashing may occur, use an impervious body covering and boots. A safety shower and eye bath should be available.
HANDLING PROCEDURES AND EQUIPMENT	Store away from heat and strong alkalis. Wear protective equipment during handling. Keep container closed when not in use. Never use pressure to empty. Do not store near organic or other readily oxidizable materials.

SECTION IX - SPECIAL PRECAUTIONS

HAZARD CLASS	Corrosive, 8, PG III
DOT SHIPPING NAME	PHOSPHORIC ACID
UN NUMBER	UN1805
REPORTABLE QUANTITY (RQ)	6,666lbs.

REFERENCES: HMIS RATING; H-3, F-0, R-1, PPE-I+s
PHSACD75

Disposal
S 12-000118D
Phosphoric Acid 75%

Material Safety Data Sheet

NFPA	Protective Clothing	DOT

Section I. Product Identification and Uses

Common/Trade name	Prayphos Codex 75%	CI#	Not applicable.
Synonyms	Phosphoric acid 75% codex solution; orthophosphoric acid 75%.	TSCA	TSCA Inventory: Phosphoric acid
Chemical name	Phosphoric acid 75% solution.		
Chemical formula	H3PO4	CAS#	7664-38-2
Chemical family	Acid.	Code	Q00322
Supplier	Quadra Chemicals Inc. 13801 Reese Blvd. West. Suite 190; Huntersville NC 28078 USA Tel: (704) 875-9968, Fax: (704) 875-9847	Molecular weight	Not applicable.
		Manufacturer	Prayon-Rupel
Material uses	Other non specified industry: Acidification of beverages. Sugar refining.		

Section IA. First Aid Measures

Eye contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.
Skin contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Hazardous skin contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Slight inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Hazardous inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Slight ingestion	DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Give water or milk. Seek immediate medical attention.
Hazardous ingestion	No additional information.

Section II. Hazardous Ingredients

Name	CAS #	% by Weight	TLV/PEL	LC_{50}/LD_{50}
1) Phosphoric acid	7664-38-2	75		ORAL LD50: Acute 1530mg/kg [Rat] DERMAL LD50: Acute 2740 mg/kg [Rabbit]

Section III. Physical Data

Physical state and appearance	Liquid. (Syrupy liquid.)
pH (1% soln/water)	Acidic.
Odor threshold	Not available.
Volatility	Not available.
Melting point	21°C (69.8°F)
Boiling point	158°C (316.4°F)
Specific gravity	1.686 (Water = 1)
Vapor density	Not available.
Vapor pressure	2.16 mm of Hg (@ 20°C)
Evaporation rate	
Viscosity	
$LogK_{ow}$	Not available.
Ionicity (surface active agent)	Not available.
Critical temperature	Not available.
Ignitability temperature	Not available.
Conditions of instability	No additional remark.
Dispersion properties	See solubility in water.
Solubility	Soluble in water.

Odor	Odourless.
Taste	Not available.
Color	Colourless.

Section IV. Fire and Explosion Data

The product is:	Non-flammable.
Auto-ignition temperature	Not applicable.
Fire degradation products	Phosphorous oxides may be released. This may form an explosive mixture with air when in contact with certain metals.
Flash points	Not applicable.
Flammable limits	Not applicable.
Fire extinguishing procedures	Wear NIOSH approved self-contained breathing apparatus (SCBA) when either in confined areas or exposed to combustion products. Use water spray to cool fire exposed containers. Water spray may also be used to control vapours.
Flammability	Not applicable.
	Remark
Risks of explosion	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
	Remark

Section V. Reactivity Data

Stability	The product is stable. Avoid contact with bases, fluorides, silicides, carbides, strong oxidizing and reducing agents. Product also attacks metals.
Hazardous decomp. products	Not available.
Degradability	Not available.
Products of degradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
	Remark
Corrosivity	No specific information is available in our database regarding the corrosivity of this product in presence of various materials.
	Remark
Reactivity	Bases. Sulphides, phosphides, cyanides, acetylides, fluorides, silicides and carbides.
	Remark

Section VI. Toxicological Properties

Routes of entry	Absorbed through skin. Eye contact. Inhalation. Ingestion.
TLV	TWA: 1 STEL: 3 Consult local authorities for acceptable exposure limits.
Toxicity for animals	Acute oral toxicity (LD50): 1530 mg/kg [Rat]. Acute dermal toxicity (LD50): 2740 mg/kg [Rabbit].
	Remark
Chronic effects on humans	
	Remark
Acute effects on humans	
	Remark

Section VII. Preventive Measures

Waste disposal	Neutralized product may be deposited in a chemical dump.
	Not available.
Storage	Corrosive materials should be stored in a separate safety storage cabinet or room. Keep container tightly closed in a cool, well-ventilated place. Protect from freezing. Keep away from incompatibles. To prevent crystallization of concentrated phosphoric acid solutions, minimum storage temperatures are 21°C for 85% solution, 4°C for 80% solution and -18°C for 75% solution.
Precautions	Keep locked up. Keep container dry. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.
Small spill and leak	Absorb with an inert material and place in an appropriate waste disposal container. Small spills may be neutralized with sodium bicarbonate or a mixture of soda ash/slaked lime.
Large spill and leak	Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Larger spills shall be recovered and placed in a suitable container. Once recovered, the solution may then be cautiously neutralized with lime (CaO) or soda ash (Na_2CO_3).
Protective Clothing	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Vapor respirator or a self contained breathing apparatus.

Section VIII: Classification

DOT

DOT CLASS: Corrosive liquid.

Phosphoric acid; Class 8; UN1805; Packing Group III

Remark

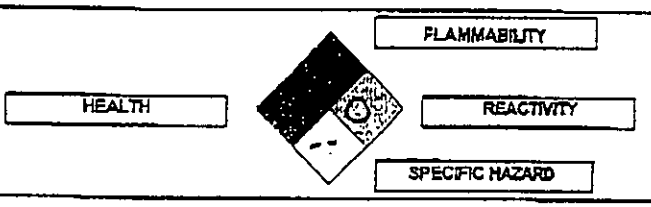
Maritime transportation

Remark

HCS

Remark

NFPA



Federal and State Regulations

Section IX: Protective Clothing

Face shield. Full suit. Gloves (impervious). Boots. Vapor respirator or a self contained breathing apparatus.

Section X: Other Information

References -Manufacturer's Material Safety Data Sheet.

Validated by QCL on 2/2/2001.

Verified by QCL.

Printed 3/14/2001.

EMERGENCY - 24HRS/DAY (CHEMTREC) 1-800-424-9300

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THE ALBRIGHT AND WILSON COMPANY MATERIAL SAFETY DATA SHEET

THE ALBRIGHT AND WILSON COMPANY
ENVIRONMENTAL SERVICES

P. O. BOX 26229
RICHMOND, VA. 23260-6229 (USA)

********** PRODUCT IDENTIFICATION **********

ALBRITE PHOSPHORIC ACID 75 PCT., TECH GRADE

SUPPLIER:
THE ALBRIGHT AND WILSON COMPANY

CHEMICAL NAMES AND SYNONYMS:
PHOSPHORIC ACID

USE OR DESCRIPTION:
INDUSTRIAL CHEMICAL

HEALTH EMERGENCY TELEPHONE:
(303)554-1229

TRANSPORT EMERGENCY TELEPHONE:
(800)424-9300(CHEMTREC)

OTHER DESIGNATION:
725

********** TYPICAL CHEMICAL AND PHYSICAL PROPERTIES **********

APPEARANCE:
COLORLESS LIQUID

ODOR:
ODORLESS

RELATIVE DENSITY: 15/4 C
1.58

MELTING POINT: F(C)
-6(-21)

BOILING POINT: F(C)
275(135)

VAPOR PRESSURE:MM HG 20C
5.7

VISCOSITY: AT 100 F, SUS
51.4

AT 40 C, CS
7.8

VISCOSITY: AT 210 F, SUS
34.7

AT 100 C, CS
2.4

SOLUBILITY IN WATER:
COMPLETE

PH:
1.0

POUR POINT: F(C)
NA

FLASH POINT: F(C) (METHOD)
NA

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

********** INGREDIENTS **********

	WT PCT (APPROX)	PEL MG/M3	PEL PPM	TLV(TWA) MG/M3	TLV(TWA) PPM
HAZARDOUS INGREDIENTS:					
PHOSPHORIC ACID (7664-38-2)	75	1		1	

NOTE: TLVS SHOWN FOR GUIDANCE ONLY. FOLLOW APPLICABLE REGULATIONS.

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********** FIRE AND EXPLOSION HAZARD DATA **********

FLASH POINT: F(C) (METHOD) FLAMMABLE LIMITS: LEL UEL
NA NA NA
EXTINGUISHING MEDIA:
NOT APPLICABLE
SPECIAL FIRE FIGHTING PROCEDURES:
FIREFIGHTERS MUST USE RECOMMENDED PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS. COOL STORAGE DRUMS WITH WATER SPRAY. THIS MATERIAL WILL NOT BURN.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN.

********** EMERGENCY AND FIRST AID PROCEDURES **********
EYE CONTACT:
FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES. GET IMMEDIATE MEDICAL ASSISTANCE. IF MEDICAL ASSISTANCE IS NOT IMMEDIATELY AVAILABLE, FLUSH AN ADDITIONAL 15 MINUTES.

SKIN CONTACT:
IF WIDESPREAD CONTACT, IMMEDIATELY REMOVE CONTAMINATED CLOTHING UNDER SAFETY SHOWER AND WASH EXPOSED AREAS WITH SOAP AND LARGE QUANTITIES OF WATER. GET MEDICAL ASSISTANCE. FOR LESSER CONTACT: WASH CONTACT AREAS WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
INHALATION:
REMOVE FROM FURTHER EXPOSURE. IF UNCONSCIOUSNESS OCCURS, SEEK IMMEDIATE MEDICAL ASSISTANCE AND CALL A PHYSICIAN. IF BREATHING HAS STOPPED, USE MOUTH TO MOUTH RESUSCITATION. KEEP AFFECTED PERSON WARM.

INGESTION:
DO NOT INDUCE VOMITING. GIVE LARGE QUANTITIES OF MILK OR WATER. GET MEDICAL ASSISTANCE AND CALL A PHYSICIAN IMMEDIATELY. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

********** REACTIVITY DATA **********
STABILITY: (THERMAL, LIGHT, ETC.) CONDITIONS TO AVOID:
STABLE REACTION OF THE MATERIAL WITH ACTIVE METALS (IE AL, ZN, FE, ETC.) CAN LIBERATE HYDROGEN.
INCOMPATIBILITY: (MATERIALS TO AVOID)
ACTIVE METALS
HAZARDOUS DECOMPOSITION PRODUCTS:
PHOSPHORUS OXIDES.
HAZARDOUS POLYMERIZATION: CONDITIONS TO AVOID:
WILL NOT OCCUR NE

********** SPILL OR LEAK PROCEDURE **********

ENVIRONMENTAL IMPACT:

REPORT SPILLS AS REQUIRED TO APPROPRIATE AUTHORITIES. U. S. COAST GUARD REGULATIONS REQUIRE IMMEDIATE REPORTING OF SPILLS THAT COULD REACH ANY WATERWAY INCLUDING INTERMITTENT DRY CREEKS. REPORT SPILL TO COAST GUARD TOLL FREE NUMBER 800-424-8802. IN CASE OF ACCIDENT OR ROAD SPILL NOTIFY CHEMTREC (800) 424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

PERSONNEL PERFORMING CLEANUP MUST USE PROTECTIVE EQUIPMENT. SPRINKLE HYDRATED LIME OR SODA ASH ON SPILL AREA. SCRAPE UP AND REMOVE. DISPOSE OF AT AN APPROPRIATE WASTE DISPOSAL FACILITY IN ACCORDANCE WITH CURRENT APPLICABLE LAWS AND REGULATIONS, AND PRODUCT CHARACTERISTICS AT TIME OF DISPOSAL.

WASTE MANAGEMENT:

SLOWLY ADD WASTE TO A LARGE VOLUME OF AGITATED SOLUTION OF SODA ASH AND SLAKED LIME. DISPOSE OF WASTE AT AN APPROPRIATE WASTE DISPOSAL FACILITY IN ACCORDANCE WITH CURRENT APPLICABLE LAWS AND REGULATIONS, AND PRODUCT CHARACTERISTICS AT TIME OF DISPOSAL.

********** SPECIAL PROTECTION INFORMATION **********

EYE PROTECTION:

CHEMICAL TYPE GOGGLES WITH FACE SHIELD MUST BE WORN.

SKIN PROTECTION:

PROTECTIVE CLOTHING SUCH AS UNIFORMS, COVERALLS OR LAB COATS SHOULD BE WORN. IMPERVIOUS GLOVES AND APRONS MUST BE WORN. WHEN HANDLING LARGE QUANTITIES, IMPERVIOUS SUITS AND BOOTS MUST BE WORN.

RESPIRATORY PROTECTION:

APPROVED RESPIRATORY PROTECTIVE EQUIPMENT MUST BE USED WHEN VAPOR OR MIST CONCENTRATIONS EXCEED APPLICABLE STANDARDS.

VENTILATION:

NO SPECIAL REQUIREMENTS UNDER ORDINARY CONDITIONS OF USE AND WITH ADEQUATE VENTILATION.

OTHER: PRIMARY ROUTE OF ENTRY-SKIN CONTACT

********** SPECIAL PRECAUTIONS **********

HANDLING: AVOID INHALATION OF VAPORS OR MISTS. AVOID ALL PERSONAL CONTACT.

STORAGE: STORE IN A DRY WELL VENTILATED LOCATION, AWAY FROM FIRE HAZARDS AND PROXIMITY TO ACTIVE METALS. EXERCISE DUE CAUTION TO PREVENT DAMAGE TO AND LEAKAGE FROM PRODUCT CONTAINERS.

STORED MATERIALS MUST BE LABELED AS: ALBRITE PHOSPHORIC ACID-75%.

THIS PRODUCT IS CLASSIFIED AS A CORROSIVE LIQUID, UN 1805 BY DOT.

********** HEALTH HAZARD DATA **********

ACUTE HEALTH HAZARDS

CORROSIVE; SEVERE IRRITANT TO EYES, SKIN AND MUCOUS MEMBRANES; INHALATION OF AEROSOL TOXIC TO RESPIRATORY TRACT; INGESTION CAN RESULT IN CORROSION OF GASTROINTESTINAL TRACT.

CARCINOGENICITY
LISTED: NTP NO IARC MONOGRAPHS NO OSHA REGULATED NO

SIGNS AND SYMPTOMS OF EXPOSURE:

STRONG IRRITATION OR BURNING OF EYES OR SKIN; INHALATION OF AEROSOLS CAN LEAD TO COUGH; INGESTION PRODUCES GASTRIC PAIN, NAUSEA AND VOMITING.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

SKIN DISEASES, RESPIRATORY DISEASES

SUBACUTE AND MUTAGENICITY (SUMMARY)

NONE KNOWN

CHRONIC OR SPECIALIZED (SUMMARY)

NONE KNOWN

TARGET ORGAN EFFECTS

SKIN, EYE, MUCOUS MEMBRANES (IRRITATION); GASTRONINTESTINAL TRACT (INGESTION).

OTHER DATA

NONE KNOWN

********** WARNING STATEMENTS **********

SECTION 313 SUPPLIER NOTIFICATION:

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND OF 40 CFR 372.

CAS #	CHEMICAL NAME	PERCENT BY WEIGHT
7664-38-2	PHOSPHORIC ACID	75

CALIFORNIA:
"WARNING: THIS PRODUCT MAY CONTAIN A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM".

ALL PHOSPHORUS COMPOUNDS MAY BE REASONABLY EXPECTED TO CONTAIN ARSENIC AND POSSIBLY CADMIUM AND/OR LEAD IN CONCENTRATIONS RANGING FROM A FEW PARTS PER BILLION TO A FEW PARTS PER MILLION.

PHOSPHORIC ACID, LIQUID
PHOSPHORIC ACID, LIQUID
PHOSPHORIC ACID, LIQUID

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY NUMBER: (201) 796-7100
CHEMTREC ASSISTANCE: (800) 424-9300

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SUBSTANCE IDENTIFICATION

SUBSTANCE: **PHOSPHORIC ACID, LIQUID** CAS-NUMBER 7664-38-2

TRADE NAMES/SYNONYMS:
WHITE PHOSPHORIC ACID; ORTHOPHOSPHORTIC ACID; META-PHOS-META-PHOSPHORIC ACID; ORTHO-PHOSPHORIC ACID; SONAC; EVITS; WC-REINIGER; A-242; A-365; A-365-P; A-260; H3O4P; UN 1805; STCC 4930248; ACC18691

CHEMICAL FAMILY:
Inorganic acid

PRODUCT USE:
Laboratory chemical

MOLECULAR FORMULA: H3-P-O4

MOLECULAR WEIGHT: 98.00

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=1 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: PHOSPHORIC ACID PERCENT: 85.0

COMPONENT: WATER PERCENT: 15.0

EXPOSURE LIMITS:
PHOSPHORIC ACID:
1 mg/m3 OSHA TWA; 3 mg/m3 OSHA STEL
1 mg/m3 ACGIH TWA; 3 mg/m3 ACGIH STEL
1 mg/m3 NIOSH recommended TWA; 3 mg/m3 NIOSH recommended STEL

Measurement method: Silica gel tube; sodium bicarbonate/sodium carbonate; ion chromatography; (NIOSH Vol. III # 7903, Inorganic Acids).

5000 pounds CERCLA Section 103 Reportable Quantity
Subject to SARA Section 313 Annual Toxic Chemical Release Reporting

OSHA revoked the final rule limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA) effective June 30, 1993. See 29 CFR 1910.1000 (58 FR 35338)

PHYSICAL DATA

DESCRIPTION: Odorless, colorless syrupy liquid.

BOILING POINT: 316 F (158 C) MELTING POINT: 70 F (21 C)

SPECIFIC GRAVITY: 1.685 VAPOR PRESSURE: 2.2 mmHg @ 21 C

EVAPORATION RATE: not available PH: 1.5 @ 0.1 N soln.

SOLUBILITY IN WATER: complete

SOLVENT SOLUBILITY: Soluble in alcohol

VISCOSITY: 28 cP @ 20 C

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
Negligible fire hazard when exposed to heat or flame.

FIREFIGHTING MEDIA:
Dry chemical, carbon dioxide, water spray or regular foam (1993 Emergency Response Guidebook, RSPA P 5800.6).

For larger fires, use water spray, fog or regular foam (1993 Emergency Response Guidebook, RSPA P 5800.6).

FIREFIGHTING:
Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks (1993 Emergency Response Guidebook, RSPA P 5800.6, Guide Page 60).

Use agent suitable for type of fire. Use water in flooding quantities as fog. Cool containers with flooding amounts of water, apply from as far a distance as possible. Avoid breathing corrosive vapors, keep upwind.

TRANSPORTATION DATA

U.S. DEPARTMENT OF TRANSPORTATION SHIPPING NAME-ID NUMBER, 49 CFR 172.101:
Phosphoric acid-UN 1805

U.S. DEPARTMENT OF TRANSPORTATION HAZARD CLASS OR DIVISION, 49 CFR 172.101:
8 - Corrosive material

U.S. DEPARTMENT OF TRANSPORTATION PACKING GROUP, 49 CFR 172.101:
PG III

U.S. DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS, 49 CFR 172.101 AND SUBPART E:
Corrosive

U.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:
EXCEPTIONS: 49 CFR 173.154
NON-BULK PACKAGING: 49 CFR 173.203
BULK PACKAGING: 49 CFR 173.241

U.S. DEPARTMENT OF TRANSPORTATION QUANTITY LIMITATIONS 49 CFR 172.101:
PASSENGER AIRCRAFT OR RAILCAR: 5 L
CARGO AIRCRAFT ONLY: 60 L

TOXICITY

PHOSPHORIC ACID:
IRRITATION DATA: 595 mg/24 hours skin-rabbit severe; 119 mg eye-rabbit severe.
TOXICITY DATA: 2740 mg/kg skin-rabbit LD50; 1530 mg/kg oral-rat LD50; 220 mg/kg unreported-man LDLo.
CARCINOGEN STATUS: None.
LOCAL EFFECTS: Corrosive- inhalation, skin, eye, ingestion.
ACUTE TOXICITY LEVEL: Moderately toxic by ingestion; slightly toxic by dermal absorption.
TARGET EFFECTS: No data available.
AT INCREASED RISK FROM EXPOSURE: Persons with pre-existing respiratory or skin disease.

HEALTH EFFECTS AND FIRST AID

INHALATION:
PHOSPHORIC ACID:
CORROSIVE.
See information on acidic corrosives.

ACIDIC CORROSIVES:
ACUTE EXPOSURE- May cause respiratory tract irritation with coughing, choking, and possibly burns of the mucous membranes. Other initial symptoms may include dizziness, headache, nausea and weakness. In some cases pulmonary edema may develop, either immediately in severe cases, or more likely after a latent period of 5-72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, and cyanosis. Physical findings may include hypotension, weak, rapid pulse and moist rales. Recovery may be prolonged and relapses are possible. In severe exposures, death due to anoxia may occur within a few hours after onset of pulmonary edema symptoms or following a relapse.
CHRONIC EXPOSURE- Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause erosion of the teeth, inflammatory and ulcerative changes in the mouth, and possibly jaw necrosis. Bronchial irritation with cough and frequent attacks of bronchial pneumonia may occur. Gastrointestinal disturbances are also possible.

FIRST AID- Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Maintain airway, blood pressure and respiration. Keep warm and at rest. Treat symptomatically and supportively. Get medical attention immediately. Qualified medical personnel should consider administering oxygen.

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SKIN CONTACT:
PHOSPHORIC ACID:
CORROSIVE.
Animal studies indicate that skin absorption may occur. See information on acidic corrosives.

ACIDIC CORROSIVES:
ACUTE EXPOSURE- Direct contact may cause severe pain, burns and possibly brownish or yellowish stains. Burns may be deep with sharp edges and heal slowly with scar tissue formation.
CHRONIC EXPOSURE- Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may result in dermatitis or effects similar to acute exposure.

FIRST AID- Remove contaminated clothing and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). If burns occur, proceed with the following: Cover affected area securely with sterile, dry, loose-fitting dressing. Treat symptomatically and supportively. Get medical attention immediately.

EYE CONTACT:
PHOSPHORIC ACID:
CORROSIVE.
Direct contact with a 0.16m solution buffered to pH 2.5 caused a moderate, brief stinging sensation, but no injury when applied as a single drop in human eyes. When adjusted to pH 3.4, a drop of the solution caused no discomfort. Irrigation of rabbit eyes for 5 minutes with pH 3.8 solution caused slight transient epithelial edema and conjunctival hyperemia, but the eye was normal within 24 hours. When injected into the corneal stroma or applied to the cornea after removal of the epithelium, it caused detectable injury below pH 5.5. Eye burns may result from splashes of concentrated solutions. See information on acidic corrosives.

ACIDIC CORROSIVES:
ACUTE EXPOSURE- Direct contact may cause pain, lacrimation, photophobia and burns. In mild burns, the epithelium regenerates rapidly and the eye recovers completely. In severe cases, the extent of injury may not be fully apparent for several weeks. Ultimately, the whole cornea may become deeply vascularized and opaque resulting in blindness. In the worst cases, the eye may be totally destroyed.
CHRONIC EXPOSURE- Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may cause conjunctivitis or effects as in acute exposure.

FIRST AID- Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15-20 minutes). Continue irrigating with normal saline until the pH has returned to normal (30-60 minutes). Cover with sterile bandages. Get medical attention immediately.

INGESTION:
PHOSPHORIC ACID:
CORROSIVE.
See information on acidic corrosives.

ACIDIC CORROSIVES:
ACUTE EXPOSURE- May cause circumoral burns with discoloration and corrosion of the mucous membranes of the mouth, throat and esophagus. There may be immediate pain and difficulty or inability to swallow or speak. Epiglottal edema may result in respiratory distress and possibly asphyxia. Marked thirst, nausea, vomiting and diarrhea may occur. Depending on the area and degree of corrosion, the vomitus may contain fresh or dark blood and large shreds of mucosa. Shock may occur with marked hypotension, weak and rapid pulse, shallow respiration, and clammy skin. Circulatory collapse may develop and if uncorrected, lead to renal failure. In severe cases, gastric and, to a lesser degree, esophageal perforation may occur with peritonitis accompanied by fever and abdominal rigidity. Esophageal, gastric or pyloric stricture may occur within a few weeks, or may be delayed for months or even years. Death may result within a short time from asphyxia, circulatory collapse or aspiration of even minute amounts. If death is delayed, it may be due to peritonitis, severe nephritis or pneumonia. Coma and convulsions sometimes occur terminally.
CHRONIC EXPOSURE- Depending on the concentration, repeated ingestion may result in inflammatory and ulcerative changes in the mucous membranes of the mouth and other effects as in acute ingestion.

FIRST AID- Do not use gastric lavage or emesis. Give large amounts of water or milk. Repeat if vomiting occurs. Ingested corrosive should be diluted approximately 100 times to render it harmless to tissues. (Dreisbach & Robertson; Handbook of Poisoning; 12th Ed.). Do not give anything by mouth to a person who is unconscious or otherwise unable to swallow. If vomiting occurs, keep head lower than hips to help prevent aspiration. Maintain airway and respiration. Treat symptomatically and supportively. Get medical attention immediately.

REACTIVITY

REACTIVITY:
PHOSPHORIC ACID-D3:
Reacts mildly with water and evolves heat.

INCOMPATIBILITIES:
PHOSPHORIC ACID:
BASES: Violent reaction.
CHLORIDES + STAINLESS STEEL: Reacts with liberation of explosive hydrogen gas.
FERROUS METALS AND ALLOYS: Very corrosive, expecially when heated.
GRANITE: Attacked by hot concentrated acid.
METALS: Reacts with liberation of explosive hydrogen gas.
NITROMETHANE: Forms detonable mixture.
PLASTICS, RUBBER, COATINGS: May be attacked.
PORCELAIN: Attacked by hot concentrated acid.
SODIUM TETRAHYDROBORATE: Generates heat and may be explosive on rapid mixing.

DECOMPOSITION:
Thermal decomposition may release toxic oxides of phosphorus.

POLYMERIZATION:
Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

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preventative measures

STORAGE AND DISPOSAL

Observe all federal, state and local regulations when storing or disposing of this substance.

Storage

Protect against physical damage. Store in cool, dry, well ventilated location, away from any area where the fire hazard may be acute (NFPA 49, Hazardous Chemicals Data, 1975).

Store away from incompatible substances.

Disposal

Disposal must be in accordance with standards applicable to generators of hazardous waste, 40 CFR 262. EPA Hazardous Waste Number D002.
100 pound CERCLA Section 103 Reportable Quantity.

****

CONDITIONS TO AVOID

May burn but does not ignite readily. Flammable, poisonous gases may accumulate in tanks and hopper cars. May ignite combustibles (wood, paper, oil, etc.).

****

SPILL AND LEAK PROCEDURES

SOIL SPILL:
Dig a holding area such as a pit, pond or lagoon to contain spill and dike surface flow using barrier of soil, sandbags, foamed polyurethane or foamed concrete. Absorb liquid mass with fly ash or cement powder.

Neutralize spill with slaked lime, sodium bicarbonate or crushed limestone.

AIR SPILL:
Knock down vapors with water spray. Keep upwind.

Water used to knock down vapors may become corrosive or toxic and should be contained properly for later disposal.

WATER SPILL:
Neutralize with agricultural lime, slaked lime, crushed limestone, or sodium bicarbonate.

Use mechanical dredges or lifts to extract immobilized masses of pollution and precipitates.

OCCUPATIONAL SPILL:
Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For small dry spills, with clean shovel place material into clean, dry container and cover. Move containers from spill area. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

Reportable Quantity (RQ): 5000 pounds

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The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

PROTECTIVE EQUIPMENT

VENTILATION:
Provide local exhaust ventilation system to meet published exposure limits.

RESPIRATOR:
The following respirators and maximum use concentrations are recommendations by the U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards; NIOSH criteria documents or by the U.S. Department of Labor, 29 CFR 1910 Subpart Z.
The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

PHOSPHORIC ACID:
25 mg/m3- Any supplied-air respirator operated in a continuous flow mode.

50 mg/m3- Any supplied-air respirator with a full facepiece.
Any self-contained breathing apparatus with a full facepiece.
Any air-purifying full facepiece respirator with a high-efficiency particulate filter.

2000 mg/m3- Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive pressure mode.

Escape- Any air-purifying full facepiece respirator with a high-efficiency particulate filter.
Any appropriate escape-type self-contained breathing apparatus.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

CLOTHING:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent any possibility of skin contact with this substance.

GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:
Employee must wear splash-proof or dust-resistant safety goggles and a faceshield to prevent contact with this substance.

Emergency wash facilities:
Where there is any possibility that an employee's eyes and/or skin may be exposed to this substance, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

PREPARATION INFORMATION

Prepared by Occupational Health Services,Inc. for Fisher Scientific Group,Inc.

Fisher Scientific
Chemical Division
1 Reagent Lane
Fair Lawn, NJ 07410
201-796-7100

Fisher Scientific
112 Colonnade Road
Nepean, Ontario
K2E 7l6
613-226-8874

AUTHORIZED - FISHER SCIENTIFIC, INC.
CREATION DATE: 11/30/84 REVISION DATE: 07/29/94

-ADDITIONAL INFORMATION-

THIS INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, WE MAKE NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES.

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PhosVer ® 3 Phosphate Reagent
Catalog Number: 220999

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00038
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: Causes eye burns.
Date of MSDS Preparation:
Day: 21
Month: March
Year: 2007

2. COMPOSITION / INFORMATION ON INGREDIENTS

Potassium Pyrosulfate
CAS No.: 7790-62-7
TSCA CAS Number: 7790-62-7
Percent Range: 70.0 - 80.0
Percent Range Units: weight / weight
LD50: Oral rat LD50 = 2340 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: Causes eye burns.

Ascorbic Acid
CAS No.: 50-81-7
TSCA CAS Number: 50-81-7
Percent Range: 20.0 - 30.0
Percent Range Units: weight / weight
LD50: Oral rat LD50 = 11900 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: Practically non-toxic.

Sodium Molybdate
CAS No.: 10102-40-6
TSCA CAS Number: 7631-95-0
Percent Range: 1.0 - 10.0

Percent Range Units: weight / weight
LD50: Oral rat LD_{50} = 4000 mg/kg.
LC50: Inhalation rat LC50 = > 2080 mg/m³/4 hrs
TLV: 5 mg/m³ (as Mo)
PEL: 5 mg/m³ (as Mo)
Hazard: May cause irritation.

Other components, each
CAS No.: Not applicable
TSCA CAS Number: Not applicable
Percent Range: < 1.0
Percent Range Units: weight / weight
LD50: Not applicable
LC50: Not applicable
TLV: Not established
PEL: Not established
Hazard: Any ingredient(s) of this product listed as "Other component(s)" is not considered a health hazard to the user of this product.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: White to off-white powder
Odor: None
CAUSES EYE BURNS MAY CAUSE RESPIRATORY TRACT IRRITATION

HMIS:
Health: 3
Flammability: 1
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 3
Flammability: 1
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: Causes eye burns.
Skin Contact: No effects are anticipated
Skin Absorption: None reported
Target Organs: None reported
Ingestion: May cause: copper deficiency anemia gout loss of coordination loss of appetite listlessness diarrhea liver damage May effect enzyme activity.
Target Organs: Blood Liver
Inhalation: May cause: respiratory tract irritation Effects similar to those of ingestion.
Target Organs: Blood Liver
Medical Conditions Aggravated: Pre-existing: Eye conditions Respiratory conditions Gout
Chronic Effects: Chronic overexposure may cause copper deficiency enzyme activity effects liver damage Molybdenum poisoning signs include loss of appetite, listlessness and reduced growth rate. Excessive exposure to molybdenum compounds may cause gout and anemia.

Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen.
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: Toxic fumes of: sulfur oxides. carbon monoxide, carbon dioxide. sodium monoxide
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: Scoop up spilled material into a large beaker and dissolve with water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled.
Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: None

7. HANDLING / STORAGE

Handling: Avoid contact with eyes clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Store between 10° and 25°C.
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have a safety shower nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling. Protect from: heat
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White to off-white powder
Physical State: Solid
Molecular Weight: Not applicable
Odor: None
pH: of a 5% Solution = 1.1
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Boiling Point: Not applicable
Melting Point: 190 °C (374 °F)
Specific Gravity (water = 1): 2.17
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Metal Corrosivity:
Steel: Not applicable
Aluminum: Not applicable

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures
Reactivity / Incompatibility: Incompatible with: oxidizers dyes alkalies iron copper
Hazardous Decomposition: Heating to decomposition releases: carbon dioxide carbon monoxide sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Potassium Pyrosulfate Oral rat LD50 = 2340 mg/kg; Sodium Molybdate Oral rat LD50 = 4000 mg/kg, Inhalation rat LC50 > 2080mg/m^3/4hr; Ascorbic Acid Oral rat LD50 = 11.9 g/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: None
Special Instructions (Disposal): Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated
--
DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA
I.M.O.:

I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit
Hazard Class: 9 UN Number 3316.

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Contains no RCRA regulated substances.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): Not applicable
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Phosphate determination
References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. In-house information. Technical Judgment. Outside Testing. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Vendor Information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.
Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY ©2007

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PM-2020

HMIS RATING

HEALTH	2
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
1-METHYL-2-PYRROLIDONE	7.4	***	***	OSHA NOT ESTAB.
CAS NO. 872-50-4 SYN: N-METHYLPYRROLIDONE{1}				ACGIH NOT ESTAB.
2-(2-BUTOXYETHOXY)ETHANOL	1	***	***	OSHA NOT ESTAB
CAS NO. 112-34-5 SYN: DIETHYLENE GLYC.BE {1}				ACGIH NOT ESTAB.

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:230-395 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 8
WEIGHT PER GALLON: 8.81 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

GLYCOL ETHER IN SECTION 2 HAS A RELATIVELY LOW AUTOIGNITION TEMPERATURE: 442 DEGREES F.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

MAY CAUSE SEVERE EYE IRRITATION.

MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.

INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.

MAY CAUSE NARCOSIS IN HIGH CONCENTRATIONS.

DELAYED KIDNEY INJURY POSSIBLE FROM OVEREXPOSURE.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

N-METHYLPYRROLIDONE HAS BEEN SHOWN TO PRODUCE REPRODUCTIVE AND DEVELOMPMENTAL EFFECTS IN TEST ANIMALS AND THEIR EMBRYOS, BUT ONLY AT HIGH DOSES THAT ARE POTENTIALLY LETHAL TO THE TEST ANIMAL. THESE OBSERVATIONS ARE NOT THOUGHT TO BE RELEVANT TO OCCUPATIONAL USAGE OF N-METHYLPYRROLIDONE. TOXICOLOGICAL STUDIES ON EXPERIMENTAL ANIMALS INDICATE THAT N-METHYLPYRROLIDONE IS NOT A CARCINOGEN, MUTAGEN, TERATOGEN, OR REPRODUCTIVE TOXIN IN HUMANS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.

WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

AVOID BREATHING MISTS.

AVOID SKIN AND EYE CONTACT. AVOID INHALATION OF HIGH CONCENTRATIONS OF VAPOR.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

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3M

Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Leather Protector PM-4700
MANUFACTURER: 3M
DIVISION: 3M Specialty Materials

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 11/22/2002
Supercedes Date: 11/15/2002

Document Group: 17-9785-1

Product Use:
Specific Use: Leather Protector

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
WATER	7732-18-5	60 - 65
FLUOROCHEMICAL ACRYLATE POLYMER + (6542)	Trade Secret	26 - 30
ETHYLENE GLYCOL	107-21-1	6 - 10
SURFACTANTS + (6541)	Trade Secret	1 - 2

New Jersey Trade Secret Registry (EIN) 04499600-+

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Off-white emulsion with typical odor.
General Physical Form: Liquid
Immediate health, physical, and environmental hazards: May cause target organ effects.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Single exposure may cause:
Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Inhalation:
Prolonged or repeated exposure may cause:
Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:
Ingestion may cause:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Kidney Effects: Signs/symptoms may include reduced or absent urine production, increased serum creatinine, lower back pain, increased protein in urine, and increased blood urea nitrogen (BUN).

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*

5.2 EXTINGUISHING MEDIA

Material will not burn.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid eye contact with vapors, mists, or spray. Avoid breathing of vapors, mists or spray. Avoid prolonged or repeated skin contact.

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. For industrial or professional use only. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

7.2 STORAGE

Keep container in well-ventilated area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust when product is heated. Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation on open containers.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray. Avoid eye contact.
The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Gloves not normally required.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.
Gloves made from the following material(s) are recommended: Fluoroelastomer (Viton).

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray.
Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Fullface supplied-air respirator. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
ETHYLENE GLYCOL	ACGIH	CEIL - specific form	39.4 ppm	as aerosol; Table A4
ETHYLENE GLYCOL	OSHA	CEIL	50 ppm	Table Z-1A

SOURCE OF EXPOSURE LIMIT DATA:
ACGIH: American Conference of Governmental Industrial Hygienists
CMRG: Chemical Manufacturer Recommended Guideline
OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Off-white emulsion with typical odor.
General Physical Form:	Liquid
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*
Boiling point	100 °C
Density	1.1 g/ml
Vapor Density	0.67 [*Ref Std:* AIR=1]
Vapor Pressure	Approximately 18 mmHg [@ 20 °C]
Specific Gravity	1.1 [*Ref Std:* WATER=1]
pH	5 - 8
Melting point	*Not Applicable*
Solubility in Water	Complete
Evaporation rate	*No Data Available*
Volatile Organic Compounds	84 g/l [*Test Method:* South Cost Air Qual Mgmt Dist]
Percent volatile	Approximately 70 %
VOC Less H2O & Exempt Solvents	267 g/l [*Test Method:* South Cost Air Qual Mgmt Dist]
Viscosity	<=10 centipoise

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Fluoride	During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Test Organism	Test Type	Result
Green algae, Selenastrum capricornutum	96 hours Effect Concentration 50%	>100 mg/l
Fathead Minnow, Pimephales promelas	96 hours Lethal Concentration 50%	>100 mg/l
Water flea, Daphnia magna	48 hours Effect Concentration 50%	>100 mg/l
Activated Sludge,	3 hours No obs Effect Conc	>1000 mg/l

CHEMICAL FATE INFORMATION

Test Type	Result	Protocol
Biological Oxygen Demand	27 % weight	OECD 301D - Closed Bottle Test

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste. Combustion products will include HF. Facility must be capable of handling halogenated materials.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):
ZF-0002-1411-2, ZF-0002-1412-0, ZF-0002-1440-1

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
ETHYLENE GLYCOL	107-21-1	6 - 10

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

WHMIS: Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 3 **Flammability:** 0 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 1 Flammability: 0 Reactivity: 0 Protection: X - See PPE section.

Hazardous Material Identification System (HMIS(r)) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS(r) ratings are to be used with a fully implemented HMIS(r) program. HMIS(r) is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:
Section 12: Ecotoxicological information was modified.
Section 12: Chemical fate information was added.
Section 12: Ecotoxicological information was deleted.
Section 12: Chemical Fate information was deleted.

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Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SCOTCHGARD (TM) Leather Protector PM-4701
MANUFACTURER: 3M
DIVISION: Protective Materials & Consumer Specialties Division

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 12/27/2005
Supercedes Date: 11/25/2003

Document Group: 18-0476-4

Product Use:
Specific Use: Leather Protector

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
WATER	7732-18-5	70 - 75
FLUOROCHEMICAL ACRYLATE POLYMER	Trade Secret	17 - 21
PROPYLENE GLYCOL	57-55-6	5 - 9
WETTING AGENT	Trade Secret	1 - 2

New Jersey Trade Secret Registry numbers are as follows:
WETTING AGENT is (EIN) 04499600-6543
FLUOROCHEMICAL ACRYLATE POLYMER is (EIN) 04499600-6549

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Off-white with typical odor.
General Physical Form: Liquid
Immediate health, physical, and environmental hazards: May cause target organ effects.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Inhalation:
Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*

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5.2 EXTINGUISHING MEDIA
Non-combustible. Choose material suitable for surrounding fire.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Contain spill. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Place in a metal container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid breathing of vapors, mists or spray. Avoid prolonged or repeated skin contact. Avoid eye contact with vapors, mists, or spray. For industrial or professional use only. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

7.2 STORAGE
Keep container in well-ventilated area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Use with appropriate local exhaust ventilation. Provide appropriate local exhaust ventilation on open containers.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact. Avoid eye contact with vapors, mists, or spray.
The following eye protection(s) are recommended: Safety Glasses with side shields, Indirect Vented Goggles.

8.2.2 Skin Protection
Gloves not normally required. Avoid prolonged or repeated skin contact.

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Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.
Gloves made from the following material(s) are recommended: Neoprene, Nitrile Rubber.

8.2.3 Respiratory Protection
Avoid breathing of vapors, mists or spray.
Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece air-purifying respirator with organic vapor/acid gas cartridges. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
PROPYLENE GLYCOL	AIHA	TWA, as aerosol	10 mg/m3	

SOURCE OF EXPOSURE LIMIT DATA:
ACGIH: American Conference of Governmental Industrial Hygienists
CMRG: Chemical Manufacturer Recommended Guideline
OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Off-white with typical odor.
General Physical Form:	Liquid
Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*
Boiling point	100 °C
Density	1.1 g/ml
Vapor Density	0.67 [*Ref Std:* AIR=1]
Vapor Density	*Not Applicable*
Vapor Pressure	18 mmHg [@ 20 °C]
Vapor Pressure	*Not Applicable*
Specific Gravity	1.1 [*Ref Std:* WATER=1]
pH	5 - 8
Melting point	*Not Applicable*
Solubility in Water	*Not Applicable*
Evaporation rate	*No Data Available*
Volatile Organic Compounds	78 g/l [*Test Method:* South Cost Air Qual Mgmt Dist]
Percent volatile	Approximately 78 %
VOC Less H2O & Exempt Solvents	358 g/l [*Test Method:* South Cost Air Qual Mgmt Dist]
Viscosity	<=10 centipoise

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified
Toxic Vapor, Gas, Particulate	Not Specified

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Test Organism	Test Type	Result
Water flea, Daphnia magna	48 hours Effect Concentration 50%	>100 mg/l
Fathead Minnow, Pimephales promelas	96 hours Lethal Concentration 50%	>100 mg/l
Green algae, Selenastrum capricornutum	96 hours Effect Concentration 50%	>100 mg/l
Activated Sludge,	3 hours No obs Effect Conc	>1000 mg/l

CHEMICAL FATE INFORMATION

Test Type	Result	Protocol
Biological Oxygen Demand	36 % weight	OECD 301D - Closed Bottle Test

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste. Combustion products will include HF. Facility must be capable of handling halogenated materials.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):
ZF-0002-1407-0, ZF-0002-1408-8, ZF-0002-1470-8

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - No

This material contains a chemical which requires export notification under TSCA Section 12[b]:

Ingredient (Category if applicable)	C.A.S. No	Regulation	Status
FLUOROCHEMICAL ACRYLATE POLYMER	Trade Secret	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

All the components of this product are listed on China's Inventory of Chemical Substances.

The components of this material are in compliance with the new chemical notification requirements for the Korean Existing Chemicals Inventory.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

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Contact 3M for more information.

WHMIS: Hazardous

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 3 **Flammability:** 0 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification

Health: 1 **Flammability:** 0 **Reactivity:** 0 **Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS(r)) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS(r) ratings are to be used with a fully implemented HMIS(r) program. HMIS(r) is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:
Section 16: NFPA hazard classification heading was modified.
Section 16: HMIS hazard classification heading was modified.
Section 3: Other potential health effects heading was modified.
Section 1: Division name was modified.
Copyright was modified.
Section 8: Exposure guidelines data source legend was modified.
Section 7: Handling information was modified.
Section 8: Eye/face protection phrase was modified.
Section 8: Skin protection phrase was modified.
Section 15: 311/312 hazard categories heading was modified.
Section 15: International regulations information was modified.
Section 15: State regulations information was modified.
Section 15: US federal regulations information was modified.
Section 15: WHMIS regulations information was modified.
Section 10: Hazardous polymerization heading was modified.
Section 2: Ingredient table was modified.
Section 15: TSCA section 12[b] text was modified.
Section 3: Other health effects information was modified.
Section 16: HMIS explanation was modified.
Section 16: NFPA explanation was modified.
Section 15: Inventories information was modified.
Section 12: Ecotoxicological information heading was modified.
Section 12: Chemical fate information heading was modified.
Section 8: Exposure guidelines ingredient information was modified.
Section 16: NFPA hazard classification for special hazards was modified.

Section 2: Ingredients comment was modified.
Section 15: TSCA section 12[b] information was modified.
Section 2: Ingredient phrase was added.
Section 3: Potential environmental effects heading was deleted.
Section 3: Potential environmental effects information was deleted.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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3M MSDSs are available at www.3M.com

**** MATERIAL SAFETY DATA SHEET ****

Potassium Chloride
19310

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Potassium Chloride
Catalog Numbers:
BP366 1, BP366 500, BP366-1, BP366-500, P217 10, P217 3, P217 500, P217-10, P217-3, P217-500, P330 3, P330 500, P330-10, P330-3, P330-500, S77375, S77375-1, S77375-2
Synonyms:
Potassium monochloride, potassium muriate
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	Einecs#
7447-40-7	Potassium chloride	100	unlisted

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: Colorless to white crystals or granular powder.
Caution! Ingestion of large amounts may cause digestive tract irritation, diarrhea, weakness, stomach disturbances and possible systemic effects.
Target Organs: None.

Potential Health Effects
Eye:
Dust may cause mechanical irritation.
Skin:
No information reported.
Ingestion:
Ingestion of large amounts may cause gastrointestinal irritation.
May cause gastric disturbances and electrolytic imbalance.
Inhalation:
Low hazard for usual industrial handling.
Chronic:
No information found.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids.
Get medical aid.
Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical aid if irritation develops or persists.
Ingestion:
If victim is conscious and alert, give 2-4 cupfuls of milk or water.
Never give anything by mouth to an unconscious person.
Get medical aid.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Get medical aid if cough or other symptoms appear.
Notes to Physician:
Treat symptomatically and supportively.
None reported.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Material will not burn.
Use extinguishing media appropriate to the surrounding fire.
Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Sweep up, then place into a suitable container for disposal.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Avoid prolonged or repeated contact with skin.
Avoid ingestion and inhalation.
Use with adequate ventilation.
Storage:
Store in a tightly closed container.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Potassium chloride	none listed	none listed	none listed

OSHA Vacated PELs:
Potassium chloride:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1010.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Solid
Appearance: Colorless to white crystals or granular powder.
Odor: Odorless
pH: 7.0
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 2732 F
Freezing/Melting Point: 1418 F
Decomposition Temperature: Not available.
Solubility: Soluble in water and ether.
Specific Gravity/Density: 1.984
Molecular Formula: KCl
Molecular Weight: 74.5513

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable.
Conditions to Avoid:
Incompatible materials.
Incompatibilities with Other Materials:
May react violently with bromine trifluoride. May result in explosion with potassium permanganate and sulfuric acid.
Hazardous Decomposition Products:
Chlorine, potassium fume.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 7447-40-7: TS8050000
LD50/LC50:
CAS# 7447-40-7: Oral, mouse: LD50 = 1500 mg/kg; Oral, rat: LD50 = 2600 mg/kg.
Carcinogenicity:
Potassium chloride -

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Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
No data available.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
No data
Environmental Fate:
No data
Physical/Chemical:
No data
Physical/Chemical:
No data

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA P-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
No information available
IMO
Not regulated as a hazardous material.
IATA
Not regulated as a hazardous material.
RID/ADR
Not regulated as a hazardous material.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

A. Federal
TSCA
CAS# 7447-40-7 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA/SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
B. State
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
C. International
Canada
CAS# 7447-40-7 is listed on Canada's DSL/NDSL List.

CAS# 7447-40-7 is not listed on Canada's Ingredient Disclosure List.
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:
Exposure Limits:
OEL-AUSTRALIA:TWA 0.1 mg/m3. OEL-BELGIUM:TWA 0.1 mg/m3. OEL-DENMARK:TWA 0.1 mg/m3. OEL-FINLAND:TWA 0.1 mg/m3:STEL 0.3 mg/m3. OEL-FRANCE:TWA 0.1 mg/m3. OEL-GERMANY:TWA 0.1 mg/m3. OEL-THE NETHERLANDS:TWA 0.1 mg/m3. OEL-THE PHILIPPINES:TWA 0.1 mg/m3. OEL-SWEDEN:TWA 0.1 mg/m3. OEL-SWITZERLAND:TWA 0.1 mg/m3:STEL 0.5 mg/m3 JANG. OEL-TURKEY:TWA 0.1 mg/m3 OEL-UNITED KINGDOM:TWA 0.1 mg/m3. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:
No additional information available.
MSDS Creation Date: December 29, 1994
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

WWW_104(e)_017440

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Date Printed 5/23/00
MSDS No: M00865

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Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

KCl Cartridge

Product Name: Potassium Chloride Reference Electrolyte Cartridge
Catalog Number: 2546902

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00865
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: May cause irritation.
Date of MSDS Preparation:
Day: 14
Month: July
Year: 1999

2. COMPOSITION / INFORMATION ON INGREDIENTS

Glycerin
CAS No.: 56-81-5
TSCA CAS Number: 56-81-5
Percent Range: 35.0 - 45.0
Percent Range Units: volume / volume
LD50: Oral rat LD50 = 12.6 g/kg
LC50: None reported
TLV: 10 mg/m^3 (mist)
PEL: 10 mg/m^3 (mist)
Hazard: May cause eye irritation.

Hydroxyethyl Cellulose
CAS No.: 9004-62-0
TSCA CAS Number: 9004-62-0
Percent Range: 1.0 - 5.0
Percent Range Units: weight / volume
LD50: None reported
LC50: None reported
TLV: None established
PEL: None established
Hazard: May cause irritation.

Ethylmercurithiosalicyclic acid, sodium salt
CAS No.: 54-64-8
TSCA CAS Number: 54-64-8
Percent Range: < 1.0

Percent Range Units: weight / weight
LD50: Oral rat LD_{50} = 75 mg/kg; Oral mouse LD_{50} = 91 mg/kg.
LC50: None reported
TLV: 0.1 mg(Hg)/m³ (skin)
PEL: 0.1 mg(Hg)/m³ (skin)
Hazard: Toxic. May cause irritation. Cumulative poison. Experimental mutagen. Experimental teratogen. May be embryotoxic.

Demineralized Water
CAS No.: 7732-18-5
TSCA CAS Number: 7732-18-5
Percent Range: 40.0 - 50.0
Percent Range Units: Not applicable
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: No effects anticipated.

Other component
CAS No.: Not applicable
TSCA CAS Number: Not applicable
Percent Range: < 1.0
Percent Range Units: weight / volume
LD50: Not applicable
LC50: Not applicable
TLV: Not established
PEL: Not established
Hazard: Any ingredient(s) of this product listed as "Other component(s)" is not considered a health hazard to the user of this product.

Silver Chloride
CAS No.: 7783-90-6
TSCA CAS Number: 7783-90-6
Percent Range: < 1.0
Percent Range Units: weight / volume
LD50: Oral mouse LD50 > 10 g/kg; Oral guinea pig LD50 > 5 g/kg
LC50: None reported
TLV: 0.01 mg/m³ (as Ag soluble salts)
PEL: Not established
Hazard: May cause irritation.

Potassium Chloride
CAS No.: 7447-40-7
TSCA CAS Number: 7447-40-7
Percent Range: 5.0 - 15.0
Percent Range Units: weight / volume
LD50: Oral rat LD_{50} = 2600 mg/kg
LC50: None reported.
TLV: Not established.
PEL: Not established.
Hazard: May cause irritation.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Colorless
Odor: Not determined

HMIS:
Health: 1
Flammability: 1
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 1
Flammability: 1
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: May cause irritation
Skin Contact: May cause irritation
Skin Absorption: No effects anticipated
Target Organs: Not applicable
Ingestion: May cause: gastrointestinal irritation nausea vomiting diarrhea muscular weakness blood pressure changes fever cardiac depression
Target Organs: Blood Heart
Inhalation: No effects anticipated
Target Organs: Not applicable
Medical Conditions Aggravated: Pre-existing: Kidney conditions Liver conditions
Chronic Effects: Chronic overexposure may cause kidney damage
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Flush eyes with water. Call physician if irritation develops.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes.
Ingestion (First Aid): Give large quantities of water. Call physician immediately.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: None reported
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.
Clean-up Technique: Absorb spilled liquid with non-reactive sorbent material. Sweep up material. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: None

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Store between 10° and 25°C. Keep away from: oxidizers
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin Wash thoroughly after handling. Protect from: oxidizers
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Colorless
Physical State: Gel
Molecular Weight: Not applicable
Odor: Not determined
pH: 6.16
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: ~99° C (~212° F)
Melting Point: Not determined
Specific Gravity (water = 1): 1.21
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: Not determined
Partition Coefficient (n-octanol / water): Not determined
Solubility:
Water: Miscible
Acid: Miscible
Other: Not determined
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures Heating to decomposition.
Reactivity / Incompatibility: Incompatible with: oxidizers chromates perchlorates
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: acrolein carbon dioxide carbon monoxide chlorides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: Potassium Chloride: Eye rabbit: 500 mg/24H - MILD
Mutation Data: Glycerin: Sister chromatid exchange - human lymphocyte - 100 mg/l
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Potassium Chloride: Oral rat LD50 = 2600 mg/kg, Oral man LDLo = 20 mg/kg; Glycerin: Oral rat LD50 = 7930 mg/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D009, D011
Special Instructions (Disposal): Dispose of material in an E.P.A. approved hazardous waste facility.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated
--
DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.
C.P.S.C.: Not applicable
State Regulations:

California Prop. 65: WARNING - This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Identification of Prop. 65 Ingredient(s): Mercury and mercury compounds
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Reference electrode solution
References: Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. In-house information.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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MATERIAL SAFETY DATA SHEET

Webb Chemical Company
2708 Jarman
Muskegon Heights MI 49444

Phone: (231) 733-2181
Fax: (231) 739-5454

CHEMTREC 24 HOUR EMERGENCY NUMBER: 1-800-424-9300

Product.....> **POLY ALUMINUM CHLORIDE**

NSF 50%

Section 1: Material Identification

Chemical Family.....	aluminum salt solution
DOT Shipping name.....	Compound, Water Clarifying
Hazard Class.....	Not Regulated
Date Revised.....	September 4, 1996

Section 2: Ingredient and Hazards

Hazardous Classification: irritant

Ingredients	Percent	Limits (TLV)
polyaluminum chloride (CAS 1327-41-9)	50	2 mg/m^3 as Al

Section 3: Physical Data

Boiling Point.....	220°F
Specific Gravity.....	1.34
Vapor Pressure.....	<20 mm Hg 68°F
Evaporation Rate.....	<1 (ACETATE=1)
Vapor Density.....	1.0 (WATER=1)
Measured pH (neat)....	3.5
Water Solubility.....	complete
Appearance.....	clear to hazy colorless liquid
Odor.....	odorless

Abbreviation: n/a = not applicable

MATERIAL SAFETY DATA SHEET

Product.....> **POLY ALUMINUM CHLORIDE**

Section 4: Fire and Explosion Data

Flash Point, F, SETA....	not combustible
Flammable Limits.....	LEL: n/a UEL: n/a
Auto Ignition Temp....	n/a
Extinguishing Media...	acceptable media are water, carbon dioxide, dry or foam.
Special Procedures....	use SCBA with full face shield
Unusual Fire Hazards..	none

Section 5: Health Hazard Data

* ROUTES OF EXPOSURE *	Primary route: Dermal
Eye Contact.....	low pH material may cause severe irritation or corneal injury if not promptly removed.
Skin Contact.....	may cause mild irritation.
Inhalation.....	excessive exposure may irritate upper respiratory tract.
Oral.....	Single dose LD_{50} has not been determined.
* EMERGENCY FIRST AID *	
Eyes.....	immediately flush with water for 15 minutes, seek medical attention.
Skin.....	flush with water for 15 minutes, remove contaminated clothing. Seek medical attention if irritation develops.
Inhalation.....	move to fresh air.
Ingestion.....	DO NOT induce vomiting, may cause burns of the mouth and throat. Give large amounts of water or milk. Get immediate medical attention.

Section 6: Reactivity Data

Stability.....	stable
Incompatibility.....	alkalies
Decomposition Products.	(thermal) above 500°F, HCl gas is produced.
Hazardous Polymerization	will not occur

Abbreviation: n/a = not applicable

MATERIAL SAFETY DATA SHEET

Product.....> **POLY ALUMINUM CHLORIDE**

Section 7: Environmental Protection Procedures

Spill..... dike and reclaim as much spilled material as possible. Cover spill residue with absorbent material and shovel into closable containers. Do not flush away to sewers or any natural waterways.

Waste Disposal..... dispose of following proper federal, state and local regulations.

Section 8: Control Measures/Special Protection

Respiratory Protection.. use with adequate ventilation.
Ventilation Recommended. provide local exhaust.
Protective Gloves..... chemical or solvent resistant material.
Eye Protection..... chemical goggles or face shield.
Other Equipment..... safety/eye wash nearby.
Work/Hygienic Practices: wash thoroughly after handling.

Section 9: Additional Information

HMIS Rating Code: HMIS		
Health.....	1	0 = minimal 1 = slight 2 = moderate 3 = serious 4 = severe
Flammability.....	0	
Reactivity.....	0	
Personal Protection...	B	B = safety glasses and chemical-resistant gloves

The information provided relates to the specific material designated and may not be valid for such material used in combination with other materials outside the scope of intended usage. No representation, warranty or guarantee is made and it remains the user's responsibility to confirm by other investigation as to safe material application. We do not accept liability for loss or damage that may occur from the use of this information.

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

POTASSIUM DICHROMATE

PRODUCT IDENTIFICATION:

Synonyms: Dichromic Acid, Dipotassium Salt; Potassium Bichromate; Dipotassium Dichromate

Formula CAS No.: 7778-50-9

Molecular Weight: 294.18

Chemical Formula: $K_2Cr_2O_7$

Hazardous Ingredients: Potassium dichromate

PRECAUTIONARY MEASURES

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. MAY BE FATAL IF SWALLOWED. CAUSES BURNS. CONTAINS HEXAVALENT CHROMIUM. EXPOSURE MAY CREATE A CANCER RISK. HARMFUL IF INHALED.

Keep from contact with clothing and other combustible materials.
Store in a tightly closed container.
Remove and wash contaminated clothing promptly.
Do not breathe dust.
Use only with adequate ventilation.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: ORM-A

SECTION 1 Physical Data

Appearance: Orange-red crystals or powder

Odor: Odorless.

Solubility: 6.5% @ 10°C (50°F) in water.

Boiling Point: Decomposes @ 500°C (932°F)

Melting Point: 398°C (784°F)

Specific Gravity: 2.69

Vapor Density (Air=1): No info. found.

Vapor Pressure (mm Hg): No info. found.

Evaporation Rate: No info. found.

SECTION 2 Fire and Explosion Information

Fire:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Releases oxygen upon decomposition which enhances combustion.

Explosion:
Contact with oxidizable substances may cause extremely violent combustion.

Fire Extinguishing Media:
Flood with large amounts of water. Water spray may be used to keep fire exposed containers cool. Do not allow water run off to enter sewer.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Emits oxygen and toxic fumes of chromium trioxide when heated to decomposition.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Reducing agents, acetone plus sulfuric acid, hydrazine, and hydroxylamine.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel require protective clothing and respiratory protection from dust. Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust. Disposal: Whatever cannot be saved for reclamation may be disposed in a RCRA approved hazardous waste facility. Do not flush to the sewer.

Reportable Quantity (RQ)(CWA/CERCLA) : 1000 lbs.

Ensure compliance with local, state and federal regulations.

AD

NFPA Ratings: Health: 1 Flammability: 0 Reactivity: 1 Other: Oxidizer

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
May cause irritation to the respiratory tract, coughing, wheezing, fever, headache, and labored breathing. May produce pulmonary sensitization.

Ingestion:
May cause abdominal pain, vomiting, dizziness, intense thirst, fever, coma, and liver damage. Death may occur from circulatory collapse or renal failure. Estimated lethal dose 5 grams.

Skin Contact:
Corrosive. May cause irritation, ulceration, and scarring. Skin may become sensitized. Absorption through the skin may cause systemic poisoning; symptoms may parallel ingestion.

Eye Contact:
Corrosive. May cause severe irritation, redness, pain, and conjunctivitis.

Chronic Exposure:
Repeated or prolonged skin contact may cause eczematous dermatitis. Repeated or prolonged inhalation of dust may cause ulceration, bleeding, and perforation of the nasal septum.

Aggrevation of Pre-existing Conditions:
Persons with pre-existing skin disorders may be more susceptible to the effects of this material.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Mutation References Cited; Reproductive Data Cited.
Hexavalent Chromium compounds are listed as carcinogens by the National Toxicology Program (NTP) and by the International agency for Research on Cancer (IARC). Carcinogenic Determination - Animal / Inadequate Data (IARC 23,302 80)
Hexavalent Chromium Compounds: Sufficient evidence for carcinogenicity in short term testing (IARC Suppl.4, 1982).

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
0.1 mg/m^3 Ceiling for chromates
-ACGIH Threshold Limit Value (TLV):
0.05 mg/m^3 for CrVI compounds
NIOSH Criteria Document Recommendation:
Occupational Exposure to Cr(VI) : 25 ug/m^3 (TWA)
Ceiling limit : 50 ug/m^3/15M.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Protect against physical damage. Store in a dry location separate from combustible, organic or other readily oxidizable materials. Avoid storage on wood floors. Remove and dispose of any spilled dichromates; do not return to original containers. Wear special protective equipment (Sec. 6) for maintainence break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace.

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MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

Addendum to Material Safety Data Sheet

REGULATORY STATUS

This Addendum Must Not Be Detached from the MSDS

Identifies SARA 313 substance(s)

Any copying or redistribution of the MSDS must include a copy of this addendum

(Chem.Key: POTAD)

Hazard Categories for SARA Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
X	X			X

Product or Components of Product:	SARA EHS Sect. 302 RQ (lbs.)	SARA EHS Sect. 302 TPQ (lbs.)	SARA Section 313 Chemicals Name List	SARA Section 313 Chemicals Chemical Category	CERCLA Sec.103 RQ (lbs.)	RCRA Sec. 261.33
POTASSIUM DICHROMATE (7778-50-9)	No	No	No	Chromium compound	1000	No

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.
SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.
SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.
CERCLA Sec. 103: Comprehensive Enviromental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4
RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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24-136

POTASSIUM FERRICYANIDE

Material Safety Data Sheet

Mallinckrodt Inc.
Science Products Division
P.O. Box M
Paris, Kentucky 40361

Emergency Telephone Number
314-982-5000

Effective Date: 08-07-85

PRODUCT IDENTIFICATION:

Synonyms; Potassium ferricynate; tripotassium hexacyanoferrate; ferrate (3-), hexakis (cyano-C-)-, tripotassium, (OC-6-11)

Formula CAS No.: 13746-66-2

Molecular Weight: 329.25

Hazardous Ingredients:
Not applicable.

Chemical Formula: $K_3Fe(CN)_6$

PRECAUTIONARY MEASURES

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and insure prompt removal from skin, eyes and clothing.

EMERGENCY/FIRST AID

SEE SECTION 5.

DOT Hazard Class: Not Regulated

Physical Data — SECTION 1

Appearance: Bright red crystals or powder.

Odor: Odorless.

Solubility: 33g/100ml water @ 4°C (39°F)

Boiling Point: Not applicable.

Vapor Density (Air=1): No information found.

Melting Point: Decomposes

Vapor Pressure (mm Hg): No information found.

Specific Gravity: 1.89

Evaporation Rate: No information found.

Fire and Explosion Information — SECTION 2

Fire: Not combustible, but can liberate flammable hydrogen cyanide upon heating.

Explosion: An explosion can occur when mixed with chromic anhydride in the presence of an ignition source or ammonia.

Fire Extinguishing Media: Use dry chemical or foam to stop vapors.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Reactivity Data — SECTION 3

Stability: Stable under ordinary conditions of use and storage. The aqueous solution decomposes slowly on standing.

Hazardous Decomposition Products: When heated to decomposition or comes in contact with acid or acid fumes it emits toxic fumes of cyanides.

Hazardous Polymerization: Will not occur.

Incompatibilities: Sodium nitrate, ammonia, chromium trioxide, chromic anhydride, cupric nitrate, acids and acid fumes.

Leak/Spill Disposal Information — SECTION 4

Ventilate area of leak or spill. Clean-up personnel may require respiratory protection from dust.

Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility.

Ensure compliance with local, state and federal regulations.

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Health Hazard Information — SECTION 5

A. Exposure/Health Effects

Inhalation: Not considered a health hazard under normal conditions of storage and use. Possible cyanide poisoning in a fire situation.

Ingestion: Large oral dosages may produce gastrointestinal disturbances. Symptoms may include nausea, vomiting, and cramps. Iron poisoning may be of concern in excessive exposures, indicated by pink urine discoloration.
It has been stated but not proven conclusively that poisonous hydrogen cyanide can be liberated in the stomach as a result of contact with with gastric acidity.

Skin Contact: No adverse effects expected.

Eye Contact: No adverse effects expected but dust may cause mechanical irritation.

Chronic Exposure: No information found.

Aggravation of Pre-existing Conditions: No information found.

B. FIRST AID

Inhalation: Remove to fresh air. If caught in a fire situation, treat as cyanide poisoning.

Ingestion: If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure: Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure: Wash eyes with plenty of water for at least 15 minutes. If irritation develops, get medical attention.

C. TOXICITY DATA (RTECS, 1982)

Mutation references cited.

Occupational Control Measures — SECTION 6

Airborne Exposure Limits: -ACGIH Threshold Limit Value (TLV):
1 mg (Fe)/M^3 (TWA) 2 mg(Fe)/M^3 (STEL)

Ventilation System: A system of local exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the dust or vapor at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Pesonal Respirators: (NIOSH Approved) If the TLV is exceeded, a dust/mist respirator may be worn up to ten times the TLV. Consult respirator supplier for details.

Skin Protection: Wear protective gloves and clean body-covering clothing.

Eye Protection: Safety glasses.

Maintain eye wash fountain and quick-drench facilities in work area.

Storage and Special Information — SECTION 7

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Protect from light.

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WWW_104(e)_017455

**** MATERIAL SAFETY DATA SHEET ****

Potassium Iodide
19435

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Potassium Iodide
Catalog Numbers:
BP367 500, BP367-500, BP367500, P410 10, P410 100, P410 3, P410 500, P410-10, P410-100, P410-100LB, P410-3, P410-500, P41010, P410100, P410100LB P4103, P410500, P412 10, P412 3, P412 500, P412-10, P412-100LB, P412-3, P412-500, P41210, P412100LB, P4123, P412500, S71981, S71981-2, S719812, S77567
Synonyms:
Knollide, potide
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300

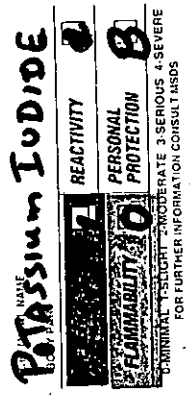
**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7681-11-0	Potassium iodide	100	unlisted

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: Colorless or white granules or powder.
Caution! May cause respiratory tract irritation. May cause eye and skin irritation. May cause digestive tract irritation with nausea, vomiting, and diarrhea. May cause fetal effects.
Target Organs: None.

Potential Health Effects
Eye:
Causes eye irritation.
Skin:
May cause skin irritation.
Ingestion:
Causes gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation:
May cause respiratory tract irritation.
Chronic:
Chronic overexposure can lead to "Iodism", a mild toxic syndrome, with symptoms of salivation, nasal discharge, sneezing, conjunctivitis, fever, laryngitis, bronchitis, stomatitis, and various skin rashes.
Chronic ingestion of iodides during pregnancy has resulted in fetal death, severe goiter and cretinoid appearance of the newborn.



**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid.
Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion:
If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Notes to Physician:
Treat symptomatically and supportively.
None reported.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.
Extinguishing Media:
For small fires, use water spray, dry chemical, carbon dioxide or

chemical foam.
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Upper: Not available.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Potassium iodide	none listed	none listed	none listed

OSHA Vacated PELs:
Potassium iodide:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1010.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Solid
Appearance: Colorless or white granules or powder.
Odor: Odorless
pH: 7 to 9
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 2426 F
Freezing/Melting Point: 1256 F
Decomposition Temperature: Not available.
Solubility: Soluble in water
Specific Gravity/Density: 3.13
Molecular Formula: KI
Molecular Weight: 166.0028

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, light, moisture.
Incompatibilities with Other Materials:
Incompatible with salts of alkaloids, chloral hydrate, calomel(mercurous chloride), potassium chlorate, metallic salts, tartaric and other acids, bromine trifluoride, and fluorine perchlorate.
Hazardous Decomposition Products:
Oxides of potassium, iodine.

POTASSIUM IODIDE

WWW_104(e)_017456

Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 7681-11-0: TT2975000
LD50/LC50:
Not available.
Carcinogenicity:
Potassium iodide -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
Iodine salts can cause deformity, illness, and death of a fetus.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
This chemical is expected to cause little oxygen depletion in aquatic systems. This chemical has a moderate potential to affect aquatic organisms.
Environmental Fate:
If diluted with a large amount of water, this chemical released directly or indirectly into the environment is not expected to have a significant impact.
Physical/Chemical:
No information found.
Other:
No information found.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA P-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
No information available
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

A. Federal
TSCA
CAS# 7681-11-0 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 7681-11-0: acute, chronic.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
B. State
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
C. International
Canada
CAS# 7681-11-0 is listed on Canada's DSL/NDSL List.
CAS# 7681-11-0 is listed on Canada's Ingredient Disclosure List.
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:
Exposure Limits:
OEL-AUSTRALIA:TWA 2 mg/m3. OEL-BELGIUM:STEL 2 mg/m3. OEL-DENMARK:TWA 2 mg/m3. OEL-FINLAND:TWA 2 mg/m3. OEL-FRANCE:STEL 2 mg/m3. OEL-JAPAN:STEL 2 mg/m3. OEL-THE NETHERLANDS:TWA 2 mg/m3. OEL-SWITZERLAND:TWA 2 mg/m3. OEL-UNITED KINGDOM:TWA 2 mg/m3;STEL 2 mg/m3. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:
Added NFPA codes to Section 5. Added SARA classifications to Section 15.
Section 3, Emer Overview, added "CAUTION!..".
Section 3, Emer Overview, added "MAY CAUSE RESPIRATORY TRACT IRRITAT..".
Section 3, Emer Overview, added "MAY CAUSE EYE AND SKIN IRRITATION...".
Section 3, Emer Overview, added "MAY CAUSE DIGESTIVE TRACT IRRITATIO..".
Section 3, Emer Overview, added "MAY CAUSE FETAL EFFECTS...".
Section 3, Eye Effects, added "Causes eye irritation...".
Section 3, Skin Effects, added "May cause skin irritation...".
Section 3, Inhalation Effects, added "May cause respiratory tract irritat..".
Section 3, Ingestion Effects, added "Causes gastrointestinal irritation..".
Section 3, Chronic Effects, added "Chronic overexposure can lead to "i..".
Section 4, Eye First Aid, added "Flush eyes with plenty of water for..".
Section 4, Eye First Aid, added "Get medical aid...".
Section 4, Skin First Aid, added "Flush skin with plenty of soap and..".
Section 4, Skin First Aid, added "Get medical aid if irritation devel..".
Section 4, Inhalation First Aid, added "Remove from exposure to fresh air i..".
Section 4, Inhalation First Aid, added "If not breathing, give artificial r..".
Section 4, Inhalation First Aid, added "If breathing is difficult, give oxy..".
Section 4, Inhalation First Aid, added "Get medical aid if cough or other s..".
Section 4, Ingestion First Aid, added "Never give anything by mouth to an..".
Section 4, Ingestion First Aid, added "If victim is conscious and alert, g...".
Section 4, Ingestion First Aid, added "Get medical aid...".
Section 5, Extinguishing Media, added "For small fires, use water spray, d...".
Section 5, General Firefighting, added "Wear appropriate protective clothin..".
Section 6, Spills/Leaks, added "Vacuum or sweep up material and pla...".
Section 6, Spills/Leaks, added "Avoid generating dusty conditions...".
Section 7, Handling, added "Use with adequate ventilation...".
Section 7, Handling, added "Avoid ingestion and inhalation...".
Section 7, Handling, added "Wash thoroughly after handling...".
Section 7, Handling, added "Avoid contact with eyes, skin, and...".
Section 7, Storage, added "Store in a cool, dry, well-ventilat..".
Section 8, Engin. Controls, added "Use adequate ventilation to keep ai..".
Section 8, Eye Protection, added "Wear appropriate protective eyegla s...".
Section 8, Skin Protection, added "Wear appropriate protective glove s...".

WWW_104(e)_017457

DATE: 07/26/96 ACCT: BB9490001
INDEX: D62075044 CAT NO: P4103 PO NBR: 15-274891

Section 8, Clothing, added "Wear appropriate protective clothin..".
Section 8, Respirators, added "Follow the OSHA respirator regulati..
".

Section 9, Physical Properties has changed.
Section 10, Stability, added "Stable under normal temperatures an.."

Section 10, Condit. to Avoid, added "Incompatible materials..".
Section 10, Condit. to Avoid, added "light..".
Section 10, Condit. to Avoid, added "moisture..".
Section 10, Decomposition Prod., added "oxides of potassium..".
Section 10, Decomposition Prod., added "iodine..".
Section 10, Incompatibilities has changed.
Section 11, Epidemiology has changed.
Section 11, Neurotoxicity has changed.
Section 11, Teratogenicity has changed.
Section 11, Mutagenicity has changed.
Section 11, Reproductive has changed.
Section 11, Other Info has changed.
Section 12, Ecology Info has changed.
Section 12, Environ. Info has changed.
Section 12, Physical Info has changed.
Section 12, Other Info has changed.
MSDS Creation Date: 1/04/1995 Revision Date: 3/04/1996

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24-137
N/A

Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061

POTASSIUM IODIDE

PRODUCT IDENTIFICATION:

Synonyms: Potide; hydriocic acid, potassium salt

Formula CAS No.: 7681-11-0

Molecular Weight: 166.0

Chemical Formula: KI

Hazardous Ingredients: None.

PRECAUTIONARY MEASURES

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.
SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White crystals.

Odor: Odorless.

Solubility: 140 grams/100 gm in water.

Boiling Point: 1420°C (2588°F)

Melting Point: 723°C (1333°F)

Density: 3.1

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): 1 at 745°C (1373°F)

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Oxides of the contained metal and halogen, possibly also fr ionic halogen.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Diazonium salts; diisopropyl peroxydicarbonate; oxidants and chlorine trifluorides, fluorine perchlorate.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel may r respiratory protection from dust.

Spills: Sweep up and containerize for reclamation or dis Vacuuming or wet sweeping may be used to avoid dust

Disposal: Whatever cannot be saved for reclamation m delivered to an approved waste disposal facility.

Ensure compliance with local, state and federal regulat

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of dust may cause irritation of respiratory tract.

Ingestion:
Large doses may cause gastrointestinal upset and weakness.

Skin Contact:
May cause mild irritation and reddening on prolonged contact.

Eye Contact:
Can be irritating to the eyes, with redness, pain.

Chronic Exposure:
Chronic ingestion of iodides may produce "iodism," which may be manifested by skin rash, running nose, headache and irritation of mucous membranes. Weakness, anemia, loss of weight, and general depression may also occur.

Aggravation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
If patient swallowed large quantities and is conscious, give large quantities of water to swallow, then induce vomiting by inserting finger to back of throat.
Call a physician.

Skin Exposure:
Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure:
Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1982)

Mutation references cited. Reproductive effects cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Gloves and lab coat, apron or coveralls.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect from physical damage and direct sunlight.

****

WWW_104(e)_017460

Material Safety Data Sheet

CAIROX®
Potassium Permanganate

NFPA* HAZARD SIGNAL

Health Hazard (less than 1 hour exposure)	1
Flammability Hazard	0
Reactivity Hazard	0
Special Hazard	OXY

*National Fire Protection Association

Section I Product Identification

MANUFACTURER'S NAME: CARUS CORPORATION

TELEPHONE NUMBER FOR INFORMATION: 815/223-1500

MANUFACTURER'S ADDRESS: Carus Chemical Company
1500 Eighth Street
P.O. Box 1500
LaSalle, IL 61301

EMERGENCY TELEPHONE NOS:
815/223-1500 (8 a.m. to 5 p.m.)
815/223-1565 (5 p.m. to 8 a.m. and weekends/holidays)

PRODUCT NAME: CAIROX® Potassium Permanganate, $KMnO_4$

TRADE NAME: CAIROX® Potassium Permanganate

SYNONYMS: Permanganic acid potassium salt $HMnO_4K$
Chameleon mineral
Condy's crystals
Permanganate of potash

DEPARTMENT OF TRANSPORTATION INFORMATION:

Proper Shipping Name:	Potassium Permanganate
ID Number:	UN 1490
Hazard Class:	Oxidizer
Multiple Labeling Requirements:	Corrosive
Hazardous Substance Reportable Quantity:	RQ-100 lb.
Chemtrec Telephone No. (800) 424-9300	

RCRA: Oxidizers such as potassium permanganate meet the criteria of ignitable waste.

carus
CHEMICAL COMPANY

Section II Hazardous Ingredients

Material or component	CAS No.*	%	Hazard Data
Potassium Permanganate	7722-64-7	97min. $KMnO_4$	PEL** = None established TLV*** = C 5 mg (Mn) per cubic meter of air

TLV-C – Threshold Limit Value-Ceiling – The concentration that should not be exceeded during any part of the working exposure.

*Chemical Abstract Service Number

**OSHA Permissible Exposure Limit

***ACGIH Threshold Limit Value, 1986-1987 for manganese dust and compound expressed as manganese (Mn)

Section III Physical Data

BOILING POINT, 760 mm Hg Not applicable

SPECIFIC GRAVITY 2.7 g/cm 20°C (68°F)

VAPOR PRESSURE (mm Hg) Not applicable

VAPOR DENSITY (AIR = 1) Not applicable

SOLUBILITY IN WATER % BY SOLUTION Moderate – 6.0% at 20°C (68°F); and Appreciable – 20% at 65°C (149°F)

PERCENT VOLATILE BY VOLUME Not Volatile

EVAPORATION RATE (BUTYL ACETATE = 1) Not applicable

MELTING POINT Starts to decompose with evolution of oxygen (O_2) at temperatures above 150°C (302°F)

APPEARANCE AND ODOR Dark purple solid with a metallic luster, odorless

Section IV Fire and Explosion Hazard Data

The material itself is noncombustible but will accelerate the burning of combustible material.

FLASHPOINT None

FLAMMABLE OR EXPLOSIVE LIMITS Lower: Nonflammable Upper: Nonflammable

EXTINGUISHING MEDIA Use large quantities of water

SPECIAL FIREFIGHTING PROCEDURES Watch for rapid burning and be prepared to retreat to a safe distance. If yellow, white or brown fumes are present, wear self-contained breathing apparatus and full protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS Powerful oxidizing material. May decompose spontaneously if exposed to intense heat (150°C/302°F). May be explosive in contact with some other chemicals. May react violently with finely divided and readily oxidizable substance. Increases flammability of combustible materials.

SECTION V Health Hazard Data

POTASSIUM PERMANGANATE: Acute oral LD_{50}(rat) = 780 mg/kg Male (14 days)
525 mg/kg Female (14 days)

ROUTES OF EXPOSURE

1. Inhalation
   Acute inhalation toxicity data are not available; however, airborne concentrations of potassium permanganate in the form of dust, mist, or spray may irritate and cause damage to the respiratory tract.
2. Skin Contact
   Prolonged contact of solutions at room temperature may be irritating to the skin, leaving brown stains on the skin. Concentrated solutions at elevated temperature and crystals are corrosive to the skin.
3. Eye contact
   Potassium permanganate is corrosive to eye tissue on contact. It may cause severe burns that result in damage to the eye.
4. Ingestion
   Potassium permanganate, if swallowed, may cause severe burns to mucous membranes of the mouth, throat, esophagus, and stomach.

continued

Health Hazard Data (cont.)

EFFECTS OF OVEREXPOSURE

1. Acute Overexposure (instantaneous overexposure)
   Irritating or corrosive to body tissue with which it comes in contact
2. Chronic Overexposure (long term overexposure)
   Prolonged exposure, usually many years, to heavy concentrations of dust and fumes above the TLV-value, mainly in the form of manganese oxides may lead to lung irritation and central nervous system disorder. The central nervous system is the chief site of damage. The symptoms may simulate Parkinson's disease. No known cases of central nervous system disorders due to exposure to $KMnO_4$ have been reported.
3. Carcinogenicity
   Potassium permanganate has not been classified as a carcinogen by OSHA, NTP, IARC.
4. Medical Conditions Generally Aggravated by Exposure
   Potassium permanganate will cause further irritation of tissue or open wounds, burns and mucous membranes.

EMERGENCY AND FIRST AID PROCEDURES

1. Eyes
   Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Do not attempt to neutralize chemically. Seek medical attention immediately.
2. Skin
   Immediately wash contaminated areas with plenty of water. Remove contaminated clothing and footwear. Wash clothing and decontaminate footwear before use. Seek medical attention immediately if irritation is severe.
3. Inhalation
   Get person out of contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
4. Ingestion
   Never give anything by mouth to an unconscious person. Give large quantities of water. If available, give several glasses of milk or lemon or orange juice. Seek medical attention immediately.

Section VI Reactivity Data

STABILITY Under normal conditions, the material is stable.

CONDITIONS TO AVOID Contact with incompatible materials or heat (>150°C/302°F)

INCOMPATIBLE MATERIALS Contact with acids, peroxides, and all combustible organic or readily oxidizable materials including inorganic oxidizable materials and metal powders. With hydrochloric acid, chlorine gas is liberated.

HAZARDOUS DECOMPOSITION PRODUCTS When involved in fire, corrosive fumes or smoke may be formed.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION Material is not known to polymerize.

Section VII Spill or Leak Procedures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Clean up spills immediately by sweeping or shoveling up the material; do not return contaminated material to original drum. Transfer to a clean metal drum and dispose in a hazardous landfill. To clean contaminated floors flush with abundant quantities of water into sewer, if permitted by Federal, State, and Local regulations. If not, collect water and treat chemically. (See below)

WASTE DISPOSAL

Reduce material in aqueous solution with sodium thiosulfate (Hypo), a bisulfite or ferrous salt. The bisulfite or ferrous salt may require some dilute sulfuric acid to promote rapid reduction. Neutralize with sodium bicarbonate to neutral pH if acid was used. Decant or filter and mix formed sludge with sodium carbonate and deposit in an approved landfill. Where permitted, the sludge can be drained into sewer with large quantities of water. Contact Carus Chemical for additional recommendations.

Section VIII Protective Equipment to Be Used

VENTILATION REQUIREMENTS
Provide sufficient mechanical and/or local exhaust to maintain exposure below the Threshold Limit Value.

RESPIRATORY PROTECTION
In the case where overexposure may exist, the use of NIOSH-MSHA dust and mist respirator (such as NIOSH-MSHA TC-21C-287) or an air supplied respirator is advised. Engineering or administrative controls should be implemented to control dust.

EYE
Face shield and/or goggles should be worn.

GLOVES
Rubber or plastic gloves should be worn.

OTHER PROTECTIVE EQUIPMENT
Normal work clothing covering arms and legs should be worn.

WORK/HYGIENIC PRACTICES
Wash thoroughly with soap and water after handling and before eating or smoking.

Section IX Special Precaution and Other Comments

Protect containers against physical damage. Store in a cool, dry area in closed containers. Segregate from acids, peroxides and all combustible, organic or easily oxidizable materials.

DEPARTMENT OF TRANSPORTATION INFORMATION:

Proper Shipping Name:	Potassium Permanganate
ID Number:	UN 1490
Hazard Class:	Oxidizer
Multiple Labeling Requirements:	Corrosive
Hazardous Substance Reportable Quantity:	RQ-100 lb.
Chemtrec Telephone No. (800) 424-9300	

RCRA: Oxidizers such as potassium permanganate meet the criteria of ignitable waste.

Name: Horst R. Adolf

Signature: Horst R. Adolf Date: 9 December 1986

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carus CHEMICAL COMPANY

Division of Carus Corporation
1500 Eighth Street • LaSalle, Illinois 61301
Telephone (815) 223-1500 Cable Carchemco
Telex 797551

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Potassium Persulfate
Catalog Number: 2084766

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00039
Chemical Name: Peroxydisulfuric Acid, Dipotassium Salt
CAS No.: 7727-21-1
Chemical Formula: $K_2S_2O_8$
Chemical Family: Oxidizing Agents
Hazard: Causes severe eye irritation. Oxidizer. Allergen
Date of MSDS Preparation:
Day: 1
Month: 11
Year: 2001

2. COMPOSITION / INFORMATION ON INGREDIENTS

Potassium Persulfate
CAS No.: 7727-21-1
TSCA CAS Number: 7727-21-1
Percent Range: 100.0
Percent Range Units: weight / weight
LD50: Oral Rat LD50 = 802 mg/kg
LC50: None reported
TLV: 5 mg/m^3
PEL: Not established
Hazard: Causes severe eye irritation. Oxidizer. Allergen

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: White to light yellow crystals
Odor: None
CAUSES EYE AND RESPIRATORY TRACT IRRITATION
MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTIONS
STRONG OXIDIZER: CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE

HMIS:
Health: 2
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 1
Flammability: 0
Reactivity: 0
Symbol: oxy
Potential Health Effects:

Eye Contact: Causes severe irritation
Skin Contact: May cause irritation May cause allergic reaction
Skin Absorption: None reported
Target Organs: None reported
Ingestion: May cause: gastrointestinal irritation
Target Organs: None reported
Inhalation: Causes: irritation of nose and throat May cause: allergic respiratory reaction
Target Organs: None reported
Medical Conditions Aggravated: Pre-existing: Allergies or sensitivity to potassium persulfate.
Chronic Effects: Chronic overexposure may cause allergic skin reactions allergic respiratory reactions
Cancer / Reproductive Toxicity Information:
O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water. Call physician if irritation develops.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, this product decomposes to form toxic gases.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: Toxic fumes of: sulfur oxides.
Fire / Explosion Hazards: May react violently with: strong reducers combustible materials
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Water.
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment. Cover spilled solid material with sand or other inert material.
Clean-up Technique: Remove all combustible materials from the spill area. Cover with an inert material, such as sand. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Mixture contains a component which is regulated as hazardous waste.
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: 140

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Keep away from: reducers oxidizable materials Protect from: moisture heat
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use a fume hood to avoid exposure to dust, mist or vapor.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: lab coat disposable latex gloves
Inhalation Protection: laboratory fume hood
Precautionary Measures: Avoid contact with: eyes skin Do not breathe: dust Wash thoroughly after handling. Keep away from: oxidizable materials reducers
TLV: 5 mg/m^3
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White to light yellow crystals
Physical State: Solid
Molecular Weight: 270.32
Odor: None
pH: of 5% solution = 4.1
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Boiling Point: Not applicable
Melting Point: Decomposes at >100°C or 212°F
Specific Gravity (water = 1): 2.477
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: 0.0%
Partition Coefficient (n-octanol / water): Not determined
Solubility:
Water: Soluble
Acid: Not determined
Other: Not determined
Metal Corrosivity:
Steel: 0.704 in/yr
Aluminum: 0.137 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Excess moisture Exposure to air. Heating to decomposition.
Reactivity / Incompatibility: May react violently in contact with: oxidizable material reducers
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: Oral Rat LD50 = 802 mg/kg
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: Testing showed only slight erythema to rabbit skin.
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: --
Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D001
Special Instructions (Disposal): Incinerate material at an E.P.A. approved hazardous waste facility.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Potassium Persulfate
--
DOT Hazard Class: 5.1
DOT Subsidiary Risk: NA
DOT ID Number: UN1492
DOT Packing Group: III
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Potassium Persulphate
--
ICAO Hazard Class: 5.1
ICAO Subsidiary Risk: NA
ICAO ID Number: UN1492
ICAO Packing Group: III
I.M.O.:
I.M.O. Proper Shipping Name: Potassium Persulphate
--
I.M.O. Hazard Class: 5.1
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: UN1492
I.M.O. Packing Group: III

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard Fire Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): Not applicable
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: TSCA Listed: Yes
TSCA CAS Number: 7727-21-1

16. OTHER INFORMATION

Intended Use: Laboratory Reagent
References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Technical Judgment. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. In-house information. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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Maint

MATERIAL SAFETY DATA SHEET

Revised 8/25/00
Replaces 5/25/99
Printed 3/05/01

POWER-LUBE 15.75 OZ NW

MSDS ID: 92127

Premier Farnell Corp.
4500 Euclid Avenue
Cleveland, Ohio 44103

Emergency/Information Telephone:
216-391-8300

(In Canada)
Premier Fastener Ltd.
271 Attwell Drive
Etobicoke, Ontario M9W 5B9

Formula: 58469
MSDS Effective: 08/25/00

Section I - Product Identification

Part Number: 92127
Product Name: POWER-LUBE 15.75 OZ NW
Trade Name/Synonyms: POWER LUBE
Chemical Family: AEROSOL LUBRICANT

Section II - Hazardous Ingredients

Ingredient	CAS No.	WT %	Pel	TLV	Stel	Units	LC50,PPM	LD50,MG/KG
PETROLEUM OIL	64742-57-0	30-35	5*	5*	10*	MG/M3	N/A	RAT I13000 RAB A 2000
HEPTANE	00142-82-5	18-23	400	400	500	PPM	MIC 18333	N/A
PETROLEUM OIL	64741-56-6	10-15	5*	5*	5*	MG/M3	N/A	RAT I13000 RAB A 2000
ASPHALT, PETROLEUM	08052-42-4	10-15	N/A	5*	N/A	MG/M3	N/A	N/A
PROPANE	00074-98-6	10-15	1000	N/A	N/A	PPM	MLO 10000	N/A
N-BUTANE	00106-97-8	10-15	800	800	N/A	PPM	RAT277374	N/A
BENZENE	#00071-43-2	TRACE	N/A	N/A	N/A		N/A	N/A
TOLUENE	#00108-88-3	TRACE	N/A	N/A	N/A		N/A	N/A

Section III - Physical Data

Boiling Pt Deg F/C: < 0F/-18C PROPELLANT
Vapor Pressure(MM HG):N/A
Vapor Density(Air=1):Heavier than air
Solubility In Water: NIL
Physical State: AEROSOL
Freeze PT Deg F/C: N/A

Specific Gravity:0.79
%Volatile Volume:53
Evaporation Rate:Faster than ether
Water/Oil Dist Coeff:N/A
PH: N/A
Threshold Odor,PPM: N/A

Appearance And Odor: Liquid lubricant, strong solvent odor.
Voc:Lbs/Gal=2.62; Grams/Liter=315 ; Grams Voc/Gram Solid=N/A ; % Voc 40

Section IV - Fire and Explosion Hazard Data

Classification: FLAMMABLE AEROSOL
NFPA Rating: 2,4,0 HMIS: 2,4,0
Combustion Products: CO, CO2
Flash Point Deg F/C: PROPELLANT <0F/-18C
Lel%:1.1 Uel%:10.0
Extinguishing Media: CO2, Dry Chemical, Foam
Auto Ign. Temp Deg F/C: N/A

Section IV - Fire and Explosion Hazard Data (Cont.)

Special Fire Fighting Procedures:
Firefighters should wear self-contained breathing equipment.
Unusual Fire And Explosion Hazards:
Exposure to fire, heat or prolonged sunlight may cause bursting. If used in confined spaces, hazardous vapors may spread,burn or build up in low areas. Contact with flame or hot surfaces may produce toxic gases.
Explosive Power: HIGH
Impact Sensitive: No
Burning Rate: HIGH
Static Sensitive: Yes FLAMMABLE

Section V - Health Hazard Data

Routes Of Entry: SKIN CONTACT,EYE,INHALATION
Effects Of Overexposure:
Causes eye & skin irritation. Excess inhalation of vapors may cause respiratory irritation, dizziness, weakness, fatigue, nausea,headache & possible unconsciousness, even death. Prolonged & repeated inhalation may be harmful to respiratory system & central nervous system. Misuse or deliberate inhalation may be harmful or fatal. Warning: This product contains chemicals known to the State of California to cause cancer & birth defects or other reproductive harm.
Any suspected carcinogen = or > 0.1%?: No
Emergency and First Aid Procedures:
EYES: Immediately flush with plenty of water for 15 min. & call physician. SKIN: Wash thoroughly with plenty of water & soap. Launder contaminated clothing before reuse. INHALATION: If affected, remove to fresh air, administer oxygen & call physician. INGESTION: Seek physician immediately.

Section VI - Reactivity Data

Stable: Yes Conditions to Avoid: N/A
Incompatibility(Materials to Avoid): N/A
Hazardous Decomposition Products: CO, CO2
Hazardous Polymerization: No

Section VII - Spill or Leak Procedures

Listed In: SARA Title III; #302: No #304,Cercla: No #313: No
Steps to be Taken in Case Material is Released or Spilled:
Remove all sources of ignition. Ventilate the area. Clean up with absorbent material.
Disposal Method:
Dispose of wastes in accordance with federal, state and local regulations. Do not puncture, incinerate or burn containers.

Section VIII - Safe Handling and Protection Information

Ventilation-Local: Recommended
Mechanical: Recommended
Protective Gloves: SEE BELOW*
Precautions in Use:
Special:N/A
Other: N/A
Eye Protection:Goggles

Section VIII - Safe Handling and Protection Information (Cont.)

GLOVES: None required under normal application where skin contact is minimal.
If ventilation is inadequate, wear approved respiratory equipment.
Estimated LD50, MG/KG: No
Estimated LC50, PPM: No
Sensitization: No
Irritant: Yes EYES, SKIN Synergistic Agents: No

Section IX - Special Precautions

Precautions to be Taken in Handling and Storing:
Keep away from heat, sparks, flame or sources of ignition. Do not puncture, incinerate, burn or store containers above 120F(49C). Use only in well ventilated areas. Do not breathe vapor or spray mist. Avoid contact with eyes, skin & clothing. Wash thoroughly after using. Do not take internally. In case of accident or illness,seek physician immediately, show label or MSDS.
Other Precautions:
Keep out of reach of children. Always read and follow directions on product label. Additional technical data sheets and/or material safety data sheets (MSDS) are available upon request. For professional & industrial use only.

Symbols, Abbreviations and Notations:
#=Listed in SARA Title III Section 313; @=Non-hazardous ingredient among the 5 most predominant substances; +=Contains encapsulated Silica-Crystalline or Carbon Black.
Normal product usage should not result in respirable dust that would be hazardous to the respiratory system; N/A=Not available or applicable; *=If found as dust, mist or fume; C=Ceiling limit; S=Skin designation; M=Human; RAB=Rabbits; GPG=Guinea Pigs; MIC=Mice; I=Ingestion; A=Skin absorption; LO=Little observable effect; NO=No effect; Pel=OSHA permissible exposure limit; TLV=ACGIH threshold limit value; Stel=Short term exposure limit.

All components of this product are listed or are exempt from listing on the TSCA inventory and/or the Canadian DSL or NDSL. MSDS prepared by the Corporate Compliance department.
The information and recommendations provided herein are believed to be correct as of the date hereof. However, such information and recommendations are provided without warranty of any kind and Premier Farnell Corp. disclaims any and all liability or legal responsibility for use or reliance upon same.

M A T E R I A L S A F E T Y D A T A S H E E T

PREMIER FARNELL CORP.
4500 EUCLID AVENUE
CLEVELAND, OHIO 44103

EMERGENCY/INFORMATION TELEPHONE:
216/391-8300

FORMULA: 58469
MSDS EFFECTIVE: 05/04/98
DATE REVIEWED: 05/04/98

MAIL TO:
WOLVERINE WORLD WIDE INC
123 N MAIN ST
ROCKFORD MI 49341

COF: 622668
INVOICE: 622668

SDS KEY: 0679266

13-000163

SECTION I - PRODUCT IDENTIFICATION

PART NUMBER: 92127
PRODUCT NAME: POWER LUBE NT WT 15.75 OZ
TRADE NAME/SYNONYMS: POWER LUBE
CHEMICAL FAMILY: AEROSOL LUBRICANT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	WT %	PEL	TLV	STEL	UNITS	LC50,PPM	LD50,MG/KG
PETROLEUM OIL	64742-57-0	30-35	5*	5*	10*	MG/M3	N/A	RAT I13000 RAB A 2000
HEPTANE	00142-82-5	18-23	400	400	500	PPM	MIC 18333	N/A
PETROLEUM OIL	64741-56-6	10-15	5*	5*	5*	MG/M3	N/A	RAT I13000 RAB A 2000
ASPHALT, PETROLEUM	08052-42-4	10-15	N/A	5*	N/A	MG/M3	N/A	N/A
PROPANE	00074-98-6	10-15	1000	N/A	N/A	PPM	MLO 10000	N/A
N-BUTANE	00106-97-8	10-15	800	800	N/A	PPM	RAT277374	N/A
BENZENE	#00071-43-2	TRACE						
TOLUENE	#00108-88-3	TRACE						

SECTION III - PHYSICAL DATA

BOILING PT DEG F/C: < 0F/-18C PROPELLANT
VAPOR PRESSURE(MM HG):N/A
VAPOR DENSITY(AIR=1):HEAVIER THAN AIR
SOLUBILITY IN WATER: NIL
PHYSICAL STATE: AEROSOL
FREEZE PT DEG F/C: N/A

SPECIFIC GRAVITY:0.79
%VOLATILE VOLUME:53
EVAPORATION RATE:FASTER THAN ETHER
WATER/OIL DIST COEFF:N/A
PH: N/A
THRESHOLD ODOR,PPM: N/A

APPEARANCE AND ODOR: LIQUID LUBRICANT, STRONG SOLVENT ODOR.
VOC:LBS/GAL=2.62; GRAMS/LITER=315 ; GRAMS VOC/GRAM SOLID=N/A ; % VOC 40

CONTINUED ON NEXT PAGE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: FLAMMABLE AEROSOL NFPA RATING: 2,4,0 HMIS: 2,4,0
COMBUSTION PRODUCTS: CO, CO2
FLASH POINT DEG F/C: PROPELLANT <0F/-18C LEL%:1.1 UEL%:10.0
EXTINGUISHING MEDIA: CO2, DRY CHEMICAL, FOAM
AUTO IGN. TEMP DEG F/C: N/A
SPECIAL FIRE FIGHTING PROCEDURES:
FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING EQUIPMENT.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
EXPOSURE TO FIRE, HEAT OR PROLONGED SUNLIGHT MAY CAUSE BURSTING. IF USED IN CONFINED SPACES, HAZARDOUS VAPORS MAY SPREAD,BURN OR BUILD UP IN LOW AREAS. CONTACT WITH FLAME OR HOT SURFACES MAY PRODUCE TOXIC GASES.
EXPLOSIVE POWER: HIGH IMPACT SENSITIVE: NO
BURNING RATE: HIGH STATIC SENSITIVE: YES FLAMMABLE

SECTION V - HEALTH HAZARD DATA

ROUTES OF ENTRY: SKIN CONTACT,EYE,INHALATION
EFFECTS OF OVEREXPOSURE:
CAUSES EYE & SKIN IRRITATION. EXCESS INHALATION OF VAPORS MAY CAUSE RESPIRATORY IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSER,HEADACHE & POSSIBLE UNCONSCIOUSNESS, EVEN DEATH. PROLONGED & REPEATED INHALATION BAY BE HARMFUL TO RESPIRATORY SYSTEM & CENTRAL NERVOUS SYSTEM. MISUSE OR DELIBERATE INHALATION MAY BE HARMFUL OR FATAL.
WARNING: THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.
ANY SUSPECTED CARCINOGEN = OR > 0.1%?: NO
EMERGENCY AND FIRST AID PROCEDURES:
EYES: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MIN. & CALL PHYSICIAN. SKIN: WASH THOROUGHLY WITH PLENTY OF WATER & SOAP. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. INHALATION: IF AFFECTED, REMOVE TO FRESH AIR, ADMINISTER OXYGEN & CALL PHYSICIAN. INGESTION: SEEK PHYSICIAN IMMEDIATELY.

SECTION VI - REACTIVITY DATA

STABLE: YES CONDITIONS TO AVOID:
INCOMPATIBILITY(MATERIALS TO AVOID): NO
HAZARDOUS DECOMPOSITION PRODUCTS: YES CO, CO2
HAZARDOUS POLYMERIZATION: NO

SECTION VII - SPILL OR LEAK PROCEDURES

LISTED IN: SARA TITLE III; #302: NO #304,CERCLA: NO #313: NO
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION. VENTILATE THE AREA. CLEAN UP WITH ABSORBENT MATERIAL.
DISPOSAL METHOD:
DISPOSE OF WASTES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. DO NOT PUNCTURE, INCINERATE OR BURN CONTAINERS.

CONTINUED ON NEXT PAGE

========= SECTION VIII - SAFE HANDLING AND PROTECTION INFORMATION ==========

VENTILATION-LOCAL: RECOMMENDED
MECHANICAL: RECOMMENDED
PROTECTIVE GLOVES: SEE BELOW*
SPECIAL:N/A
OTHER: N/A
EYE PROTECTION:GOGGLES

PRECAUTIONS IN USE:
GLOVES: NONE REQUIRED UNDER NORMAL APPLICATION WHERE SKIN CONTACT IS MINIMAL.
IF VENTILATION IS INADEQUATE, WEAR APPROVED RESPIRATORY EQUIPMENT.

ESTIMATED LD50, MG/KG: NO
ESTIMATED LC50, PPM: NO
SENSITIZATION: NO
IRRITANT: YES EYES, SKIN
SYNERGISTIC AGENTS: NO

========== SECTION IX - SPECIAL PRECAUTIONS ==========

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
KEEP AWAY FROM HEAT, SPARKS, FLAME OR SOURCES OF IGNITION. DO NOT PUNCTURE, INCINERATE, BURN OR STORE CONTAINERS ABOVE 120F(47C). USE ONLY IN WELL VENTILATED AREAS. DO NOT BREATHE VAPOR OR SPRAY MIST. AVOID CONTACT WITH EYES, SKIN & CLOTHING. WASH THOROUGHLY AFTER USING. DO NOT TAKE INTERNALLY. IN CASE OF ACCIDENT OR ILLNESS,SEEK PHYSICIAN IMMEDIATELY, SHOW LABEL OR MSDS.

OTHER PRECAUTIONS:
KEEP OUT OF REACH OF CHILDREN. ALWAYS READ AND FOLLOW DIRECTIONS ON PRODUCT LABEL. ADDITIONAL TECHNICAL DATA SHEETS AND/OR MATERIAL SAFETY DATA SHEETS (MSDS) ARE AVAILABLE UPON REQUEST. FOR PROFESSIONAL & INDUSTRIAL USE ONLY.

****

SYMBOLS, ABBREVIATIONS AND NOTATIONS:
[illegible] IN SARA TITLE III SECTION 313; @=NON-HAZARDOUS INGREDIENT AMONG THE 5 MOST PREDOMINANT SUBSTANCES; +=CONTAINS ENCAPSULATED SILICA-CRYSTALLINE OR CARBON BLACK.
NORMAL PRODUCT USAGE SHOULD NOT RESULT IN RESPIRABLE DUST THAT WOULD BE HAZARDOUS TO THE RESPIRATORY SYSTEM; N/A=NOT AVAILABLE OR APPLICABLE; *=IF FOUND AS DUST, MIST OR FUME; C=CEILING LIMIT; S=SKIN DESIGNATION; M=HUMAN; RAB=RABBITS; GPG=GUINEA PIGS; MIC=MICE; I=INGESTION; A=SKIN ABSORPTION; LO=LITTLE OBSERVABLE EFFECT; NO=NO EFFECT; PEL=OSHA PERMISSIBLE EXPOSURE LIMIT; TLV=ACGIH THRESHOLD LIMIT VALUE; STEL=SHORT TERM EXPOSURE LIMIT.

****

ALL COMPONENTS OF THIS PRODUCT ARE LISTED OR ARE EXEMPT FROM LISTING ON THE TSCA INVENTORY AND THE CANADIAN DSL OR NDSL. MSDS PREPARED BY THE CORPORATE COMPLIANCE DEPARTMENT.
THE INFORMATION AND RECOMMENDATIONS PROVIDED HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF. HOWEVER, SUCH INFORMATION AND RECOMMENDATIONS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND AND PREMIER FARNELL CORP. DISCLAIMS ANY AND ALL LIABILITY OR LEGAL RESPONSIBILITY FOR USE OR RELIANCE UPON SAME.

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-805

HMIS RATING

HEALTH 2
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
MORPHOLINE	1.3	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
TITANIUM DIOXIDE	10-35	*	*	OSHA 15 MG/M3
CAS NO. 13463-67-7 SYN: ...				ACGIH 10 MG/M3

OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 2
WEIGHT PER GALLON: 10.80 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

BASED ON RESULTS FROM A DUPONT EPIDEMIOLOGY STUDY,DUPONT CONCLUDES THAT TITANIUM DIOXIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

> RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
>
> ...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

CONTAINS TITANIUM DIOXIDE WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO BE HAZARDOUS WHEN DISPERSED IN A LIQUID. IF USER OPERATIONS COULD CREATE A DUST CONTAINING TITANIUM DIOXIDE, THE SUPPLIER SHOULD BE CONTACTED FOR FURTHER INFORMATION.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-809

HMIS RATING
HEALTH 0
FLAMMABILITY 0
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE	.9	***	***	OSHA 50 PPM
CAS NO. 1336-21-6 SYN: AQUA AMMONIA				ACGIH 25 PPM
MORPHOLINE	.6	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.
OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.
*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 8.30 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH,KEEP AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...

...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-811

HMIS RATING
HEALTH 2
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE	.4	***	***	OSHA 50 PPM
CAS NO. 1336-21-6 SYN: AQUA AMMONIA				ACGIH 25 PPM
MORPHOLINE	1.1	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
CARBON BLACK	2.0	*	*	OSHA 3.5 MG/CU M
CAS NO. 1333-86-4 SYN: CARBON BLACK				ACGIH 3.5 MG/CU M

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.
OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.

*** NOT KNOWN TO MANUFACTURER
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 8.70 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

BASED ON THE RESULTS OF RAT INHALATION STUDIES, IARC HAS CLASSIFIED CARBON BLACK AS A GROUP 2B (KNOWN ANIMAL CARCINOGEN, POSSIBLE HUMAN CARCINOGEN) COMPOUND. CARBON BLACK HAS NOT BEEN LISTED AS A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM (NTP) OR THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

INCOMPATIBILITY
STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS
COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.
CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH,KEEP AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...

...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

CONTAINS CARBON BLACK WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO PRESENT ANY SIGNIFICANT HAZARDS WHEN DISPERSED IN A LIQUID.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-812

HMIS RATING
HEALTH 1
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE	.4	***	***	OSHA 50 PPM
CAS NO. 1336-21-6 SYN: AQUA AMMONIA				ACGIH 25 PPM
1,3-BUTANEDIOL	00-10	.06	20.0	OSHA NOT ESTAB.
CAS NO. 107-88-0 SYN: 1,3-BUTYLENE GLYCOL				ACGIH NOT ESTAB.
MORPHOLINE	.7	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
CARBON BLACK	2.1	*	*	OSHA 3.5 MG/CU M
CAS NO. 1333-86-4 SYN: CARBON BLACK				ACGIH 3.5 MG/CU M

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.
OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.

*** NOT KNOWN TO MANUFACTURER
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 3
WEIGHT PER GALLON: 8.40 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

BASED ON THE RESULTS OF RAT INHALATION STUDIES, IARC HAS CLASSIFIED CARBON BLACK AS A GROUP 2B (KNOWN ANIMAL CARCINOGEN, POSSIBLE HUMAN CARCINOGEN) COMPOUND. CARBON BLACK HAS NOT BEEN LISTED AS A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM (NTP) OR THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

INCOMPATIBILITY
STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS
COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.
CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH,KEEP AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...

...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

CONTAINS CARBON BLACK WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO PRESENT ANY SIGNIFICANT HAZARDS WHEN DISPERSED IN A LIQUID.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-884

HMIS RATING
HEALTH 1
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
TALC	1.2	*	*	OSHA 2MG/M3
CAS NO. 14807-96-6 SYN: TALC				ACGIH 2MG/M3
ETHANOL,2-AMINO	00-10	.20	20.0	OSHA 3 PPM
CAS NO. 141-43-5 SYN: ETHANOLAMINE				ACGIH 3 PPM

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:170-313 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.
UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

MAY CAUSE SEVERE EYE IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

CONTACT WITH SKIN MAY RESULT IN DESTRUCTION OF TISSUE, BURNING SENSATION, AND/OR REDDENING OF AFFECTED AREAS.

VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.

INGESTION (SWALLOWING) MAY CAUSE IRRITATION AND POSSIBLY CORROSIVE EFFECTS IN THE MOUTH, STOMACH AND DIGESTIVE TRACT.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

MAY AGGRAVATE EXISTING SKIN, EYE, AND LUNG CONDITIONS.

SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EXPOSURE TO AEROSOL MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

THIS PRODUCT CONTAINS TALC WHICH PRESENTS THE FOLLOWING POTENTIAL HAZARDS WHEN IN DUST FORM:

MECHANICAL IRRITATION TO EYES AND RESPIRATORY TRACT

SNEEZING, COUGHING, AND NOSE IRRITATION FROM DUST INHALATION

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

LONG-TERM EXCESSIVE EXPOSURES MAY CAUSE TALCOSIS, A PULMONARY FIBROSIS, WHICH IN TURN MAY LEAD TO SEVERE AND PERMANENT DAMAGE TO THE LUNGS

THE ABRASIVENESS OF THE MATERIAL MAY CAUSE SKIN IRRITATION

INGESTION MAY CAUSE MILD IRRITATION OF THE GASTROINTESTINAL TRACT

FOR LIQUID PRODUCTS, THE ABOVE HAZARDS WOULD NOT BE EXPECTED TO MANIFEST THEMSELVES UNDER NORMAL CONDITIONS OF USE

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

ACIDIC MATERIALS, ANHYDRIDES AND STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS TALC WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT HAZARDOUS WHEN DISPERSED IN LIQUIDS.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-14-888

HMIS RATING

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
IRON OXIDE	55.0	*	*	OSHA 10 MG/M3
CAS NO. 1309-37-1 SYN: IRON OXIDE				ACGIH 5 MG/M3

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 0
WEIGHT PER GALLON: 15.00 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

HAZARDOUS DECOMPOSITION PRODUCTS

SECTION 6 - REACTIVITY DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS IRON OXIDE WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO BE HAZARDOUS WHEN DISPERSED IN A LIQUID.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-001

HMIS RATING

HEALTH 3
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHANOL,2-AMINO	00-10	.20	20.0	OSHA 3 PPM
CAS NO. 141-43-5 SYN: ETHANOLAMINE				ACGIH 3 PPM
	12.0	*	*	OSHA 3 MG/CU M
CAS NO. 12001-26-2 SYN: MICA				ACGIH 3 MG/CU M

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 10.05 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL,

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

MAY CAUSE SEVERE EYE IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

CONTACT WITH SKIN MAY RESULT IN DESTRUCTION OF TISSUE, BURNING SENSATION, AND/OR REDDENING OF AFFECTED AREAS.

VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.

INGESTION (SWALLOWING) MAY CAUSE IRRITATION AND POSSIBLY CORROSIVE EFFECTS IN THE MOUTH, STOMACH AND DIGESTIVE TRACT.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EXPOSURE TO AEROSOL MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

ACIDIC MATERIALS, ANHYDRIDES AND STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE,

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS MICA.LONG TERM INHALATION OF MICA (IN DRY FORM) ABOVE THE TLV-PEL EXPOSURE LIMITS MAY CAUSE SLIGHT LUNG FIBROSIS AND RELATIVELY BENIGN PNEUMOCONIOSIS.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-003

HMIS RATING

HEALTH 3
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHANOL,2-AMINO	00-10	.20	20.0	OSHA 3 PPM
CAS NO. 141-43-5 SYN: ETHANOLAMINE				ACGIH 3 PPM
TITANIUM DIOXIDE	10-35	*	*	OSHA 15 MG/M3
CAS NO. 13463-67-7 SYN: ...				ACGIH 10 MG/M3
	8.7	*	*	OSHA 3 MG/CU M
CAS NO. 12001-26-2 SYN: MICA				ACGIH 3 MG/CU M

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 10.05 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

MAY CAUSE SEVERE EYE IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

CONTACT WITH SKIN MAY RESULT IN DESTRUCTION OF TISSUE, BURNING SENSATION, AND/OR REDDENING OF AFFECTED AREAS.

VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.

INGESTION (SWALLOWING) MAY CAUSE IRRITATION AND POSSIBLY CORROSIVE EFFECTS IN THE MOUTH, STOMACH AND DIGESTIVE TRACT.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

BASED ON RESULTS FROM A DUPONT EPIDEMIOLOGY STUDY,DUPONT CONCLUDES THAT TITANIUM DIOXIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EXPOSURE TO AEROSOL MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

ACIDIC MATERIALS, ANHYDRIDES AND STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS MICA.LONG TERM INHALATION OF MICA (IN DRY FORM) ABOVE THE TLV-PEL EXPOSURE LIMITS MAY CAUSE SLIGHT LUNG FIBROSIS AND RELATIVELY BENIGN PNEUMOCONIOSIS.

CONTAINS TITANIUM DIOXIDE WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO BE HAZARDOUS WHEN DISPERSED IN A LIQUID. IF USER OPERATIONS COULD CREATE A DUST CONTAINING TITANIUM DIOXIDE, THE SUPPLIER SHOULD BE CONTACTED FOR FURTHER INFORMATION.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY])
PRODUCT NAME: PP-15-003

HMIS RATING

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
TITANIUM OXIDE	10-35	*	*	OSHA 10 MG/M3
CAS NO. 13463-67-7 SYN: TITANIUM DIOXIDE				ACGIH 10 MG/M3
ETHANOL,2-AMINO	1.0	.30	20.0	OSHA 3 PPM
CAS NO. 141-43-5 SYN: ETHANOLAMINE				ACGIH 3 PPM
	8.7	*	*	OSHA 3 MG/CU M
CAS NO. 12001-26-2 SYN: MICA				ACGIH 3 MG/CU M

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.

BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 10.05 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
LIQUID MAY CAUSE EYE BURNS.
VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.
BASED ON RESULTS FROM A DU PONT EPIDEMIOLOGY STUDY,DU PONT CONCLUDES THAT TITANIUM DIOXIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

ACIDIC MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.
DO NOT HANDLE OR STORE NEAR STRONG OXIDANTS.
ACCORDING TO DOW CHEMICAL, A MANUFACTURER OF ETHANOLAMINE (SEE SECTION 2), LABORATORY OBSERVATIONS HAVE SHOWN THAT THERE ARE POTENTIAL PROBLEMS WHEN ETHANOLAMINE IS HEATED IN CONTACT

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

WITH ALUMINUM. AT TEMPERATURES GREATER THAN 60 DEGREES C, A VIGOROUS REACTION MAY OCCUR WHICH DISSOLVES THE ALUMINUM AND RELEASES HYDROGEN GAS (WHICH CAN BE EXPLOSIVE). THIS PHENOMENON IS LESS LIKELY WHEN ETHANOLAMINE IS IN WATER. THE USER OF THIS PRODUCT SHOULD EVALUATE WHETHER THERE IS A POTENTIAL FOR PROBLEMS IN THIS REGARD, BASED ON KNOWLEDGE OF HIS OPERATIONS. ADDITIONAL INFORMATION ON THIS PHENOMENON IS AVAILABLE FROM STAHL USA ON REQUEST.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.
CONTAINS MICA.LONG TERM INHALATION OF MICA (IN DRY FORM) ABOVE THE TLV-PEL EXPOSURE LIMITS MAY CAUSE SLIGHT LUNG FIBROSIS AND RELATIVELY BENIGN PNEUMOCONIOSIS.
CONTAINS TITANIUM DIOXIDE WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO BE HAZARDOUS WHEN DISPERSED IN A LIQUID. IF USER OPERATIONS COULD CREATE A DUST CONTAINING TITANIUM DIOXIDE, THE SUPPLIER SHOULD BE CONTACTED FOR FURTHER INFORMATION.

SECTION 10 -USER RESPONSIBILITY

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MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-080

HMIS RATING
HEALTH 3
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHANOL,2-AMINO	00-10	.20	20.0	OSHA 3 PPM
				ACGIH 3 PPM

CAS NO. 141-43-5 SYN: ETHANOLAMINE
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 8.54 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

MAY CAUSE SEVERE EYE IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

CONTACT WITH SKIN MAY RESULT IN DESTRUCTION OF TISSUE, BURNING SENSATION, AND/OR REDDENING OF AFFECTED AREAS.

VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.

INGESTION (SWALLOWING) MAY CAUSE IRRITATION AND POSSIBLY CORROSIVE EFFECTS IN THE MOUTH, STOMACH AND DIGESTIVE TRACT.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EXPOSURE TO AEROSOL MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

ACIDIC MATERIALS, ANHYDRIDES AND STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-407

HMIS RATING
HEALTH 1
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
TALC	1.5	*	*	OSHA 2MG/M3
CAS NO. 14807-96-6 SYN: TALC				ACGIH 2MG/M3
TITANIUM DIOXIDE	10-35	*	*	OSHA 15 MG/M3
CAS NO. 13463-67-7 SYN: ...				ACGIH 10 MG/M3
ALUMINUM HYDROXIDE	1.3	*	*	OSHA NOT ESTAB
CAS NO. 21645-51-2 SYN: ALUMINUM HYDROXIDE				ACGIH NOT ESTAB

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 10.75 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

BASED ON RESULTS FROM A DUPONT EPIDEMIOLOGY STUDY,DUPONT CONCLUDES THAT TITANIUM DIOXIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

MAY AGGRAVATE EXISTING SKIN, EYE, AND LUNG CONDITIONS.

THIS PRODUCT CONTAINS TALC WHICH PRESENTS THE FOLLOWING POTENTIAL HAZARDS WHEN IN DUST FORM:

- MECHANICAL IRRITATION TO EYES AND RESPIRATORY TRACT
- SNEEZING, COUGHING, AND NOSE IRRITATION FROM DUST INHALATION
- LONG-TERM EXCESSIVE EXPOSURES MAY CAUSE TALCOSIS, A PULMONARY FIBROSIS, WHICH IN TURN MAY LEAD TO SEVERE AND PERMANENT DAMAGE TO THE LUNGS
- THE ABRASIVENESS OF THE MATERIAL MAY CAUSE SKIN IRRITATION
- INGESTION MAY CAUSE MILD IRRITATION OF THE GASTROINTESTINAL TRACT

FOR LIQUID PRODUCTS, THE ABOVE HAZARDS WOULD NOT BE EXPECTED TO MANIFEST THEMSELVES UNDER NORMAL CONDITIONS OF USE

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

HAZARDOUS DECOMPOSITION PRODUCTS

NONE KNOWN TO MANUFACTURER.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS TALC WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT HAZARDOUS WHEN DISPERSED IN LIQUIDS.

CONTAINS TITANIUM DIOXIDE WHICH MAY BE HAZARDOUS WHEN BREATHED AS A DUST. NOT BELIEVED TO BE HAZARDOUS WHEN DISPERSED IN A LIQUID. IF USER OPERATIONS COULD CREATE A DUST CONTAINING TITANIUM DIOXIDE, THE SUPPLIER SHOULD BE CONTACTED FOR FURTHER INFORMATION.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-440

HMIS RATING

HEALTH	2
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
MORPHOLINE	1.8	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
SODIUM 0-PHENYLPHENATE TETRAHYDRATE	.8	*	*	OSHA NOT ESTAB.
CAS NO. 6152-33-6 SYN:				ACGIH NOT ESTAB.

OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 2
WEIGHT PER GALLON: 9.63 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.
VAPORS MAY BE HEAVIER THAN AIR, AND MAY TRAVEL LONG DISTANCES ALONG THE GROUND BEFORE IGNITING AND FLASHING BACK TO VAPOR SOURCE.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
LIQUID MAY CAUSE EYE BURNS.
LIQUID MAY CAUSE CORNEAL INJURY.
LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

MAY CAUSE SKIN BURNS

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.
MAY BE HARMFUL IF INHALED.
POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.
DELAYED KIDNEY INJURY POSSIBLE FROM OVEREXPOSURE.
PRODUCT CONTAINS SODIUM O-PHENYLPHENATE TETRAHYDRATE (SEE SECTION 2) WHICH IS LISTED AS A POTENTIAL CARCINOGEN BY IARC. A RELATED COMPOUND, ORTHO PHENYLPHENOL HAS BEEN SHOWN TO PRODUCE URINARY BLADDER AND LIVER TUMORS IN RATS FED EXAGGERATED DOSES. HOWEVER, RISKS FROM ENVIRONMENTAL EXPOSURES ARE CONSIDERED NEGLIGIBLE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

CONTAINERS.
CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.
AVOID COMBINING WITH STRONG OXIDIZING AGENTS.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

> RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
>
> ...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-446

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)

THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 0
WEIGHT PER GALLON: 11.20 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.
SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

HAZARDOUS DECOMPOSITION PRODUCTS

NONE KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION
NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL CONDITIONS OF USE.

VENTILATION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-447

HMIS RATING
HEALTH 2
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
MORPHOLINE	1.2	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)

OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 2
WEIGHT PER GALLON: 8.80 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.
AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE,

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

> RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
>
> ...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-822

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
SODIUM MAGNESIUM ALUMINOSILICATE	5.5	*	*	OSHA 5MG CU M ACGIH 10MG CU M
CAS NO. 12040-43-6 SYN: ...				
MORPHOLINE	.8	7.00	20.0	OSHA 20 PPM(SKIN) ACGIH 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				

OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 8.80 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.

MAY BE HARMFUL IF INHALED.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.
AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

> RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
>
> ...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-847

HMIS RATING
HEALTH 2
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
MORPHOLINE	1.1	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
SODIUM 0-PHENYLPHENATE TETRAHYDRATE	.2	*	*	OSHA NOT ESTAB.
CAS NO. 6152-33-6 SYN:				ACGIH NOT ESTAB.
CRYSTALLINE SILICA	2.5	*	*	OSHA 0.1 MG/M3
CAS NO. 14808-60-7 SYN: CRYSTALLINE SILICA				ACGIH 0.1 MG/M3

OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 8.70 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.
VAPORS MAY BE HEAVIER THAN AIR, AND MAY TRAVEL LONG DISTANCES ALONG THE GROUND BEFORE IGNITING AND FLASHING BACK TO VAPOR SOURCE.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
LIQUID MAY CAUSE EYE BURNS.
LIQUID MAY CAUSE CORNEAL INJURY.
LIQUID MAY CAUSE PERMANENT EYE INJURY.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

MAY CAUSE SKIN BURNS
INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.
MAY BE HARMFUL IF INHALED.
POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.
DELAYED KIDNEY INJURY POSSIBLE FROM OVEREXPOSURE.
THE INTRENATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS EVALUATED SILICA AND SOME SILICATES. IARC HAS DETERMINED THAT THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY OF CRYSTALLINE SILICA AND MICROCRYSTALLINE SILICA TO EXPERIMENTAL ANIMALS AND LIMITED EVIDENCE WITH RESPECT TO

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

HUMANS.
PRODUCT CONTAINS SODIUM O-PHENYLPHENATE TETRAHYDRATE (SEE SECTION 2) WHICH IS LISTED AS A POTENTIAL CARCINOGEN BY IARC. A RELATED COMPOUND, ORTHO PHENYLPHENOL HAS BEEN SHOWN TO PRODUCE URINARY BLADDER AND LIVER TUMORS IN RATS FED EXAGGERATED DOSES. HOWEVER, RISKS FROM ENVIRONMENTAL EXPOSURES ARE CONSIDERED NEGLIGIBLE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

INCOMPATIBILITY
STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS
COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.
AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

AVOID COMBINING WITH STRONG OXIDIZING AGENTS.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS CRYSTALLINE (OR QUARTZ) SILICA AT THE LEVEL SHOWN IN SECTION 2. CRYSTALLINE SILICA,IN ITS DUST FORM ONLY, CAN BE VERY HAZARDOUS TO BREATHE (CAN CAUSE SILICOSIS). WHEN DISPERSED IN A LIQUID IT DOES NOT PRESENT THIS HAZARD.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

> RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
>
> ...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-15-884

HMIS RATING

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) / ACGIH (TLV)
ETHANOL,2-AMINO	00-10	.20	20.0	OSHA 3 PPM
CAS NO. 141-43-5 SYN: ETHANOLAMINE				ACGIH 3 PPM
MORPHOLINE	.4	7.00	20.0	OSHA 20 PPM(SKIN)
CAS NO. 110-91-8 SYN: 1,4-OXAZINE,TETRAHYDRO				ACGIH 20 PPM(SKIN)
CRYSTALLINE SILICA	7.0	*	*	OSHA 0.1 MG/M3
CAS NO. 14808-60-7 SYN: CRYSTALLINE SILICA				ACGIH 0.1 MG/M3
MICROCRYSTALLINE SILICA	.1	*	*	OSHA 0.1 MG/M3
CAS NO. 1317-95-9 SYN: TRIPOLI				ACGIH 0.1 MG/M3

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR ETHANOLAMINE IS 6PPM.
OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR MORPHOLINE IS 30PPM.
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 1
WEIGHT PER GALLON: 10.30 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS MORPHOLINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 95 DEGREES F, CLOSED CUP.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

LIQUID MAY CAUSE EYE BURNS.
MAY CAUSE SEVERE EYE IRRITATION.
LIQUID MAY CAUSE PERMANENT EYE INJURY.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

MORPHOLINE (SEE SECTION 2) MAY BE CORROSIVE TO SKIN, CAUSING SEVERE DAMAGE, WITH BURNS AND BLISTERING. IF THE PERCENTAGE OF MORPHOLINE INDICATED IN SECTION 2 IS LOW, THE LIKELIHOOD OF THESE EFFECTS IS LESSENED.

CONTACT WITH SKIN MAY RESULT IN DESTRUCTION OF TISSUE, BURNING SENSATION, AND/OR REDDENING OF AFFECTED AREAS.

INHALATION OF MORPHOLINE VAPORS (SEE SECTION 2) MAY CAUSE TEMPORARY HAZY VISION WITH "HALO" EFFECTS.
MAY BE HARMFUL IF INHALED.
VAPORS MAY HAVE PAINFUL EFFECTS ON EYES AND NOSE.
CONTAINS MICROCRYSTULLENE SILICA (SEE SECTION 2). REPEATED INHALATION OF RESPIRABLE SILICA DUST FOR EXTENDED PERIODS OF TIME MAY CAUSE INJURY TO THE LUNGS. WHEN DESPERSED IN A LIQUID, IT DOES NOT PRESENT THIS HAZARD.
INGESTION (SWALLOWING) MAY CAUSE IRRITATION AND POSSIBLY CORROSIVE EFFECTS IN THE MOUTH, STOMACH AND DIGESTIVE TRACT.
POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

THE INTRENATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS EVALUATED SILICA AND SOME SILICATES. IARC HAS DETERMINED THAT THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY OF CRYSTALLINE SILICA AND MICROCRYSTALLINE SILICA TO EXPERIMENTAL ANIMALS AND LIMITED EVIDENCE WITH RESPECT TO HUMANS.

SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EXPOSURE TO AEROSOL MAY AGGRAVATE ASTHMA AND INFLAMMATORY FIBROTIC PULMONARY DISEASE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

ACIDIC MATERIALS, ANHYDRIDES AND STRONG OXIDIZERS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

AMMONIA (THERMAL DECOMPOSITION).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

SECTION 6 - REACTIVITY DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

CONTAINS MORPHOLINE, WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF MORPHOLINE CONTAINED IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED). DEPENDING ON CONDITIONS OF USE, APRON, BOOTS, HEAD AND FACE PROTECTION, AND OTHER PROTECTIVE CLOTHING SHOULD BE USED AS NEEDED TO AVOID SKIN CONTACT.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

CONTAINS CRYSTALLINE (OR QUARTZ) SILICA AT THE LEVEL SHOWN IN SECTION 2. CRYSTALLINE SILICA,IN ITS DUST FORM ONLY, CAN BE VERY HAZARDOUS TO BREATHE (CAN CAUSE SILICOSIS). WHEN DISPERSED IN A LIQUID IT DOES NOT PRESENT THIS HAZARD.

DUE TO PRESENCE OF MORPHOLINE IN THIS PRODUCT (SEE SECTION 2), DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. THE SUSPECTED CARCINOGENS NITROSAMINES COULD BE FORMED.

WITH REGARD TO MORPHOLINE, WHICH IS CONTAINED IN THIS PRODUCT (SEE SECTION 2) THE FOLLOWING ARE EXCERPTS FROM A LETTER PUBLISHED BY TEXACO, DATED JULY 14, 1982:

RESULTS OF RECENT TESTS CONDUCTED BY TEXACO INDICATE THAT MORPHOLINE MAY BE WEAKLY MUTAGENIC. THESE TESTS ARE OF THE

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

TYPE USUALLY DESCRIBED AS "SHORT TERM IN VITRO BIO ASSAYS" OF WHICH THE AMES TEST IS THE BEST KNOWN EXAMPLE. IT SHOULD BE EMPHASIZED THAT A MUTAGENIC COMPOUND IS NOT NECESSARILY CARCINOGENIC...
...NEVERTHELESS, IT WOULD BE PRUDENT TO MINIMIZE EXPOSURE TO MORPHOLINE, AND GOOD INDUSTRIAL HYGIENE PRACTICES SHOULD BE ABLE TO CONTROL AIRBORNE CONCENTRATIONS TO LEVELS LOWER THAN THAN THE PUBLISHED TLV.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-8030

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS				

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.60 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.
SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS DECOMPOSITION PRODUCTS
NONE KNOWN TO MANUFACTURER.
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.
CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-8031

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS				

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.90 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.
SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS DECOMPOSITION PRODUCTS
NONE KNOWN TO MANUFACTURER.
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.
CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION
NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-8040

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS				

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.70 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.
SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS DECOMPOSITION PRODUCTS
NONE KNOWN TO MANUFACTURER.
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.
CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION
NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED

CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-8045

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS				

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.
SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS DECOMPOSITION PRODUCTS
NONE KNOWN TO MANUFACTURER.
HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.
CONDITIONS TO AVOID
NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED

CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: PP-8055

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS			

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
BOILING RANGE: APPROX. 212 F
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 9.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

HAZARDOUS DECOMPOSITION PRODUCTS

NONE KNOWN TO MANUFACTURER.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

MATERIAL SAFETY DATA SHEET

19-240232

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 3606
108190 VERSION: 01 REVISED DATE: 03/29/2001

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV
123 N MAIN ST
ROCKFORD MI 493510000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: PRESTO 3606 Sagebrush
PRODUCT CODE: 108190
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF PIGMENTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: BLEND OF PIGMENTS FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
TALC(<1% CRYSTALLINE SILICA;NO ASBESTOS) RESPIRABLE DUST	14807-96-6	< 25	ACGIH / OSHA 2 MG/M3 (Z-1-A) 20 MPPCF (Z-3)
SILICA LD50(ORAL)(RAT) - 3160 MG/KG	7631-86-9	< 2	NIOSH TWA: 6 MG/M3; OSHA TWA: 20 MPPCF; NIOSH IDLH: 3000 MG/M3;
TITANIUM DIOXIDE	13463-67-7	< 20	10 MG/M3 TOTAL DUST OSHA 10 MG/M3 ACGIH 5000 MG/M3 IDLH
PARTICULATE MATTER	MIXTURE	100	
TOTAL DUST (PEL-OSHA)			15 MG/M3
RESPIRABLE (PEL-OSHA)			5 MG/M3

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:
SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X

2 non sand

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

INGESTION: X

EFFECTS OF EXPOSURE:

TALC: MAY CAUSE RESPIRATORY IRRITATION

SILICA: CONSIDERED TO BE A NUISANCE DUST AND MAY CAUSE IRRITATION TO THE LUNGS. HAS ALSO BEEN KNOWN TO CAUSE EYE IRRITATION IN CERTAIN INDIVIDUALS. PROLONGED INHALATION OF DUSTS CONTAINING FREE SILICA MAY RESULT IN THE DEVELOPMENT OF A DISABLING PULMONARY FIBROSIS KNOWN AS SILICOSIS.

TITANIUM DIOXIDE: MAY CAUSE SLIGHT SKIN IRRITATION. IS AN IRRITANT TO THE EYES. INHALATION OF DUST MAY CAUSE MILD UPPER RESPIRATORY IRRITATION WITH COUGH AND SHORTNESS OF BREATH. BASED ON SUPPLIERS STUDY, TITANIUM DIXOIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

KNOWN EFFECTS ON OTHER ILLNESSES:

EXCESSIVE EXPOSURE TO ANY DUST MAY AGGRAVATE PRE-EXISTING RESPIRATORY CONDITIONS.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

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SECTION 04 - FIRST AID MEASURES (CONT.)

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NON-FLAMMABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): NOT APPLICALBE

HAZARDOUS COMBUSTION PRODUCTS:

NONE EXPECTED

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. AVOID BREATHING AND GENERATING DUSTS. SWEEP OR SCOOP MATERIAL INTO CONTAINERS FOR REUSE OR DISPOSAL.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

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SECTION 07 - HANDLING AND STORAGE (CONT.)

AVOID DUST FORMATION. DO NOT INHALE DUST.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:
IMPERVIOUS GLOVES

EYE PROTECTION:
DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BLACK POWDER; NO ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: NEGLIGIBLE
SPECIFIC GRAVITY: > 1 G/CM3
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): < 10% WATER
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

OTHER PHYSICAL AND CHEMICAL PROPERTIES:
DENSITY: 8 LBS/GAL

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DRY EARTH PIGMENTS N.O.I. AS PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT DETERMINED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: N

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): < 10% WATER

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SECTION 15 - REGULATORY INFORMATION (CONT.)

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:
THIS PRODUCT MAY CONTAIN TRACE AMOUNTS OF:
PIGMENT YELLOW 42 (51274-00-1)
ANILINE (62-53-3)
QUARTZ (14808-60-7)
WHICH ARE LISTED ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY.

LABEL INFORMATION:
LABEL HAZARDS:
CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

SECTION 16 - OTHER INFORMATION (CONT.)

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES

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CLARIANT Corporation: (704) 331-7000

SECTION 16 - OTHER INFORMATION (CONT.)

NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 3607A (Gunsmoke)
618907 VERSION: 01 REVISED DATE: 03/29/2001

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV
123 N MAIN ST
ROCKFORD MI 493510000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: PRESTO 3607A
PRODUCT CODE: 618907
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF PIGMENTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: BLEND OF PIGMENTS FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
TALC(<1% CRYSTALLINE SILICA;NO ASBESTOS) RESPIRABLE DUST	14807-96-6	< 20	ACGIH / OSHA 2 MG/M3 (Z-1-A) 20 MPPCF (Z-3)
SILICA LD50(ORAL)(RAT) - 3160 MG/KG	7631-86-9	< 2	NIOSH TWA: 6 MG/M3; OSHA TWA: 20 MPPCF; NIOSH IDLH: 3000 MG/M3;
TITANIUM DIOXIDE	13463-67-7	< 20	10 MG/M3 TOTAL DUST OSHA 10 MG/M3 ACGIH 5000 MG/M3 IDLH
PARTICULATE MATTER	MIXTURE	100	
TOTAL DUST (PEL-OSHA)			15 MG/M3
RESPIRABLE (PEL-OSHA)			5 MG/M3

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X

2 non sara

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

INGESTION: X

EFFECTS OF EXPOSURE:

TALC: MAY CAUSE RESPIRATORY IRRITATION

SILICA: CONSIDERED TO BE A NUISANCE DUST AND MAY CAUSE IRRITATION TO THE LUNGS. HAS ALSO BEEN KNOWN TO CAUSE EYE IRRITATION IN CERTAIN INDIVIDUALS. PROLONGED INHALATION OF DUSTS CONTAINING FREE SILICA MAY RESULT IN THE DEVELOPMENT OF A DISABLING PULMONARY FIBROSIS KNOWN AS SILICOSIS.

TITANIUM DIOXIDE: MAY CAUSE SLIGHT SKIN IRRITATION. IS AN IRRITANT TO THE EYES. INHALATION OF DUST MAY CAUSE MILD UPPER RESPIRATORY IRRITATION WITH COUGH AND SHORTNESS OF BREATH. BASED ON SUPPLIERS STUDY, TITANIUM DIXOIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

KNOWN EFFECTS ON OTHER ILLNESSES:

EXCESSIVE EXPOSURE TO ANY DUST MAY AGGRAVATE PRE-EXISTING RESPIRATORY CONDITIONS.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

SECTION 04 - FIRST AID MEASURES (CONT.)

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): NOT AVAILABLE

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY GENERATE OXIDES OF CARBON AND PHOSPHOROUS AND OTHER POTENTIALLY CORROSIVE AND/OR TOXIC FUMES.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. AVOID BREATHING AND GENERATING DUSTS. SWEEP OR SCOOP MATERIAL INTO CONTAINERS FOR REUSE OR DISPOSAL.

SECTION 07 - HANDLING AND STORAGE

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PRESTO 3607A
618907 VERSION: 01 REVISED DATE: 03/29/2001

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CLARIANT Corporation: (704) 331-7000

SECTION 07 - HANDLING AND STORAGE (CONT.)

HANDLING AND STORAGE INFORMATION:
PROTECT FROM FREEZING. THE PRODUCT MAY NO LONGER BE USABLE AFTER FREEZING.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:
RUBBER OR PLASTIC

EYE PROTECTION:
DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
USE ADEQUATE EXHAUST VENTILATION AND/OR DUST COLLECTION TO KEEP DUST LEVELS BELOW EXPOSURE LIMITS.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: GREY POWDER; NO ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: DISPERSABLE
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NON-VOLATILE
LOSS ON DRYING(%): < 10% WATER
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: AVOID CONTACT WITH STRONG ACIDS.

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DRY EARTH PIGMENTS N.O.I. AS PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT DETERMINED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: N

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): < 10% WATER

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO

SECTION 15 - REGULATORY INFORMATION (CONT.)

LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
HANDLE WITH CARE. ORGANIC DUSTS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:
THIS PRODUCT MAY CONTAIN TRACE AMOUNTS OF:
-QUARTZ (14808-60-7)
WHICH ARE LISTED ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY.

LABEL INFORMATION:
LABEL HAZARDS:
CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

CAUTION!

SECTION 16 - OTHER INFORMATION (CONT.)

IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

LABEL PRECAUTIONS:

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA,

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SECTION 16 - OTHER INFORMATION (CONT.)

THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

d Wide Leather

19-240235

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
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PRESTO 4072 HOUND DOG LF
108175 VERSION: 02 REVISED DATE: 03/25/2002

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1-800-424-9300

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CLARIANT Corporation: (704) 331-7000

Wolverine World Wide Leather
ATTN: Jenny Halbot

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 0
REACTIVITY 0
PERSONAL PROTECTION E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: PRESTO 4072 HOUND DOG LF
PRODUCT CODE: 108175
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF PIGMENTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: BLEND OF PIGMENTS FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
TITANIUM DIOXIDE	13463-67-7	< 32	10 MG/M3 TOTAL DUST OSHA 10 MG/M3 ACGIH 5000 MG/M3 IDLH
TALC(<1% CRYSTALLINE SILICA;NO ASBESTOS) RESPIRABLE DUST	14807-96-6	< 20	ACGIH / OSHA 2 MG/M3 (Z-1-A) 20 MPPCF (Z-3)
IRON OXIDE LD50(INTRAPERITONEAL)(RAT)-5550 MG/KG	1309-37-1	< 9	10 MG/M3 OSHA 5 MG/M3 ACGIH
SILICA LD50(ORAL)(RAT)- 3160 MG/KG	7631-86-9	< 4	NIOSH TWA: 6 MG/M3; OSHA TWA: 20 MPPCF; NIOSH IDLH: 3000 MG/M3;
QUARTZ (SILICA-CRYSTALLINE)	14808-60-7	< 1	0.05 MG/M3 RESPIRABLE DUST NIOSH 0.1 MG/M3 TOTAL ACGIH
PARTICULATE MATTER	MIXTURE	100	
TOTAL DUST (PEL-OSHA)			15 MG/M3
RESPIRABLE (PEL-OSHA)			5 MG/M3

SECTION 03 - HAZARDS IDENTIFICATION

Z non sara

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

TITANIUM DIOXIDE: MAY CAUSE SLIGHT SKIN IRRITATION. IS AN IRRITANT TO THE EYES. INHALATION OF DUST MAY CAUSE MILD UPPER RESPIRATORY IRRITATION WITH COUGH AND SHORTNESS OF BREATH. BASED ON SUPPLIERS STUDY, TITANIUM DIXOIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

TALC: MAY CAUSE RESPIRATORY IRRITATION

IRON OXIDE: INHALATION OF FUMES OR DUST MAY CAUSE A BENIGN PMEUMOCONIOSIS WHICH IS INDISTINGUISHABLE FROM FIBROTIC PNEUMOCONIOSIS BY X-RAY.

SILICA: CONSIDERED TO BE A NUISANCE DUST AND MAY CAUSE IRRITATION TO THE LUNGS. HAS ALSO BEEN KNOWN TO CAUSE EYE IRRITATION IN CERTAIN INDIVIDUALS. PROLONGED INHALATION OF DUSTS CONTAINING FREE SILICA MAY RESULT IN THE DEVELOPMENT OF A DISABLING PULMONARY FIBROSIS KNOWN AS SILICOSIS.

QUARTZ: CONFIRMED CARCINOGEN WITH EXPERIMENTAL CARCINOGENIC, TUMORIGENIC, AND NEOPLASTIGENIC DATA. EXPERIMENTAL POISON BY INTRATRACHEAL AND INTRAVENOUS ROUTES. HUMAN SYSTEMIC EFFECTS BY INHALATION: COUGH, DYSPNEA, LIVER EFFECTS. IARC GROUP 1 (CARCINOGENIC TO HUMANS)

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE:
OSHA: X
NTP: X
IARC: X
OTHER:

SECTION 04 - FIRST AID MEASURES

MATERIAL SAFETY DATA SHEET

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SECTION 04 - FIRST AID MEASURES (CONT.)

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NON-FLAMMABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

DECOMPOSITION PRODUCTS ARE UNKNOWN.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

MATERIAL SAFETY DATA SHEET

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. AVOID BREATHING AND GENERATING DUSTS. SWEEP OR SCOOP MATERIAL INTO CONTAINERS FOR REUSE OR DISPOSAL.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

PROTECT FROM FREEZING. THE PRODUCT MAY NO LONGER BE USABLE AFTER FREEZING.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:

RUBBER OR PLASTIC

EYE PROTECTION:

DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:

NONE KNOWN

VENTILATION:

USE ADEQUATE EXHAUST VENTILATION AND/OR DUST COLLECTION TO KEEP DUST LEVELS BELOW EXPOSURE LIMITS.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):

NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BEIGE POWDER, NO ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 6 - 8

MATERIAL SAFETY DATA SHEET

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SOLUBILITY IN WATER: DISPERSIBLE
SPECIFIC GRAVITY: > 1
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

MATERIAL SAFETY DATA SHEET

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SECTION 12 - ECOLOGICAL INFORMATION (CONT.)

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DRY EARTH PIGMENTS N.O.I. AS PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y
SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

MATERIAL SAFETY DATA SHEET

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SECTION 15 - REGULATORY INFORMATION (CONT.)

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
-LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
AVOID DUST FORMATION. DO NOT INHALE DUST.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:

MATERIAL SAFETY DATA SHEET

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SECTION 16 - OTHER INFORMATION (CONT.)

THIS PRODUCT CONTAINS TRACE AMOUNTS OF CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY:
- -SILICA, CRYSTALLINE (AIRBORNE PARTICLES OF RESPIRABLE SIZE) (14808-60-7)
- -ANILINE (62-53-3)
- -PIGMENT YELLOW 42 (51274-00-1)

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

WARNING!
THIS PRODUCT IS CONSIDERED A CARCINOGEN BY IARC BECAUSE IT MAY CONTAIN CRYSTALLINE SILICA AT LEVELS GREATER THAN 0.1%.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4072 HOUND DOG LF
108175 VERSION: 02 REVISED DATE: 03/25/2002

Clariant

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 16 - OTHER INFORMATION (CONT.)

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

d Wide Leather

19-240236

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

Wolverine World Wide Leather
ATTN: Jenny Halbot

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: PRESTO 4073 ROOT BEER
PRODUCT CODE: 108183
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF PIGMENTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: BLEND OF PIGMENTS FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
TALC(<1% CRYSTALLINE SILICA;NO ASBESTOS) RESPIRABLE DUST	14807-96-6	< 18	ACGIH / OSHA 2 MG/M3 (Z-1-A) 20 MPPCF (Z-3)
IRON OXIDE LD50(INTRAPERITONEAL)(RAT)-5550 MG/KG	1309-37-1	< 35	10 MG/M3 OSHA 5 MG/M3 ACGIH
QUARTZ (SILICA-CRYSTALLINE)	14808-60-7	< 4	0.05 MG/M3 RESPIRABLE DUST NIOSH 0.1 MG/M3 TOTAL ACGIH
IRON OXIDE RED ACGIH TLV: OSHA PEL:	1332-37-2	< 12	10 MG/M3 15 MG/M3
PARTICULATE MATTER	MIXTURE	100	
TOTAL DUST (PEL-OSHA)			15 MG/M3
RESPIRABLE (PEL-OSHA)			5 MG/M3

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:
SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

Clariant

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

TALC: MAY CAUSE RESPIRATORY IRRITATION

IRON OXIDE: INHALATION OF FUMES OR DUST MAY CAUSE A BENIGN PMEUMOCONIOSIS WHICH IS INDISTINGUISHABLE FROM FIBROTIC PNEUMOCONIOSIS BY X-RAY.

QUARTZ: CONFIRMED CARCINOGEN WITH EXPERIMENTAL CARCINOGENIC, TUMORIGENIC, AND NEOPLASTIGENIC DATA. EXPERIMENTAL POISON BY INTRATRACHEAL AND INTRAVENOUS ROUTES. HUMAN SYSTEMIC EFFECTS BY INHALATION: COUGH, DYSPNEA, LIVER EFFECTS. IARC GROUP 1 (CARCINOGENIC TO HUMANS)

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:
NONE:
OSHA: X
NTP: X
IARC: X
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

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SECTION 04 - FIRST AID MEASURES (CONT.)

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NON-FLAMMABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:
DECOMPOSITION PRODUCTS ARE UNKNOWN.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
WEAR APPROPRIATE PROTECTIVE EQUIPMENT. AVOID BREATHING AND GENERATING DUSTS. SWEEP OR SCOOP MATERIAL INTO CONTAINERS FOR REUSE OR DISPOSAL.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
PROTECT FROM FREEZING. THE PRODUCT MAY NO LONGER BE USABLE AFTER FREEZING.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

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SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

RESPIRATORY PROTECTION:
USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:
RUBBER OR PLASTIC

EYE PROTECTION:
DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

VENTILATION:
USE ADEQUATE EXHAUST VENTILATION AND/OR DUST COLLECTION TO KEEP DUST LEVELS BELOW EXPOSURE LIMITS.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BROWN POWDER, NO ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 6 - 8
SOLUBILITY IN WATER: DISPERSIBLE
SPECIFIC GRAVITY: > 1
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NIL
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

Clariant

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SECTION 10 - STABILITY AND REACTIVITY (CONT.)

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

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For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 14 - TRANSPORT INFORMATION (CONT.)

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DRY EARTH PIGMENTS N.O.I. AS PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NIL

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

Clariant

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CLARIANT Corporation: (704) 331-7000

SECTION 15 - REGULATORY INFORMATION (CONT.)

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

AVOID DUST FORMATION. DO NOT INHALE DUST.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

WARNING!
THIS PRODUCT IS CONSIDERED A CARCINOGEN BY IARC BECAUSE IT MAY CONTAIN CRYSTALLINE SILICA AT LEVELS GREATER THAN 0.1%.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
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PRESTO 4073 ROOT BEER
108183 VERSION: 01 REVISED DATE: 03/25/2002

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CLARIANT Corporation: (704) 331-7000

SECTION 16 - OTHER INFORMATION (CONT.)

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

MATERIAL SAFETY DATA SHEET

19-240241

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4960 CLASSIC CARMEL
108194 VERSION: 01 REVISED DATE: 03/29/2001

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV
123 N MAIN ST
ROCKFORD MI 493510000
ATTN: Product Safety Manager

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 0
REACTIVITY 0
PERSONAL PROTECTION E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: PRESTO 4960 CLASSIC CARMEL
PRODUCT CODE: 108194
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF PIGMENTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: BLEND OF PIGMENTS FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
KAOLIN	1332-58-7	< 65	2 MG/M3 ACGIH RESPIRABLE 15 MG/M3 OSHA TOTAL DUST 5 MG/M3 OSHA RESPIRABLE
TITANIUM DIOXIDE	13463-67-7	< 25	10 MG/M3 TOTAL DUST OSHA 10 MG/M3 ACGIH 5000 MG/M3 IDLH
QUARTZ (SILICA-CRYSTALLINE)	14808-60-7	< 1	0.05 MG/M3 RESPIRABLE DUST NIOSH 0.1 MG/M3 TOTAL ACGIH
SILICA LD50(ORAL)(RAT) - 3160 MG/KG	7631-86-9	< 3	NIOSH TWA: 6 MG/M3; OSHA TWA: 20 MPPCF; NIOSH IDLH: 3000 MG/M3;
IRON OXIDE LD50(INTRAPERITONEAL)(RAT)-5550 MG/KG	1309-37-1	< 5	10 MG/M3 OSHA 5 MG/M3 ACGIH
PARTICULATE MATTER	MIXTURE	100	
TOTAL DUST (PEL-OSHA)			15 MG/M3
RESPIRABLE (PEL-OSHA)			5 MG/M3

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4960 CLASSIC CARMEL
108194 VERSION: 01 REVISED DATE: 03/29/2001

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SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS (CONT.)

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)

EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

KAOLIN: IS A NUISANCE DUST. EXPOSURE TO LARGE QUANITITIES OF KAOLIN OVER SEVERAL YEARS WITHOUT USE OF A DUST MASK COULD AFFECT RESPIRATORY FUNCTION. NO ACUTE EFFECTS.

TITANIUM DIOXIDE: MAY CAUSE SLIGHT SKIN IRRITATION. IS AN IRRITANT TO THE EYES. INHALATION OF DUST MAY CAUSE MILD UPPER RESPIRATORY IRRITATION WITH COUGH AND SHORTNESS OF BREATH. BASED ON SUPPLIERS STUDY, TITANIUM DIXOIDE PIGMENT WILL NOT CAUSE LUNG CANCER OR CHRONIC RESPIRATORY DISEASE IN HUMANS AT CONCENTRATIONS EXPERIENCED IN THE WORKPLACE.

QUARTZ: CONFIRMED CARCINOGEN WITH EXPERIMENTAL CARCINOGENIC, TUMORIGENIC, AND NEOPLASTIGENIC DATA. EXPERIMENTAL POISON BY INTRATRACHEAL AND INTRAVENOUS ROUTES. HUMAN SYSTEMIC EFFECTS BY INHALATION: COUGH, DYSPNEA, LIVER EFFECTS. IARC GROUP 1 (CARCINOGENIC TO HUMANS)

SILICA: CONSIDERED TO BE A NUISANCE DUST AND MAY CAUSE IRRITATION TO THE LUNGS. HAS ALSO BEEN KNOWN TO CAUSE EYE IRRITATION IN CERTAIN INDIVIDUALS. PROLONGED INHALATION OF DUSTS CONTAINING FREE SILICA MAY RESULT IN THE DEVELOPMENT OF A DISABLING PULMONARY FIBROSIS KNOWN AS SILICOSIS.

IRON OXIDE: INHALATION OF FUMES OR DUST MAY CAUSE A BENIGN PMEUMOCONIOSIS WHICH IS INDISTINGUISHABLE FROM FIBROTIC PNEUMOCONIOSIS BY X-RAY.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE:
OSHA: X
NTP: X

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

IARC: X
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NON-FLAMMABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

DECOMPOSITION PRODUCTS ARE UNKNOWN.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

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4000 MONROE ROAD
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PRESTO 4960 CLASSIC CARMEL
108194 VERSION: 01 REVISED DATE: 03/29/2001

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For MSDS Info: (704) 331-7710
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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

SPECIAL FIRE FIGHTING PROCEDURES:
EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
WEAR APPROPRIATE PROTECTIVE EQUIPMENT. AVOID BREATHING AND GENERATING DUSTS. SWEEP OR SCOOP MATERIAL INTO CONTAINERS FOR REUSE OR DISPOSAL.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:
RUBBER OR PLASTIC

EYE PROTECTION:
DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

VENTILATION:
USE ADEQUATE EXHAUST VENTILATION AND/OR DUST COLLECTION TO KEEP DUST LEVELS BELOW EXPOSURE LIMITS.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

PRESTO 4960 CLASSIC CARMEL
108194 VERSION: 01 REVISED DATE: 03/29/2001

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: LIGHT BROWN POWDER, NO ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: NEGLIGIBLE
SPECIFIC GRAVITY: > 1 G/CM3
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): < 10% WATER
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

OTHER PHYSICAL AND CHEMICAL PROPERTIES:
DENSITY: 8.0 LBS/GAL

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

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SECTION 12 - ECOLOGICAL INFORMATION (CONT.)

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:

NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:

IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DRY EARTH PIGMENTS N.O.I. AS PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

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SECTION 15 - REGULATORY INFORMATION (CONT.)

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): < 10% WATER

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
AVOID DUST FORMATION. DO NOT INHALE DUST.

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SECTION 16 - OTHER INFORMATION (CONT.)

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:
THIS PRODUCT CONTAINS TRACE AMOUNTS OF CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY:
-SILICA, CRYSTALLINE (AIRBORNE PARTICLES OF RESPIRABLE SIZE) (14808-60-7)
-ANILINE (62-53-3)
-PIGMENT YELLOW 42 (51274-00-1)

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

WARNING!
THIS PRODUCT IS CONSIDERED A CARCINOGEN BY IARC BECAUSE IT MAY CONTAIN CRYSTALLINE SILICA AT LEVELS GREATER THAN 0.1%.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

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SECTION 16 - OTHER INFORMATION (CONT.)

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

Rev #3063

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) LANXESS

1. Product and Company Identification

Product Name:	PREVENTOL CT-L
Material Number:	56151404
EPA Registration Number:	39967-46
Chemical Family:	Aromatic Halogen Compound
Chemical Name:	4-chloro-3-methylphenol
Synonyms:	PCMC, p-Chloro-m-Cresol
CAS-No.:	59-50-7

2. Hazards Identification

Emergency Overview

DANGER! Color: Yellow to brown **Form:** Liquid **Odor:** Slight.
Corrosive. Water runoff from fire fighting may be corrosive. Toxic gases/fumes may given off during burning or thermal decomposition. Causes respiratory tract burns. Inhalation may cause nausea or dizziness. Causes skin burns. May cause allergic skin reaction. Causes eye burns. Causes digestive tract burns. May be harmful if swallowed. May affect nervous system.

Potential Health Effects

Primary Routes of Entry:	Skin Contact, Eye Contact, Ingestion, Inhalation
Medical Conditions Aggravated by Exposure:	Skin disorders, Respiratory disorders, Eye disorders, Kidney disorders, Liver disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: PREVENTOL CT-L
Corrosive with symptoms of coughing, burning, ulceration, and pain. May cause nervous system effects

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which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion.

For Component: 4-Chloro-3-methylphenol
Corrosive with symptoms of coughing, burning, ulceration, and pain. Overexposure to vapor may produce dizziness, drowsiness, or nausea.

For Component: Ether derivative
Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: 2-Octyl-4-isothiazolinone
Corrosive with symptoms of coughing, burning, ulceration, and pain.

Skin
Acute Skin
For Product: PREVENTOL CT-L
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage. If sufficient amounts are absorbed, systemic toxicity may occur with symptoms similar to those described in acute inhalation. May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash.

For Component: 4-Chloro-3-methylphenol
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage. May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash.

For Component: Ether derivative
Causes irritation with symptoms of reddening, itching, and swelling.

For Component: 2-Octyl-4-isothiazolinone
Toxic by skin absorption. May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

Chronic Skin
For Product: PREVENTOL CT-L
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

For Component: 4-Chloro-3-methylphenol
Repeated and prolonged contact may cause an allergic skin reaction in sensitive individuals.

Eye
Acute Eye
For Product: PREVENTOL CT-L
Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

For Component: 4-Chloro-3-methylphenol
Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

For Component: Ether derivative
Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

For Component: 2-Octyl-4-isothiazolinone
Causes irritation with symptoms of reddening, tearing, stinging, and swelling. Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

Ingestion
Acute Ingestion
For Product: PREVENTOL CT-L
Corrosive to the digestive tract with symptoms of burning and ulceration. Moderately toxic by ingestion.

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For Component: 4-Chloro-3-methylphenol
Corrosive to the digestive tract with symptoms of burning and ulceration. May be harmful if swallowed. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion.

For Component: Ether derivative
Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

For Component: 2-Octyl-4-isothiazolinone
Moderately toxic by ingestion. Corrosive to the digestive tract with symptoms of burning and ulceration.

Carcinogenic Effects
For Component: 4-Chloro-3-methylphenol
P-chloro-m-cresol is classified by the EPA as a Group D carcinogen (not classifiable as to human carcinogenicity).

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

3. Composition/Information on Ingredients

Hazardous Components

Weight %	Components	CAS-No.
30 - 40%	4-Chloro-3-methylphenol	59-50-7
10 - 20%	Ether derivative	CAS# is a trade secret
1 - 5%	2-Octyl-4-isothiazolinone	26530-20-1

4. First Aid Measures

Eye Contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Call a physician immediately.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediately remove contaminated clothing and shoes. Call a physician immediately. Wash clothing and shoes before reuse.

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration using a pocket mask type resuscitator. Call a physician immediately.

Ingestion
Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: All extinguishing media are suitable.

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Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize risk of rupture.

Unusual Fire/Explosion Hazards
Water runoff from fire fighting may be corrosive. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Corrosive gases/fumes may be given off during burning or thermal decomposition.

6. Accidental release measures

Spill and Leak Procedures
Cleanup personnel must use appropriate personal protective equipment. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Do not allow spilled material or wash water to enter sewers, surface waters, or groundwater systems. Ventilate area to remove vapors or dust. Wash spill area with water. Collect wash water for approved disposal.

7. Handling and Storage

Storage Temperature:
maximum: 50 °C (122 °F)

Storage Period
18 Months: When stored in original sealed container.

Handling/Storage Precautions
Do not breathe vapours or spray mist. Do not get on skin or clothing. Do not get in eyes. Do not taste or swallow. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Store in a dry place away from excessive heat. Reseal containers immediately after use.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection
A NIOSH approved air purifying respirator with organic vapor cartridges and particulate prefilter can be used to minimize exposure.

Hand Protection
Permeation resistant gloves., Polychloroprene gloves., Polyvinyl chloride (PVC/vinyl) gloves.

Eye Protection
splash proof goggles., face-shield.

Skin and body protection
Permeation resistant clothing and foot protection.

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Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and chemical properties

Form:	Liquid
Color:	Yellow to brown
Odor:	Slight
pH:	6.9 @ 100 g/l
Boiling Point/Range:	105 °C (221 °F) @ 1,013 hPa
Flash Point:	> 105 °C (> 221 °F)
Vapor Pressure:	56 hPa @ 50 °C (122 °F)
	68 hPa @ 55 °C (131 °F)
	14 hPa @ 20 °C (68 °F)
Density:	1.117 g/cm3 @ 20 °C (68 °F)
Solubility in Water:	partly miscible
Autoignition Temperature:	455 °C (851 °F)
Viscosity, Dynamic:	63.8 mPa.s @ 20 °C (68 °F)
Pour Point:	-48 °C (-54.4 °F)

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Reducing agents

Hazardous decomposition products
By Fire and Thermal Decomposition: Hydrochloric Acid; Thermal decomposition may produce CO, CO2, and other potentially toxic fumes.

11. Toxicological Information

Toxicity Data for PREVENTOL CT-L
Acute Oral Toxicity
LD50: 550 - 2,000 mg/kg (Rat)

Acute dermal toxicity
LD50: 1,416 mg/kg (Rat)

Skin Irritation
rabbit, Corrosive

Toxicity Data for 4-Chloro-3-methylphenol
Acute Oral Toxicity

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LD50: 1,830 mg/kg (Rat, male)
LD50: 3,636 - 5,129 mg/kg (Rat, Male/Female)

Acute Inhalation Toxicity
LC50: > 0.704 mg/l, 4 hrs (Rat, Male/Female)

Acute dermal toxicity
LD50: > 5,000 mg/kg (rabbit, Male/Female)

Skin Irritation
rabbit, Exposure Time: 4 hrs, Corrosive

Eye Irritation
rabbit, OECD Test Guideline 405, Corrosive

Sensitization
dermal: sensitizer (Guinea pig, Maximization Test)
dermal: non-sensitizer (Human, Patch Test)

Repeated Dose Toxicity
21 Days, dermal: NOAEL: 40 mg/kg, (rabbit,)
13 weeks, dermal: NOAEL: 1,500 mg/kg, (Rat, Male/Female, daily)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Micronucleus Assay: negative (mouse, Male/Female, intraperitoneal)

Carcinogenicity
Rat, Male/Female, oral, 24 months, daily

Developmental Toxicity/Teratogenicity
Rat, Female, oral, gestation, daily, NOAEL (teratogenicity): approximately 100 mg/kg, NOAEL (maternal): approximately 30 mg/kg,
Fetotoxicity seen only with maternal toxicity. Teratogenic effects seen only with maternal toxicity.

Toxicity Data for Propylene glycol
Acute Oral Toxicity
LD50: > 5,000 mg/kg (rat)

Acute dermal toxicity
LD50: > 5,000 mg/kg (rabbit)

Skin Irritation
rabbit, OECD Guideline for Testing of Chemicals, No. 404, No skin irritation

Eye Irritation
rabbit, OECD Guideline for Testing of Chemicals, No. 405, No eye irritation
Human, Slightly irritating

Sensitization
dermal: non-sensitizer (Human)
non-sensitizer (mouse, Mouse ear swelling test)

Repeated Dose Toxicity

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90 Days, Inhalation: NOAEL: 1 mg/l, (rat, Male/Female, 6 hrs/day 5 days/week)
2 years, Oral: NOAEL: 2,000 mg/kg, (dog, Male/Female, daily)
2 years, Oral: NOAEL: 50000 ppm, (rat, Male/Female, daily)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were seen in various in vitro studies.
Genetic Toxicity in Vivo:
Dominant Lethal Assay: negative (rat, Male/Female, oral)
Other assay: negative, Negative results were reported in various in vivo studies. (mouse,)

Carcinogenicity
rat, female, dermal, 14 months,
negative
dog, Male/Female, oral, 2 years, daily
negative
rat, Male/Female, oral, 2 years, daily
negative

Toxicity to Reproduction/Fertility
Fertility Screening, oral, daily, (rat, Male/Female) NOAEL (parental): 7.5 % in feed,
Reproductive effects have been observed in animal studies.

Developmental Toxicity/Teratogenicity
rabbit, female, oral, gestation, daily, NOAEL (teratogenicity): 1,230 mg/kg, NOAEL (maternal): 1,230 mg/kg,
No Teratogenic effects observed at doses tested.
rat, female, oral, gestation, daily, NOAEL (teratogenicity): 1,600 mg/kg, NOAEL (maternal): 1,600 mg/kg,
No Teratogenic effects observed at doses tested.

Toxicity Data for 2-Octyl-4-isothiazolinone
Acute Oral Toxicity
LD50: 550 mg/kg (rat)

Acute Inhalation Toxicity
LC50: 580 mg/m3, dust/particulate, 4 h (Rat)

Acute dermal toxicity
LD50: 690 mg/kg (rabbit)

Skin Irritation
rabbit, Corrosive

Eye Irritation
rabbit, Corrosive

12. Ecological Information

Ecological Data for 4-Chloro-3-methylphenol
Biodegradation
Aerobic, 100 %, Exposure time: 16 Days

Chemical Oxygen Demand (COD)

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1,852 mg/g

Bioaccumulation
Carp, Exposure time: 42 Days, 5.5 - 11 BCF

Acute and Prolonged Toxicity to Fish
LC50: 4 - 7.6 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC50: 0.9 ppm (Rainbow trout (Salmo gairdneri), 96 h)

Acute Toxicity to Aquatic Invertebrates
EC50: 2.2 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 4.2 mg/l, End Point: biomass (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms
EC50: 60 mg/l, (Activated sludge microorganisms, 3 hrs)

Toxicity Other Non-Mammal Terrestial Species
LC50: 3,180 ppm, (Bobwhite quail)

Ecological Data for Propylene glycol
Biodegradation
Aerobic, 100 %, Exposure time: 1 Days
Anaerobic, 100 %, Exposure time: 9 Days

Biological Oxygen Demand (BOD)
5 Days, 1,170 mg/l

Chemical Oxygen Demand (COD)
2,600 mg/g

Theoretical Biological Oxygen Demand (ThBOD)
0.45 mg/g

Bioaccumulation
< 1 BCF
Calculated value

Acute and Prolonged Toxicity to Fish
LC50: 51,400 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC50: 23,800 mg/l (Sheepshead minnow (Cyprinodon variegatus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: > 10,000 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 19,000 mg/l, End Point: growth (Green algae (Selenastrum capricornutum), 96 hrs)

Toxicity to Microorganisms
EC50: 25,800 mg/l, (Photobacterium phosphoreum, 30 min)
> 1,000 mg/l, (Activated sludge microorganisms, 3 hrs)

Ecological Data for 2-Octyl-4-isothiazolinone
Biodegradation
Readily biodegradable.

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Bioaccumulation
Bluegill sunfish, Exposure time: 67 d, 1,280 BCF

Acute and Prolonged Toxicity to Fish
LC50: 180 - 196 ppb (Bluegill (Lepomis macrochirus), 96 hrs)
LC50: 41 - 104 ppb (Rainbow (Donaldson)Trout (Oncorhynchus mykiss), 96 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Label precautions also apply to this container when empty.

14. Transport information

Land transport (DOT)

Proper Shipping Name:	Corrosive liquids, n.o.s. (contains 4-Chloro-3-methylphenol)
Hazard Class or Division:	8
UN/NA Number:	UN1760
Packaging Group:	III
Hazard Label(s):	Corrosive

RSPA/DOT Regulated Components:
4-Chloro-3-methylphenol

Reportable Quantity:	13,346 lb

Sea transport (IMDG)

Proper Shipping Name:	CORROSIVE LIQUID, N.O.S. (contains 4-Chloro-3-methylphenol)
Hazard Class or Division:	8
UN-No:	UN1760
Packaging Group:	III
Hazard Label(s):	Corrosive

Air transport (ICAO/IATA)

Proper Shipping Name:	Corrosive liquid, n.o.s. (contains 4-Chloro-3-methylphenol)
Hazard Class or Division:	8
UN-No:	UN1760
Packaging Group:	III
Hazard Label(s):	Corrosive

15. Regulatory Information

United States Federal Regulations

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OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: This product is excluded from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

FIFRA Status: This product is registered with the EPA under FIFRA.
EPA Registration number: 39967-46

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
4-Chloro-3-methylphenol Reportable quantity: 5,000 lbs

SARA Section 311/312 Hazard Categories:
Acute Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
When discarded in its purchased form, this product meets the criteria of corrosivity, and should be managed as a hazardous waste (EPA Hazardous Waste Number D002). (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
30 - 40%	4-Chloro-3-methylphenol	59-50-7
>=1%	Propylene glycol	57-55-6
10 - 20%	Ether derivative	CAS# is a trade secret
>=1%	Water	7732-18-5
1 - 5%	2-Octyl-4-isothiazolinone	26530-20-1

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	3
Flammability	1

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Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	3
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	R308266
Version Date:	05/29/2008
Report Version:	4.5

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

WWW_104(e)_017638

Bayer

MATERIAL SAFETY DATA SHEET

S07-000005

BAYER CORPORATION
PRODUCT SAFETY & REGULATORY AFFAIRS
100 Bayer Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (412) 923-1800
BAYER INFORMATION PHONE.: (800) 662-2927

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Preventol WB
PRODUCT CODE.....: 78996
EPA REGISTRATION NO.: 39967-9
CHEMICAL FAMILY.....: Aqueous solution containing 4-Chloro-3-methylphenol, sodium salt and sodium 2-biphenylate

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)

***** HAZARDOUS INGREDIENTS *****

*In solution, a neutralization reaction occurs with 4-Chloro-3-methylphenol, 2-phenylphenol, and sodium hydroxide to form 4-Chloro-3-methylphenol, sodium salt (CAS #15733-22-9) and Sodium 2-biphenylate (CAS #132-27-4).

4-Chloro-3-methylphenol* 59-50-7	OSHA : Not Established ACGIH: Not Established	Approx. 30 %
2-phenylphenol* 90-43-7	OSHA : Not Established ACGIH: Not Established	Less than 15 %
1,2-Propanediol 57-55-6	OSHA : Not Established ACGIH: Not Established	Less than 15 %

Continued on next page

3. HAZARDS IDENTIFICATION:

```
*****************************************************************
*                      EMERGENCY OVERVIEW                       *
*                                                               *
* DANGER! Corrosive; Color: Yellow to brown; Form: Liquid;      *
* Odor: Slightly Phenolic; Causes respiratory tract burns;      *
* Inhalation may cause nausea or dizziness; Causes skin burns;  *
* Causes eye burns; Causes digestive tract burns; Water runoff  *
* from fire fighting may be corrosive; Irritating gases/fumes   *
* may be given off during burning or thermal decomposition.     *
*****************************************************************
```

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Skin Absorption; Eye Contact; Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION.....: Based on pH, this product is expected to be corrosive to the respiratory tract with symptoms of coughing, burning, dryness of throat, and runny nose. Inhalation of 1,2-propanediol vapors is unlikely at room temperature due to its low vapor pressure. High concentrations may cause headache, nausea, and fatigue. No specific data is available for this product. However, phenol derivatives may be absorbed from the lungs producing headache, dizziness, dimness of vision, ringing in the ears, irregular and rapid breathing, weak pulse, and weakness. Pulmonary edema (fluid in the lungs), effects on the kidneys, and damage to the liver, pancreas, and spleen may also occur.

CHRONIC INHALATION.....: Repeated exposure to phenol derivatives may cause vomiting, difficulty in swallowing, diarrhea, and anorexia. Headache, fainting, mental disturbances, dermatitis, and dark colored urine have also been reported to occur. Excessive overexposure may also affect the liver and kidneys. Repeated exposure to phenol derivatives may cause vomiting, difficulty in swallowing, diarrhea, and anorexia. Headache, fainting, mental disturbances, dermatitis, and dark colored urine have also been reported to occur. Excessive overexposure may also affect the liver and kidneys.1

ACUTE SKIN CONTACT.....: Based on animal toxicity testing (see Section 11) this product is expected to be corrosive to the skin with symptoms of burning, itching, and reddening. Based on animal toxicity testing (see Section 11) we would expect this product to be slightly toxic by skin absorption.

ACUTE EYE CONTACT.....: Based on animal toxicity testing (see Section 11) we would expect this product to be corrosive to the eyes resulting in burning, itching, reddening, swelling of the eye and surrounding tissue and clouding of the cornea.

ACUTE INGESTION.....: Based on animal toxicity testing (see Section 11), we would expect this product to be slightly toxic by ingestion.

Continued on next page

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However, the 1,2-propanediol in this product is considerably more toxic to humans than to animal species. Ingestion of 1,2-propanediol may result in abdominal pain and central nervous system depression. Ingestion of phenol derivatives may cause burning pain in the mouth and throat, lesions in the mouth, esophagus and stomach, abdominal pain, vomiting, and bloody diarrhea.1 Other effects as seen in acute inhalation may also occur.

CARCINOGENICITY

NTP.....: Not listed

IARC.....: The sodium salt form of 2-phenylphenol (Sodium 2-biphenylate) is classified as IARC Possible Human Carcinogen (Group 2B) - "The chemical or group of chemicals is possibly carcinogenic for humans."

OSHA.....: Not regulated

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting skin, eye, or respiratory tract disorders may be more susceptible to the effects of this product.

1 Occupational Health Services, Inc. Material Safety Data Sheet.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: IMMEDIATE removal of this product from the eyes is essential. In case of contact, immediately rinse eyes with plenty of water while holding eyelids open for at least 15 minutes. See a physician immediately. Continue irrigation with water while patient is being transported.

FIRST AID FOR SKIN.....: IMMEDIATE removal of this product from the skin is essential. In case of contact, immediately remove contaminated clothing. Do not attempt to neutralize this product with ANY acidic materials. Wash affected area with soap and water, or just water for at least 15 minutes. See a physician immediately. Wash contaminated clothing and shoes before reuse.

FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. See a physician IMMEDIATELY.

FIRST AID FOR INGESTION.: If swallowed, do NOT induce vomiting. Give patient water. Never give anything by mouth to an unconscious person. See a physician IMMEDIATELY.

Continued on next page

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Greater than 212 F (100 C) DIN51758
AUTO-IGNITION TEMPERATURE.....: Greater than 932 F (500 C) DIN51794
EXTINGUISHING MEDIA.....: All extinguishing media are suitable.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with protective clothing and equipment, including a self-contained breathing apparatus to protect against toxic/hazardous fumes from combustion/decomposition products. Fire in vicinity poses risk of pressure build-up and rupture of containers. In the event of an adjacent fire, cool container down with water spray, if possible removing it from the fire area. When extinguishing with water pay attention to caustic burns.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Utilize protective clothing and equipment. Spills should be taken up with suitable absorbent, such as sand or sawdust. Wash spill area with water. Collect waste water for proper disposal.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): -4 F (-20 C)/122 F (50 C)
SHELF LIFE.....: 2 years when properly stored in sealed container
SPECIAL SENSITIVITY.....: Excessive cold and heat
HANDLING/STORAGE PRECAUTIONS: Store in cool, dry place away from food and drink in original containers. Keep containers tightly sealed. Avoid contact with eyes and skin. Avoid breathing vapors and mist. Wash throughly after handling. Avoid unnecessary contact.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles and a face shield must be worn during mixing, loading and use.
SKIN PROTECTION REQUIREMENTS.....: Any area of skin that could potentially come in contact with this product must be covered by a permeation resistant barrier; (e.g., long-sleeved shirt, long-legged trousers or overalls, apron, chemical suit, rubber or PVC gloves) Employees should wash their hands and face before eating, drinking, or using tobacco products.
VENTILATION REQUIREMENTS.....: Use local exhaust ventilation to control

Continued on next page

level of exposure in work area.
RESPIRATOR REQUIREMENTS.....: An air-purifying particulate/organic vapor cartridge respirator is required any time inhalation of vapor is possible. Observe OSHA regulations for respirator use (29 CFR 1910.134.)
ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations must be made available. Educate and train employees in the safe use and handling of this product.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
COLOR.....: Yellow to brown
ODOR.....: Slightly Phenolic
pH .....: 13-13.5; Approx. 10.5 at 1 g/l water at 68 F (20 C)
BOILING POINT.....: Approx. 206.6 F (97 C)
MELTING/FREEZING POINT....: Approx. -22 F (-28 C)
VISCOSITY.....: Approx. 24 sec. flow time at 68 F (20 C); 104 cps
SOLUBILITY IN WATER .....: Miscible
SPECIFIC GRAVITY .....: 1.20 to 1.25 g/cm3 at 68 F (20 C)
BULK DENSITY.....: Not Established
VAPOR PRESSURE .....: Approx. 18 mbar at 68 F (20 C); Approx. 89 mbar at 122 F (50 C); Approx. 113 mbar at 131 F (55 C)

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: Oxidizing and reducing agents.
INSTABILITY CONDITIONS.....: None Known
DECOMPOSITION TEMPERATURE..: Not Established
DECOMPOSITION PRODUCTS.....: In case of fire, CO, CO2, hydrogen chloride, oxides of nitrogen and other hazard decomposition products.

11. TOXICOLOGICAL INFORMATION:

ACUTE TOXICITY
ORAL LD50.....: Approx. 1100 mg/kg (male rat); approx. 1200 mg/kg (female rat)
DERMAL LD50.....: Approx. 2045 mg/kg (Rat)
INHALATION LC50....: Greater than 5195 mg/m3 air (4 hr.exposure) (Rat); NOEL: 267 mg/m3 air (Rat)
EYE EFFECTS.....: Corrosive (Rabbit)

Continued on next page

11. TOXICOLOGICAL INFORMATION (Continued)

SKIN EFFECTS.....: Corrosive (Rabbit) (24 h exposure)
SENSITIZATION.....: No sign of sensitization when tested on Guinea pigs according to the Buehler test method.

12. ECOLOGICAL INFORMATION:

AQUATIC TOXICITY.....: LC50: Greater than 1 mg/1/48 hrs. (Leuciscus idus)
BIOLOGICAL OXYGEN DEMAND...: Degradation greater than 50% (closed bottle test - BOD determination) - good degradability

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Waste disposal should be in accordance with existing federal, state, and local environmental control regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Aqueous solution containing 4-Chloro-3-methylphenol, sodium salt and sodium 2-biphenylate
FREIGHT CLASS BULK.....: Chemicals, NOI
FREIGHT CLASS PACKAGE.....: Chemicals, NOI (NMFC 60000)
PRODUCT LABEL.....: Preventol WB

DOT (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: Corrosive liquid, n.o.s.
HAZARD CLASS OR DIVISION .....: 8
UN/NA NUMBER.....: UN1760
PACKING GROUP .....: II
DOT PRODUCT RQ lbs (kgs).....: None
HAZARD LABEL(s).....: Corrosive
HAZARD PLACARD(s).....: Corrosive

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: Corrosive liquid, n.o.s.
HAZARD CLASS DIVISION NUMBER...: 8
UN NUMBER.....: UN1760
PACKAGING GROUP.....: II
HAZARD LABEL(s).....: Corrosive

Continued on next page

14. TRANSPORTATION INFORMATION (Continued)

IMO / IMDG CODE (continued)

HAZARD PLACARD(s).....: Corrosive

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: Corrosive liquid, n.o.s.
HAZARD CLASS DIVISION NUMBER...: 8
UN NUMBER.....: UN1760
SUBSIDIARY RISK.....: None
PACKING GROUP.....: II
HAZARD LABEL(s).....: Corrosive
RADIOACTIVE?.....: Non-Radioactive
PASSENGER AIR - MAX. QTY. .....: 1 L
PASSENGER PACKING INSTRUCTION..: 808
CARGO AIR - MAX. QTY. .....: 30 L
CARGO AIR PACKING INSTRUCTION..: 812

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.
FIFRA STATUS.....: This product is registered under FIFRA under Section 3 (2)(B)(ii) when used as a Pesticide.
CERCLA REPORTABLE QUANTITY..: Sodium hydroxide (less than 1%) 1000 lbs.
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None
SECTION 311/312
HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard
SECTION 313
TOXIC CHEMICALS.....: None
RCRA STATUS.....: When discarded in its purchased form, this product meets the criteria of corrosivity, and should be managed as a hazardous waste (EPA Hazardous Waste Number D002). (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE

Continued on next page

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15. REGULATORY INFORMATION (Continued)

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
2-phenylphenol*		
90-43-7	Less than 15 %	CA1
1,2-Propanediol		
57-55-6	Less than 15 %	PA1, NJ4
Water		
7732-18-5	Greater than 1 %	PA3, NJ4
Sodium Hydroxide		
1310-73-2	Less than 1 %	NJ3
4-Chloro-3-methylphenol, sodium salt		
15733-22-9	30-40 %	PA3, NJ4
Sodium 2-biphenylate		
132-27-4	10-20 %	PA3, CA1, MA, NJ2

CA1 = Warning! This chemical is known to the State of California to cause cancer.
MA = Massachusetts Hazardous Substance List
NJ2 = New Jersey Environmental Hazardous Substance List
NJ3 = New Jersey Special Health Hazardous Substance List
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
PA1 = Pennsylvania Hazardous Substance List
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

16. OTHER INFORMATION:

HMIS RATINGS:	Health	Flammability	Reactivity
	3*	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
*=Chronic Health Hazard

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Revised Section 15
PREPARED BY.....: R. Ruppel-Kerr
APPROVED BY.....: R. Ruppel-Kerr
APPROVAL DATE.....: 07/23/2001
SUPERSEDES DATE.....: 08/03/1999
MSDS NUMBER.....: 33642

Continued on next page

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

19-120 657

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

PRIMAL(TM) FGR EMULSION

Revision date: 08/05/2004

Supplier

Rohm and Haas Company
100 Independence Mall West
Philadelphia, PA 19106-2399 United States of America

For non-emergency information contact: 215-592-3000

Emergency telephone number

Spill Emergency	215-592-3000
Health Emergency	215-592-3000
Chemtrec	800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Acrylic polymer(s)	Not Hazardous	22.0 - 24.0%
Residual monomers	Not Required	<500.0PPM
Aqua ammonia	1336-21-6	<=0.1%
Water	7732-18-5	76.0 - 78.0%

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	liquid
Colour	translucent
Odour	Ammonia odor

Hazard Summary	**CAUTION!** INHALATION OF VAPOR OR MIST CAN CAUSE HEADACHE, NAUSEA AND IRRITATION OF THE NOSE, THROAT AND LUNGS. MAY CAUSE EYE/SKIN IRRITATION.

Potential Health Effects

Primary Routes of Entry: Inhalation
Eye contact
Skin contact

Eyes: Direct contact with material can cause the following:
slight irritation

Skin: Prolonged or repeated skin contact can cause the following:
slight irritation

Inhalation: Inhalation of vapor or mist can cause the following:
irritation of nose, throat, and lungs
headache
nausea

4. FIRST AID MEASURES

Inhalation: Move to fresh air.

Skin contact: Wash with water and soap as a precaution. If skin irritation persists, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flash point	Noncombustible
Lower explosion limit	Not Applicable
Upper explosion limit	Not Applicable
Thermal decomposition	Thermal decomposition may yield acrylic monomers.
Suitable extinguishing media:	Use extinguishing media appropriate for surrounding fire.

Specific hazards during fire fighting: Material can splatter above 100C/212F. Dried product can burn.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment.
Keep people away from and upwind of spill/leak.
Material can create slippery conditions.

Environmental precautions
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods for cleaning up
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Handling
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.
Further information on storage conditions: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage
Storage temperature:1 - 49 °C(34 - 120 °F)
Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Aqua ammonia	Rohm and Haas	TWA	25 ppm
	Rohm and Haas	STEL	35 ppm
	ACGIH	TWA	17 mg/m3 25 ppm
	ACGIH	STEL	24 mg/m3 35 ppm
	OSHA_TRANS	PEL	35 mg/m3 50 ppm

Eye protection:safety glasses with side-shields Eye protection worn must be compatible with respiratory protection system employed.
Hand protection: The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Neoprene gloves

Respiratory protection:A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. For airborne concentrations up to 10 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) ammonia/methylamine cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility.

Engineering measures: Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	translucent
Odour	Ammonia odor
pH	7.5 - 8.5
Boiling point/range	100 °C (212.00 °F) Water
Flash point	Noncombustible
Lower explosion limit	Not Applicable
Upper explosion limit	Not Applicable
Vapour pressure	17.0 mmHgat20 °C (68.00 °F) Water
Relative vapour density	<1.0water
Water solubility	Dilutable
Relative density	1.00 - 1.20
Viscosity, dynamic	100.000 mPa.smaximum
Evaporation rate	<1.00Water

Percent volatility	76 - 78 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions	None known. Stable
Materials to avoid	There are no known materials which are incompatible with this product.
polymerization	Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION

No data are available for this material. The information shown is based on profiles of compositionally similar materials.

Acute oral toxicity	LD50rat > 5,000 mg/kg
Acute dermal toxicity	LD50rabbit > 5,000 mg/kg
Skin irritation	rabbitMay cause transient irritation.
Eye irritation	rabbitNo eye irritation

12. ECOLOGICAL INFORMATION

There is no data available for this product.

13. DISPOSAL CONSIDERATIONS

Environmental precautions:CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Disposal

Waste Classification: When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP). Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

IMO/IMDG

Not regulated (Not dangerous for transport)

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

Workplace Classification

This product is considered non-hazardous under the OSHA Hazard Communication Standard (29CFR1910.1200).

This product is not a'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE III:Section 311/312 Categorizations (40CFR370): This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

SARA TITLE III:Section 313 Information (40CFR372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

CERCLAInformation(40CFR302.4)
Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

US. Toxic Substances Control Act (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania
Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)
This product contains trace levels of a component or components known to the state of California to cause cancer:

Components:	Ethyl acrylate	140-88-5

16. OTHER INFORMATION

Hazard Rating

	Health	Fire	Reactivity
HMIS	1	0	0

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAc	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
|	Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Version:1.2

MATERIAL SAFETY DATA SHEET
Rohm and Haas Company

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRIMAL® HA-8 Emulsion

Product Code	: 65342	MSDS Date	: 04/16/99
Key	: 905342-7		

COMPANY IDENTIFICATION	EMERGENCY TELEPHONE NUMBERS	
ROHM AND HAAS COMPANY	HEALTH EMERGENCY	: 215-592-3000
100 INDEPENDENCE MALL WEST	SPILL EMERGENCY	: 215-592-3000
PHILADELPHIA, PA 19106-2399	CHEMTREC	: 800-424-9300

PRIMAL® is a trademark of Rohm and Haas Company or one of its subsidiaries or affiliates

2. COMPOSITION/INFORMATION ON INGREDIENTS

No		CAS REG NO	WEIGHT (%)
1	Acrylic polymer	Not Hazardous	45-46
2	Residual monomers	Not Required	< 0.05
3	Formaldehyde	50-00-0	0.06
4	Water	7732-18-5	54-55

See Section 8, Exposure Controls / Personal Protection

3. HAZARDS IDENTIFICATION

Primary Routes of Exposure

Inhalation
Eye Contact
Skin Contact

Inhalation

Inhalation of vapor or mist can cause the following:
- headache - nausea - irritation of nose, throat, and lungs

Eye Contact

Direct contact with material can cause the following:
- moderate irritation

Skin Contact

Prolonged or repeated skin contact can cause the following:
- slight skin irritation

4. FIRST AID MEASURES

Inhalation

Move subject to fresh air.

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Eye Contact

Flush eyes with water. Consult a physician if irritation persists.

Skin Contact

Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.

Ingestion

If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash Point	Noncombustible
Auto-ignition Temperature	Not Applicable
Lower Explosive Limit	Not Applicable
Upper Explosive Limit	Not Applicable

Unusual Hazards

Material can splatter above 100C/212F. Dried product can burn.

Extinguishing Agents

Use extinguishing media appropriate for surrounding fire.

Personal Protective Equipment

Wear self-contained breathing apparatus (pressure-demand NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection

Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Procedures

Keep spectators away. Floor may be slippery; use care to avoid falling. Contain spills immediately with inert materials (e.g. sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

Storage Conditions

Keep from freezing; material may coagulate. The minimum recommended storage temperature for this material is 1C/34F. The maximum recommended storage temperature for this material is 49C/120F.

Handling Procedures

Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, Exposure Controls/Personal Protection, for types of ventilation required. This material contains trace levels of formaldehyde in the aqueous phase. The product will generate additional formaldehyde upon cure. Lack of adequate ventilation may result in airborne levels of formaldehyde above established exposure limits in the workplace. Monitoring the workplace to determine actual formaldehyde levels is recommended. See OSHA Formaldehyde Standard 29 CFR 1910.1048 for further information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Information

No		CAS REG NO	WEIGHT (%)
1	Acrylic polymer	Not Hazardous	45-46
2	Residual monomers	Not Required	< 0.05
3	Formaldehyde	50-00-0	0.06
4	Water	7732-18-5	54-55

Comp.		ROHM AND HAAS		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TWA	STEL
1		None	None	None	None	None	None
2		a	a	a	a	a	a
3	ppm	0.3 b	None	0.75 c	2 c	0.3 b	None
4		None	None	None	None	None	None

a Not Required
b Ceiling
c OSHA Specifically Regulated

Respiratory Protection

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required under normal operating conditions. Where vapors and/or mists may occur, wear a NIOSH approved (or equivalent) half-mask, air-purifying respirator. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) cartridges for protection against organic vapors and filters for protection against dusts and mists.

Eye Protection

Use safety glasses with side shields (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

Hand Protection

The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection:

- Neoprene

Engineering Controls (Ventilation)

Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Other Protective Equipment

Facilities storing or utilizing this material should be equipped with an eyewash facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Milky
Color	White
State	Liquid
Odor Characteristic	Acrylic odor
pH	2.1 to 3.1
Viscosity	50 to 750 CPS
Specific Gravity (Water = 1)	1.0 to 1.2
Vapor Density (Air = 1)	< 1 Water
Vapor Pressure	17 mm Hg @ 20°C/68°F Water
Melting Point	0°C/32°F Water
Boiling Point	100°C/212°F Water
Solubility in Water	Dilutable
Percent Volatility	54 to 55 % Water
Evaporation Rate (BAc = 1)	< 1 Water

See Section 5, Fire Fighting Measures

10. STABILITY AND REACTIVITY

Instability

This material is considered stable. However, avoid temperatures above 177C/350F, the onset of polymer decomposition. Thermal decomposition is dependent on time and temperature.

Hazardous Decomposition Products

Thermal decomposition may yield the following:
- acrylic monomers

Hazardous Polymerization

Product will not undergo polymerization.

Incompatibility

There are no known materials which are incompatible with this product.

11. TOXICOLOGICAL INFORMATION

Acute Data

Acute toxicity data for chemically similar materials:
Oral LD50 - rat: >5000 mg/kg

Toxicity data specific for this product are listed below.

Dermal LD50 - rabbit: >5000 mg/kg
Eye Irritation - rabbit: moderate irritation
Skin irritation - rabbit: practically non-irritating

12. ECOLOGICAL INFORMATION

No data are available for this material. The information shown is based on profiles of compositionally similar materials.

Inherent Biodegradability (OECD 302 B): this type of product is not biodegradable but readily bioeliminable
Activated Sludge Respiratory Inhibition (OECD 209): >100 mg/l (non-inhibiting)

Environmental Toxicity

Microtox, 15 Minute EC50: > 300 ppm (Non-toxic)
Daphnia magna, 48 Hour EC50: > 100 ppm (Non-toxic)
Rainbow trout (Oncorhynchus mykiss), 96 Hour LC50: > 100 ppm (Non-toxic)
Algae (Selenastrum capricornutum), 72 Hour EC50: > 100 ppm (Non-toxic)
Rainbow trout (Salmo gairdneri), 96 Hour LC50: 8950 mg/l (Practically non-toxic)
Bluegill sunfish (Lepomis macrochirus), 96 Hour LC50: 5640 mg/l (Practically non-toxic)

The above Environmental Toxicity data are for a compositionally similar material.

13. DISPOSAL CONSIDERATIONS

Procedure

Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. Incinerate liquid and contaminated solids in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

US DOT Hazard Class ..... NONREGULATED

15. REGULATORY INFORMATION

Workplace Classification

This product as supplied is non-hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200). Under processing conditions it may become OSHA hazardous due to the release and exposure potential of additional formaldehyde (see SECTION 7, Handling and Storage, for recommended handling procedures).

This product is not a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE 3: Section 311/312 Categorizations (40CFR 370)

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

SARA TITLE 3: Section 313 Information (40CFR 372)

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

CERCLA Information (40CFR 302.4)

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

Waste Classification

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

United States

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)

This product contains a component or components known to the state of California to cause cancer:
- Formaldehyde (gas) (50-00-0)

This product contains trace levels of a component or components known to the state of California to cause cancer:
- Acrylamide (79-06-1)
- Ethyl acrylate (140-88-5)

16. OTHER INFORMATION

Rohm and Haas Hazard Rating		Scale
Toxicity	1	4=EXTREME
Fire	0	3=HIGH
Reactivity	0	2=MODERATE
Special	-	1=SLIGHT
		0=INSIGNIFICANT

Ratings are based on Rohm and Haas guidelines, and are intended for internal use.

HMIS Hazard Ratings

HMIS Hazard Ratings: HEALTH = 1, FLAMMIBILITY = 0, REACTIVITY = 0.
PERSONAL PROTECTION: See Section 8, Exposure Controls/Personal Protection for recommended handling of material as supplied; check with supervisor for your actual use condition.
Scale: 0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Severe
* = Chronic Effects (See Section 3, Hazards Identification)

ABBREVIATIONS:

ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
PEL = Permissible Exposure Limit
TWA = Time Weighted Average
STEL = Short-Term Exposure Limit
BAc = Butyl acetate
Bar denotes a revision from previous MSDS in this area.

The information contained herein relates only to the specific material identified. Rohm and Haas Company believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. Rohm and Haas Company urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

MATERIAL SAFETY DATA SHEET
Rohm and Haas Company

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRIMAL™ LEVELER MA-65

Product Code	: 61153	MSDS Date	: 06/10/99
Key	: 904007-6		

COMPANY IDENTIFICATION

ROHM AND HAAS COMPANY
100 INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-2399

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY	: 215-592-3000
SPILL EMERGENCY	: 215-592-3000
CHEMTREC	: 800-424-9300

PRIMAL™ is a trademark of Rohm and Haas Company or one of its subsidiaries or affiliates

2. COMPOSITION/INFORMATION ON INGREDIENTS

No		CAS REG NO	WEIGHT (%)
1	Alkoxyalkyl phosphate ester	Trade Secret	16-20
2	Alkylaryl polyether alcohol	Not Hazardous	1-3
3	2-Amino-2-methyl-1-propanol	124-68-5	1-2
4	Water	7732-18-5	77-80

See Section 8, Exposure Controls / Personal Protection

3. HAZARDS IDENTIFICATION

Primary Routes of Exposure

Inhalation
Eye Contact
Skin Contact

Inhalation

Inhalation of vapor or mist can cause the following:
- irritation of nose, throat, and lungs - headache - nausea

Eye Contact

Material can cause the following:
- moderate irritation

Skin Contact

Material can cause the following:
- slight skin irritation

Ingestion

Material is possibly harmful if swallowed.

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Delayed Effects

Prolonged or repeated overexposure to component 1 can cause the following:
- ataxia - breathing abnormalities - peripheral nerve damage - inflammation of the heart

4. FIRST AID MEASURES

Inhalation

Move subject to fresh air.

Eye Contact

Flush eyes with water. Consult a physician if irritation persists.

Skin Contact

Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.

Ingestion

If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash Point	Noncombustible
Auto-ignition Temperature	Not Applicable
Lower Explosive Limit	Not Applicable
Upper Explosive Limit	Not Applicable

Unusual Hazards

Material can splatter above 100C/212F.

Extinguishing Agents

Use extinguishing media appropriate for surrounding fire.

Personal Protective Equipment

As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection

Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Procedures

Keep spectators away. Floor may be slippery; use care to avoid falling. Contain spills immediately with inert materials (e.g. sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

Storage Conditions

Keep from freezing; material stability may be affected. The minimum recommended storage temperature for this material is 1C/34F. The maximum recommended storage temperature for this material is 60C/140F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Information

No		CAS REG NO	WEIGHT (%)
1	Alkoxyalkyl phosphate ester	Trade Secret	16-20
2	Alkylaryl polyether alcohol	Not Hazardous	1-3
3	2-Amino-2-methyl-1-propanol	124-68-5	1-2
4	Water	7732-18-5	77-80

Comp.		ROHM AND HAAS		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TWA	STEL
1		None	None	None	None	None	None
2		None	None	None	None	None	None
3	ppm	3	6	None	None	None	None
4		None	None	None	None	None	None

Respiratory Protection

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in 'Exposure Limit Information'.

Up to 10 times the exposure limit: Wear a NIOSH approved (or equivalent) half-mask, air-purifying respirator.

Up to 100 times the exposure limit: Wear a NIOSH approved (or equivalent) full-facepiece, air-purifying respirator,
OR
full-facepiece, airline respirator in the demand mode.

Above 100 times the exposure limit or Unknown: Wear a NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode,
OR
NIOSH approed (or equivalent) full-facepiece, airlline respirator in the pressure demand mode with emergency escape provision.

Air-purifying respirators should be equipped with NIOSH approved (or equivalent) cartridges for protection against organic vapors and filters for protection against dusts and mists.

Eye Protection

Use chemical splash goggles (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

Hand Protection

Chemical-resistant gloves should be worn whenever this material is handled.
The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection:
- Neoprene
- Butyl rubber

Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.
Rinse and remove gloves immediately after use. Wash hands with soap and water.

Other Protection

Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

Engineering Controls (Ventilation)

Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Other Protective Equipment

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Milky
Color	White
State	Liquid
Odor Characteristic	Amine odor
pH	10.0 to 11.6
Viscosity	No Data
Specific Gravity (Water = 1)	0.899 to 1.005
Vapor Density (Air = 1)	< 1 Water
Vapor Pressure	17 mm Hg @ 20°C/68°F Water
Melting Point	0°C/32°F Water
Boiling Point	100°C/212°F Water
Solubility in Water	Dilutable
Percent Volatility	79 to 81 %
Evaporation Rate (BAc = 1)	< 1 Water

See Section 5, Fire Fighting Measures

10. STABILITY AND REACTIVITY

Instability

This material is considered stable.

Hazardous Decomposition Products

There are no known hazardous decomposition products for this material.

Hazardous Polymerization

Product will not undergo polymerization.

Incompatibility

There are no known materials which are incompatible with this product.

11. TOXICOLOGICAL INFORMATION

Acute Data

Eye Irritation - rabbit: moderate irritation
Skin Irritation - rabbit: slight irritation

12. ECOLOGICAL INFORMATION

No Applicable Data

13. DISPOSAL CONSIDERATIONS

Procedure

For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

14. TRANSPORT INFORMATION

US DOT Hazard Class ..... NONREGULATED

15. REGULATORY INFORMATION

Workplace Classification

This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

This product is not a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE 3: Section 311/312 Categorizations (40CFR 370)

This product is a hazardous chemical under 29CFR 1910.1200, and is categorized as a delayed health hazard.

SARA TITLE 3: Section 313 Information (40CFR 372)

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

CERCLA Information (40CFR 302.4)

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

Waste Classification

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

United States

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)

This product contains trace levels of a component or components known to the state of California to cause cancer and birth defects or other reproductive harm:
- Ethylene oxide (75-21-8)

16. OTHER INFORMATION

Rohm and Haas Hazard Rating		Scale
Toxicity	1	4=EXTREME
Fire	0	3=HIGH
Reactivity	0	2=MODERATE
Special	-	1=SLIGHT
		0=INSIGNIFICANT

Ratings are based on Rohm and Haas guidelines, and are intended for internal use.

ABBREVIATIONS:

ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
PEL = Permissible Exposure Limit
TWA = Time Weighted Average
STEL = Short-Term Exposure Limit
BAc = Butyl acetate
| Bar denotes a revision from previous MSDS in this area.

The information contained herein relates only to the specific material identified. Rohm and Haas Company believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. Rohm and Haas Company urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

Rec 9/3/96

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Rohm and Haas Company
100 Independence Mall West
Philadelphia, PA 19106-2399

HEALTH EMERGENCY	: 215-592-3000
SPILL EMERGENCY	: 215-592-3000
CHEMTREC	: 800-424-9300

new 01-000099

MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION

PRIMAL® PENETRATOR SF-10

Product Code	: 74406
Key	: 871067-4
MSDS Date	: 04/22/93
Supersedes	: NEW

Rohm and Haas Hazard Rating		Scale
Toxicity	3	4=EXTREME
Fire	0	3=HIGH
Reactivity	0	2=MODERATE
Special	-	1=SLIGHT
PP-	B	0=INSIGNIFICANT

COMPONENT INFORMATION

No.		CAS REG NO.	AMT.(%)
1	Anionic surfactant	Trade Secret	10-13
2	Water	7732-18-5	87-90

EMERGENCY RESPONSE INFORMATION

FIRST AID PROCEDURES

Inhalation

Move subject to fresh air. If breathing is difficult, give oxygen. Give artificial respiration if breathing has stopped.

Eye Contact

IMMEDIATELY flush eyes with a large amount of water for at least 15 minutes. Get prompt medical attention.

Skin Contact

Remove contaminated clothing. Wash affected skin areas thoroughly with soap and water. See a physician.

CONTINUED

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CONTINUATION

Ingestion

If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

FIRE FIGHTING INFORMATION

Extinguishing Agents

Use extinguishing media appropriate for surrounding fire.

Personal Protective Equipment

As in any fire, wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent) and full protective gear.

Special Procedures

Use water spray to cool containers exposed to fire.

SPILL OR LEAK HANDLING INFORMATION

Personal Protection

Appropriate protective equipment must be worn when handling a spill of this material. See the PERSONAL PROTECTION MEASURES Section for recommendations. If exposed to material during clean-up operations, see the FIRST AID PROCEDURES Section for actions to follow.

Procedures

Keep spectators away. Floor may be slippery; use care to avoid falling. Ventilate the spill area. Contain spills immediately with inert materials (e.g. sand, earth). Transfer spilled material to suitable containers for recovery or disposal.
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.
NOTE: Spills on porous surfaces can contaminate groundwater.

HAZARD INFORMATION

HEALTH EFFECTS FROM OVEREXPOSURE

Primary Routes of Exposure

Inhalation
Eye Contact
Skin Contact

Inhalation

Inhalation of vapor or mist can cause the following:
- irritation of nose, throat, and lungs

Eye Contact

Material can cause the following:
- severe irritation - possible corneal injury

Skin Contact

Material can cause the following:
- moderate skin irritation

Ingestion

Material is harmful if swallowed.

FIRE AND EXPLOSIVE PROPERTIES

Flash Point	Noncombustible
Auto-ignition Temperature	Not Applicable
Lower Explosive Limit . .	Not Applicable
Upper Explosive Limit . .	Not Applicable

REACTIVITY INFORMATION

Instability

This material is considered stable.

CONTINUED

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CONTINUATION

Hazardous Decomposition Products

There are no known hazardous decomposition products for this material.

Hazardous Polymerization

Product will not undergo polymerization.

Incompatibility

There are no known materials which are incompatible with this product.

ACCIDENT PREVENTION INFORMATION

COMPONENT EXPOSURE INFORMATION

Component Information

No.		CAS REG NO.	AMT. (%)
1	Anionic surfactant	Trade Secret	10-13
2	Water	7732-18-5	87-90

Exposure Limit Information

Comp		ROHM AND HAAS		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TLV	STEL
1		None	None	None	None	None	None
2		None	None	None	None	None	None

PERSONAL PROTECTION MEASURES

Respiratory Protection

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required under normal operating conditions. Where vapors or mists may occur, wear a MSHA/NIOSH approved (or equivalent) half-mask air purifying respirator. Air-purifying respirators should be equipped with organic vapor cartridges and dust and mist filters.

CONTINUED

CONTINUATION

Eye Protection

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent).

Hand Protection

The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection:
- Butyl rubber
- Neoprene

Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.

Other Protection

Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

FACILITY CONTROL MEASURES

Ventilation

Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Other Protective Equipment

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

STORAGE AND HANDLING INFORMATION

Storage Conditions

Keep from freezing; material stability may be affected. Avoid temperature extremes during storage; ambient temperature preferred.

CONTINUED

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CONTINUATION

Handling Procedures

Vapors can be evolved when material is heated during processing operations. See FACILITY CONTROL MEASURES Section for types of ventilation required.

Other

CONTAINERS HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue (vapors and/or liquid) follow all MSDS and label warnings even after container is emptied.

SUPPLEMENTAL INFORMATION

TYPICAL PHYSICAL PROPERTIES

Color	Yellow
State	Liquid
Odor Characteristic	Fatty odor
pH	8.0
Viscosity	7 CPS
Specific Gravity (Water = 1)	1.02
Vapor Density (Air = 1)	< 1
Vapor Pressure	17 mm Hg @ 20°C/68°F Water
Melting Point	0°C/32°F Water
Boiling Point	100°C/212°F Water
Solubility in Water	Completely soluble
Percent Volatility	87 to 90 % Water
Evaporation Rate (BAc = 1)	< 1

TOXICITY INFORMATION

Acute Data

Oral LD50 - rat: 1260 mg/kg
Eye Irritation - rabbit: severe irritation
Skin Irritation - rabbit: moderate irritation

WASTE DISPOSAL

Procedure

For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

REGULATORY INFORMATION

WORKPLACE CLASSIFICATIONS

This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

This product is a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

TRANSPORTATION CLASSIFICATIONS

US DOT Hazard Class . . . NONREGULATED

EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (SARA TITLE 3)

Section 311/312 Categorizations (40CFR 370)

This product is a hazardous chemical under 29CFR 1910.1200, and is categorized as an immediate health hazard.

Section 313 Information (40CFR 372)

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

CERCLA INFORMATION (40CFR 302.4)

This material has a component with a reportable quantity under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304. The specific identity of component 1 is a trade secret, but has a reportable quantity of 1000 lbs. Spills of a component in excess of its reportable quantity must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.

RCRA INFORMATION

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

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CHEMICAL CONTROL LAW STATUS

All components of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

PRIMAL® is a trademark of Rohm and Haas Company or one of its subsidiaries or affiliates.

ABBREVIATIONS:

ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
PEL = Permissible Exposure Limit
TWA = Time Weighted Average
STEL = Short-Term Exposure Limit
BAc = Butyl acetate

※ Bar denotes a revision from previous MSDS in this area.

The information contained herein relates only to the specific material identified. Rohm and Haas Company believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the accuracy, reliability, or completeness of the information. Rohm and Haas Company urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

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MATERIAL SAFETY DATA SHEET
Rohm and Haas Company

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRIMAL™ RM-825 Rheology Modifier

Product Code : 68862
Key : 890719-6

MSDS Date : 08/06/99

COMPANY IDENTIFICATION

ROHM AND HAAS COMPANY
100 INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-2399

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY : 215-592-3000
SPILL EMERGENCY : 215-592-3000
CHEMTREC : 800-424-9300

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2. COMPOSITION/INFORMATION ON INGREDIENTS

No		CAS REG NO	WEIGHT (%)
1	Polyurethane resin	Not Hazardous	24-26
2	Diethylene glycol monobutyl ether	112-34-5	17-19
3	Water	7732-18-5	56-58

See Section 8, Exposure Controls / Personal Protection

3. HAZARDS IDENTIFICATION

Primary Routes of Exposure

Inhalation
Skin Contact
Eye Contact

Inhalation

Inhalation of vapor or mist caused during heating and processing can cause the following:
- nausea - dizziness

Eye Contact

Direct contact with material can cause the following:
- moderate irritation

Skin Contact

Prolonged or repeated skin contact can cause the following:
- slight skin irritation - reddening - swelling

Delayed Effects

Repeated overexposure can cause the following:
- blood changes - kidney damage - liver damage

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4. FIRST AID MEASURES

Inhalation

Move subject to fresh air.

Eye Contact

Flush eyes with water. Consult a physician if irritation persists.

Skin Contact

Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.

Ingestion

If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

Note to Physician

Glycol ethers can cause delayed liver and kidney damage. If swallowed, careful evacuation of the stomach is advisable.

5. FIRE FIGHTING MEASURES

Flash Point	Noncombustible
Auto-ignition Temperature	Not Applicable
Lower Explosive Limit	Not Applicable
Upper Explosive Limit	Not Applicable

Extinguishing Agents

Use the following extinguishing media when fighting fires involving this material:
- polar solvent (alcohol) foam - carbon dioxide - dry chemical - water spray

Personal Protective Equipment

As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent) and full protective gear.

Special Procedures

Use water spray to cool containers exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection

Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Procedures

Keep spectators away. Floor may be slippery; use care to avoid falling. Contain spills immediately with inert materials (e.g. sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.
CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

Storage Conditions

The minimum recommended storage temperature for this material is 1C/34F. The maximum recommended storage temperature for this material is 49C/120F.

Handling Procedures

Vapors can be evolved when material is heated during processing operations. See SECTION 8, Exposure Controls/Personal Protection, for types of ventilation required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit Information

No		CAS REG NO	WEIGHT (%)
1	Polyurethane resin	Not Hazardous	24-26
2	Diethylene glycol monobutyl ether	112-34-5	17-19
3	Water	7732-18-5	56-58

Comp.		ROHM AND HAAS		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TWA	STEL
1		None	None	None	None	None	None
2	ppm	50	75	None	None	None	None
3		None	None	None	None	None	None

Respiratory Protection

None required if airborne concentrations are maintained below the exposure limit listed in 'Exposure Limit Information'. A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Up to 10 times the exposure limit: Wear a NIOSH approved (or equivalent) half-mask, air-purifying respirator.

Up to 100 times the exposure limit: Wear a NIOSH approved (or equivalent) full-facepiece, air-purifying respirator,
OR
full-facepiece, airline respirator in the demand mode.

Above 100 times the exposure limit or Unknown: Wear a NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode,
OR
NIOSH approed (or equivalent) full-facepiece, airline

respirator in the pressure demand mode with emergency escape provision.

Air-purifying respirators should be equipped with NIOSH approved (or equivalent) cartridges for protection against organic vapors.

Eye Protection

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Eye protection worn must be compatible with respiratory protection system employed.

Hand Protection

The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection:
- Butyl rubber

Other Protection

Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

Engineering Controls (Ventilation)

Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Other Protective Equipment

Facilities storing or utilizing this material should be equipped with an eyewash facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Hazy
State	Liquid
Odor Characteristic	Mild, inoffensive odor
pH	6.0 to 8.0
Viscosity	800 to 1700 CPS
Specific Gravity (Water = 1)	1.0 to 1.2
Vapor Density (Air = 1)	< 1 Water
Vapor Pressure	17 mm Hg @ 20°C/68°F
Melting Point	0°C/32°F Water
Boiling Point	100°C/212°F
Solubility in Water	Dilutable
Percent Volatility	74 to 76 %
Evaporation Rate (BAc = 1)	< 1 Water

See Section 5, Fire Fighting Measures

10. STABILITY AND REACTIVITY

Instability

This material is considered stable.

Hazardous Decomposition Products

There are no known hazardous decomposition products for this material.

Hazardous Polymerization

Product will not undergo polymerization.

Incompatibility

Avoid contact with acids, alkalies and strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

Acute Data

Skin Irritation - rabbit: no irritation
Eye Irritation - rabbit: moderate irritation

Toxicity data for component number 2:

Dermal LD50 - rabbit: 4000 mg/kg
Oral LD50 - rat: >5000 mg/kg

12. ECOLOGICAL INFORMATION

No Applicable Data

13. DISPOSAL CONSIDERATIONS

Procedure

Incinerate liquid and contaminated solids in accordance with local, state, and federal regulations.

14. TRANSPORT INFORMATION

US DOT Hazard Class ..... NONREGULATED

15. REGULATORY INFORMATION

Workplace Classification

This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

This product is a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE 3: Section 311/312 Categorizations (40CFR 370)

This product is a hazardous chemical under 29CFR 1910.1200, and is categorized as a delayed health hazard.

SARA TITLE 3: Section 313 Information (40CFR 372)

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)
- Diethylene glycol monobutyl ether (112-34-5) as glycol ether

CERCLA Information (40CFR 302.4)

This material is regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304. This material is or contains chemical(s) listed in 40 CFR Table 302.4 or nondesignated RCRA ICR substance(s). (Nondesignated ICR substances apply to materials that will not be reused.) The Reportable Quantity(s) (RQ) are listed below. Releases in excess of its reportable quantity must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.
Diethylene glycol monobutyl ether (112-34-5) as glycol ether 1lb.

Waste Classification

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

United States

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)

This product contains trace levels of a component or components known to the state of California to cause cancer:
- Ethylene oxide (75-21-8)

16. OTHER INFORMATION

Rohm and Haas Hazard Rating		Scale
Toxicity	1	4=EXTREME
Fire	0	3=HIGH
Reactivity	0	2=MODERATE
Special	-	1=SLIGHT
		0=INSIGNIFICANT

Ratings are based on Rohm and Haas guidelines, and are intended for internal use.

ABBREVIATIONS:

ACGIH	= American Conference of Governmental Industrial Hygienists
OSHA	= Occupational Safety and Health Administration
TLV	= Threshold Limit Value
PEL	= Permissible Exposure Limit
TWA	= Time Weighted Average
STEL	= Short-Term Exposure Limit
BAc	= Butyl acetate

| Bar denotes a revision from previous MSDS in this area.

The information contained herein relates only to the specific material identified. Rohm and Haas Company believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. Rohm and Haas Company urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

Material Safety Data Sheet

PRINOL F-GB (Z&S)

Date of Preparation: December 2004 Date Printed: May 3, 2005 Revision: 0

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Prinol F-GB
Chemical Formula: N/A
CAS Number: N/A
Other Designations:
Manufacturer/ Distributor: Chemtan Company, Inc. 57 Hampton Road, PO Box C, Exeter NH U.S.A. 03833
Phone: 603-772-3741 Fax: 603-772-0796 E-Mail: chemtan@CHEMTAN.com

CHEMTREC: 1-800-934-9300

Section 2 - Composition / Information on Hazardous Ingredients

Ingredient Name	CAS Number	% wt or % vol.
1) Ethanol, 2-(2-butoxyethoxy)	112-34-5	1 – 10 %

Trace Impurities:

Ingredient	European TWA	European STEL	ACGIH TLV TWA	ACGIH TLV STEL	NIOSH REL TWA	NIOSH REL STEL	NIOSH IDLH
1)	NE	100 mg/m3	NE	NE	NE	NE	NE

Section 3 - Hazards Identification

☆☆☆☆☆ **Emergency Overview** ☆☆☆☆☆

HMIS	
H	2
F	1
R	0
PPE†	C

†Sec. 8

Potential Health Effects

Primary Entry Routes: Skin and Eye contact, inhalation and ingestion.
Target Organs: None
Acute Effects
Inhalation: May cause irritation of respiratory tract.
Eye: May cause severe irritation.
Skin: May cause irritation.
Ingestion: N/A
Carcinogenicity: IARC, NTP, and OSHA do not list this product as a carcinogen.
Medical Conditions Aggravated by long term exposure: None known
Chronic Effects: Not known.

Section 4 - First Aid Measures

Inhalation: Remove subject to fresh air. If not breathing, start CPR.
Eye Contact: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists seek medical advice
Skin Contact: Wash contact area with soap and water
Ingestion: Seek medical advice.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: Bring MSDS
Special Precautions/Procedures: None

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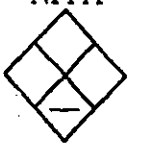
Section 5 - Fire-Fighting Measures

NFPA



Flash Point: > 100 ° C
Flash Point Method: N/A
Burning Rate: N/A
Auto-ignition Temperature: N/A
LEL: N/A
UEL: N/A
Flammability Classification: N/A
Extinguishing Media: Water spray, foam, carbon dioxide
Unusual Fire or Explosion Hazards: None
Hazardous Combustion Products: Sulfur oxides may be released.
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill /Leak Procedures:
Spills: Confine material by dike. Absorb using an inert material such as sawdust or speedy-dry. Wash area with water.
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Cleanup: As allowed by federal, state and local regulations.
Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Precautions: Handle with care using good industrial hygiene practices.
Storage Requirements: Keep container closed when not in use. Do not overheat. (less than 30°C)
Regulatory Requirements: N/A

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:
Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.
Administrative Controls:
Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.
Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Launder contaminated work clothes separately from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

PRINOL F-GB

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance and Odor: Yellow brown with a characteristic odor.
Odor Threshold: N/A
Vapor Pressure: N/A
Vapor Density (Air=1): N/A
Formula Weight: N/A
Density: 1.05 g/cm3
Specific Gravity (H_2O=1, at 4 °C): N/A
pH: 8.0 (10 % solution)

Water Solubility: miscible
Boiling Point: 100° C
Freezing/Melting Point: N/A
Viscosity: N/A
Refractive Index: N/A
Surface Tension: N/A
% Volatile: N/A
Evaporation Rate: N/A

Section 10 - Stability and Reactivity

Stability: This product is stable at room temperature in closed containers under normal storage and handling conditions.
Polymerization: Hazardous polymerization cannot occur.
Chemical Incompatibilities: none known
Conditions to Avoid: Avoid overheating.
Hazardous Decomposition Products: None known

Section 11- Toxicological Information

Toxicity Data:*

Eye Effects: Risk of serious damage

Skin Effects: slight irritant

Acute Inhalation Effects:
Human, inhalation, TC_{Lo}:

Acute Oral Effects:
Rat, oral, LD_{50}: > 2000 mg/kg
Chronic Effects:
Carcinogenicity:
Mutagenicity:
Teratogenicity:

Section 12 - Ecological Information

Ecotoxicity: N/A
Environmental Fate: Product is biodegradable, interference with activated sludge is unlikely.
Environmental Transport: N/A
Environmental Degradation: N/A
Soil Absorption/Mobility: N/A

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow all applicable Federal, state, and local regulations.
Disposal Regulatory Requirements: Dispose of in accordance with federal, state and local regulations.
Container Cleaning and Disposal: Dispose of in accordance with federal, state and local regulations.

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Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):
Shipping Name:
Shipping Symbols:
Hazard Class: Not regulated
ID No.:
Packing Group:
Label:
Special Provisions (172.102):

Packaging Authorizations
a) Exceptions:
b) Non-bulk Packaging:
c) Bulk Packaging:

Quantity Limitations
a) Passenger, Aircraft, or Railcar:
b) Cargo Aircraft Only:

Vessel Stowage Requirements
a) Vessel Stowage:
b) Other:

Section 15 - Regulatory Information

EPA Regulations:
RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261.): Not classified
CERCLA Hazardous Substance (40 CFR 302.4) unlisted
CERCLA Reportable Quantity (RQ): N/A
SARA 311/312 Codes: Immediate
SARA Toxic Chemical (40 CFR 372.65): component listed in section 2 is a member of the glycol ether category.
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed
OSHA Regulations:
Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed
OSHA Specifically Regulated Substance (29CFR 1910)
State Regulations:

Section 16 - Other Information

Prepared By: Chemtan Company

Revision Notes:

Additional Hazard Rating Systems:

N/A: is used in this MSDS to indicate that no appropriate data is available.
NE: is used to denote that nothing has been established.

Disclaimer: This information is furnished without warranty, representation, inducement, or license of any kind except that it is accurate to the best of our knowledge or obtained from sources believed to be accurate and we do not assume any legal responsibility for use or reliance on same. Customers are encouraged to conduct their own tests. Before using product consult label and the Material Safety Data Sheet (MSDS).

WORD

19-120656

SAFETY DATA SHEET FOR CHEMICAL SUBSTANCES AND PREPARATIONS 91/155/EEC

Trade name: PRINOL F-GB

Date of printing: 27.02.07
Rev.: 4.0 04/2006

1. Identification of the substance/preparation and company

- Product details

Trade name: PRINOL F-GB

- Application of the substance / the preparation
Auxiliary for the leather and fur industry

- Manufacturer/supplier details

ZSCHIMMER & SCHWARZ
GmbH & Co. KG
CHEMISCHE FABRIKEN
Max-Schwarz-Str. 3-5
D-56112 Lahnstein/Rhein
Telephone no.: +49(0)2621/12-0
Telefax: +49(0)2621/12-407

Information provided by: Produktentwicklung Lederhilfsmittel
Telephone no.: +49(0)2621/12-325

Information in case of emergency: Z&S industrial fire brigade
Telephone no.: +49(0)2621/12-0

2. Composition / Information on ingredients

- Chemical characterization

Compound of natural and synthetic oils with emulsifiers

- Hazardous Ingredients

EINECS/CAS	substance Haz. label	R phrases	Concentration
2688664	Oils, lard, sulfated, sodium salts		10- 30 %
68153-10-6	Xi	38,41	
2039616	Ethanol, 2-(2-butoxyethoxy)-		1- 10 %
112-34-5	Xi	36	
3080728	Butanedioic acid, sulfo-, 4-(2-((2-hydroxyethyl)am		1- 10 %
97862-28-7	ino)ethyl) ester, N-C18-unsatd. acyl derivs., diso dium salts		
	Xi	36/38	
26635-92-7	Poly(oxy-1,2-ethanediyl), .alpha.,.alpha.'-((octad ecylimino)di-2,1-ethanediyl)bis(.omega.-hydroxy-)		0,1- 1 %
	Xi,N	36,51/53	

3. Hazards identification

Risk of serious damage to eyes.

4. First aid measures

- General information
  Remove contaminated soaked clothing immediately and dispose of safely.
  In the event of symptoms refer for medical treatment.

- Skin contact
  In case of contact with skin wash off immediately with plenty of water.

- Eye contact
  In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

- Ingestion
  Summon a doctor immediately.

5. Special fire-fighting procedures

- Suitable extinguishing media
  water
  alcohol-resistant foam
  dry powder
  carbon dioxide

- Special exposure hazards arising from the substance or preparation itself, combustion products or resulting gases
  In the event of fire the following can be released:
  Sulphurous oxides (SOx)

- Special protective equipment for firefighters
  Use breathing apparatus.
  Do not inhale explosion and/or combustion gases.

6. Accidental release measures

- Personal precautions
  Avoid contact with eyes and skin.

- Environmental precautions
  Do not discharge into the drains/surface water/groundwaters.

- Methods for cleaning up/taking up
  Take up with absorbent material.
  e.g. general-purpose binder
  Dispose of absorbed material in accordance with the regulations.

7. Handling and storage

- Advice on safe handling
  No special measures necessary.
- Advice on protection against fire and explosion
  No special measures necessary.
- Requirements for storage rooms and vessels
  No special measures necessary.
- Further information on storage conditions
  Do not keep at temperatures above 30 °C.
- Storage class (FRG)
  10

8. Exposure controls / personal protection

- Components with occupational exposure limits to be monitored

EINECS/CAS	Description of substance	Type	Value
2039616	Ethanol, 2-(2-butoxyethoxy)-		
112-34-5		EC (15 min):	15 ppm 101,2 mg/m³
		EC (8 h):	10 ppm 67,5 mg/m³
		AGW value:	100 mg/m³

The values indicated have been taken from lists valid at the time of issue (TRGS 900 / 2000/39/EC).

- General protective measures / hygiene measures
  Observe the usual precautions when handling chemicals.
- Hand protection (EN 374)
  For permanent contact gloves made of the following materials are suitable (Permeation according to EN 374 Part 3: Level 6):
  Nitrile rubber (NBR) gloves
  The exact penetration time must be obtained from the manufacturer of the protective gloves and has to be observed. The determination of penetration times according to EN 374 part III is not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.
- Eye protection (EN 166)
  goggles
- Skin protection (EN 465)
  protective clothing

9. Physical and chemical properties

Form:	liquid
Colour:	yellow-brown clear · cloudy
Odour:	characteristic
Melting point:	approx. 5 °C
Boiling point:	approx. 100 °C
Flash point:	> 100 °C
Vapour pressure:	approx. 23 mbar at 20 °C
Density:	1,05 g/cm³ at 20 °C
Solubility: water	miscible
pH-value: water	10 % approx. 8 at 20 °C
Viscosity (dynamic):	approx. 1000 mPa*s at 20 °C

10. Stability and reactivity

- Conditions to be avoided
  Protect from heat/overheating.

- Hazardous decomposition products
  None with proper handling and storage.

11. Toxicological information

LD50 (oral): > 2000 mg/kg

- Primary irritancy
  Irritant effect on eyes: risk of serious damage to eyes
  Irritant effect on skin: slightly irritant

- General remarks
  The product has not been tested. The information is derived from the properties of the individual components.
  The product was classified on the basis of the calculation procedure of the preparation directive (1999/45/EC).

12. Ecological information

- Data on elimination (persistance and degradability)

- General information
  The product is biodegradable.

- Ecotoxic effects

LC50: > 10 mg/l

- Behaviour in sewage treatment plants
  When low concentrations are discharged correctly into adapted biological sewage treatment plants, interference with the

degradation activity of activated sludge is not likely.

- General ecological information

- General information
  Do not allow product to reach the drainage.
  The breakdown properties of the product have not been tested.
  The information on these is given on the basis of details in the literature.

13. Disposal considerations

- Product
  Can be taken to an incineration plant, if relevant regulations in force are being observed and, if necessary, after consulting the waste disposal agency, respectively the relevant authorities.
- Contaminated packaging
  Contaminated packaging should be emptied as far as possible and may be reused after appropriate cleansing.

14. Transport information

not applicable

15. Regulatory information

- Labelling according to EC directives

The product is classified and labelled in accordance with EC directives/German regulations on dangerous substances.

- Hazard symbols
  Xi - irritant

- R phrases
  41
  Risk of serious damage to eyes.

- S phrases
  26
  In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  28
  After contact with skin, wash immediately with plenty of water.
  37/39
  Wear suitable gloves and eye/face protection.

- Other regulations, restrictions and prohibition regulations

- 1996/82/EC: ---

- Water hazard class (FRG): 2

16. Additional information

- Relevant R-phrases (see item 2)

36
Irritating to eyes.

36/38
Irritating to eyes and skin.

38
Irritating to skin.

41
Risk of serious damage to eyes.

51/53
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This information is based on our present state of knowledge. It should not be construed as guaranteering specific properties of the products described or their suitability for a particular application. Existing acts and regulations must be observed by the recipient of our products under his own responsibility.

Color 19 R&D

Schill+Seilacher

Material Safety Data Sheet
According to 91/155 EC

Printing date 13.04.95

Reviewed on 03.12.93

1 Identification of substance

Product details

Trade name PRISTOLAMIN TA

Article number: 175800

Manufacturer/Supplier:
Schill & Seilacher GmbH & Co
Schönaicherstraße 205
D-71032 Böblingen

Tel.: 07031/282-0
Fax: 07031/282-160

Informing department: Product safety department.
Emergency information:
During normal opening times: environment protection department
at other times: factory fire brigade

2 Composition/Data on components:

Chemical characterization
Description: Mixture of amphoteric emulsifiers

Dangerous components:

CAS NO.	Designation	%	Index	R-phrases
Void				

Additional information
The product does not contain any carcinogenic or mutagenic substances

3 Hazards identification

Hazard designation: void
Information pertaining to particular dangers for man and environment
void
Classification system
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

General information No special measures required.
After inhalation Supply fresh air; consult doctor in case of symptoms.
After skin contact The product is not skin irritating.
After eye contact
Rinse opened eye for several minutes under running water.
After swallowing In case of persistent symptoms consult doctor.

5 Fire fighting measures

Suitable extinguishing agents
CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Protective equipment: No special measures required.

Material Safety Data Sheet
According to 91/155 EC

Printing date 13.04.95 Reviewed on 03.12.93

Trade name PRISTOLAMIN TA

6 Accidental release measures

Person-related safety precautions: Not required.
Measures for environmental protection: No special measures required.
Measures for cleaning/collecting:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Additional information: No dangerous materials are released.

7 Handling and storage

Handling
Information for safe handling: No special measures required.
Information about protection against explosions and fires:
No special measures required.

Storage
Requirements to be met by storerooms and containers:
No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.

8 Exposure controls and personal protection

Additional information about design of technical systems:
No further data; see item 7.

Components with critical values that require monitoring at the workplace:

CAS No.	Designation of material	%	Type	Value	Unit

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Additional information:
The lists that were valid during the compilation were used as basis.

Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Breathing equipment: Not required.
Protection of hands: Not required.
Eye protection: Safety glasses recommended during refilling.

9 Physical and chemical properties:

Form: Viscous
Colour: Yellow
Smell: Weak, characteristic

	Value/Range	Unit	Method
Change in condition			
Melting point/Melting range:	Not determined		
Boiling point/Boiling range:	Not determined		
Flash point:	Not applicable		
Self-inflammability:	Product is not selfigniting.		
Danger of explosion:	Product is not explosive.		
Density at 20 °C	1.05 g/cm3		
Solubility in / Miscibility with Water:	Fully miscible		

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 13.04.95 Reviewed on 03.12.93

Trade name PRISTOLAMIN TA

(Contd. of page 2)

pH-value: (100 g/l) at 20 ° C 8.0-10.0

10 Stability and reactivity

Conditions to be avoided:
No decomposition if used according to specifications.
Dangerous reactions No dangerous reactions known
Dangerous products of decomposition: None

11 Toxicological information

Acute toxicity:
Primary irritant effect:
on the skin: No irritant effect.
on the eye: No irritant effect.
Sensitization: No sensitizing effect known.
Additional toxicological information:
The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information:

General notes:
Water hazard class 2 (Self-assessment): hazardous for water.

13 Disposal considerations

Product:
Recommendation
Must be specially treated under adherence to official regulations.

Uncleaned packagings:
Recommendation:
Disposal must be made according to official regulations.

14 Transport information

Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)
ADR/RID-GGVS/E Class: -

Maritime transport IMDG/GGVSea:
IMDG/GGVSea Class: -

Air transport ICAO-TI and IATA-DGR:
ICAO/IATA Class: -

15 Regulatory information

Designation according to EC guidelines:
The product is not subject to classification according to the calculation methods of the "General Classification Guideline for Preparations of the EC" as issued in the last version.
The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).
Observe the normal safety regulations when handling chemicals

Hazard-determining components of labelling: Oleylamin

Material Safety Data Sheet
According to 91/155 EC

Printing date 13.04.95 Reviewed on 03.12.93

Trade name PRISTOLAMIN TA

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing data specification sheet:
Environment protection department.
Contact: Dr. Kazenwadel, Fr. Schuler

SN - 4/95

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2002-08-14
Supersedes: 2001-01-08

Class A Compressed Gas

Class B1 Flammable Gas

Class B2 Flammable Liquid

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT:	**PROPANE (HD-5 QUALITY)**
SYNONYMS:	Dimethylmethane
PRODUCT USE:	Fuel
MSDS Number:	251-000

MANUFACTURER
Shell Canada Limited
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	613-996-6666
For general information:	1-800-661-1600
For MSDS information:	403-691-3982
(From 7:30 to 4:30 Mountain Time)	403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Propane	74-98-6	>90	Yes
Propylene	115-07-1	<5	Yes
Hydrocarbons, C4 and up	68476-44-8	<2.5	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquefied Compressed Gas Colourless Mercaptan Odor.

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.
Hazards:

Compressed Gas.
Flammable Gas.
Flammable Liquid.
The gas is an asphyxiant and may also have a mild narcotic effect.
Direct contact with liquefied gas can result in burns to skin and eyes.
Exposure to rapidly expanding gas may cause frost burns to the eyes. As a gas, is non-irritating to the eyes.
Exposure to rapidly expanding gas may cause frost burns to the skin. As a gas, is non-irritating to the skin.
At very high concentrations this product can have an anesthetic (drowsiness, weakness) and asphyxiant effect. As a gas, is non-irritating to the throat. While there is no evidence that exposure to industrially acceptable levels of hydrocarbons have produced cardiac effects in humans, animal studies have shown that inhalation of high vapour levels of low molecular weight hydrocarbons has produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms.

Handling: Eliminate all ignition sources.
Wear insulated gloves to avoid freezing burns from liquid.
Wear an approved respirator to prevent overexposure.
Bond and ground transfer containers and equipment to avoid static accumulation.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If frostbite or burn occurs, get medical attention.

Skin: If victim has received cold burns, treat by immersing in lukewarm water (32 to 43 deg C) for 30-45 minutes. Remove contaminated clothing unless stuck to a burn area in which case cut around it. Obtain medical attention as soon as possible after first aid has been initiated and completed.

Ingestion: Not applicable.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: Inhalation of product may have a narcotic effect. Assess central nervous system and cardio-respiratory status.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Carbon Dioxide
Dry Chemical
Water Fog

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Firefighting Instructions: Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Evacuate hazard area. Vapours may travel along ground and flashback along vapour trail may occur. Containers exposed to intense heat may rupture. Allow gas to burn if flow cannot be shut off safely. Use water fog to disperse vapours. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Shut off source of gas.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Evacuate personnel not equipped with protective clothing and NIOSH approved respiratory protection. Isolate hazard area and restrict access. Avoid direct contact with material. Stop leak only if safe to do so. Eliminate all ignition sources. Handling equipment must be grounded. Use water fog to knock down vapours; contain runoff.

7. HANDLING AND STORAGE

Handling: Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. Hot surfaces may be sufficient to ignite liquid even in the absence of sparks or flames. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air.

Storage: Store cylinders upright, secured in position with cylinder valve cap on. Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Propane: 2500 ppm

Mechanical Ventilation: Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Chemical safety goggles should be worn. Provide an eyewash station in the area.

Skin Protection: Due to cryogenic properties of liquid product wear insulated gloves suitable for low temperatures, and coveralls. Safety showers should be available for emergency use.

Respiratory Protection: Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquefied Compressed Gas
Appearance:	Colourless
Odour:	Mercaptan Odor.
Odour Threshold:	Not available
Freezing/Pour Point:	<-188 degrees C
Boiling Point:	-42 degrees C
Density:	Not available
Vapour Density (Air = 1):	1.5
Vapour Pressure (absolute):	>400 mm Hg @ -56 degrees C
pH:	Not applicable
Flash Point:	Method Tag Closed Cup -104 degrees C
Lower Explosion Limit:	2.1 % (vol.)
Upper Explosion Limit:	9.5 % (vol.)
Autoignition Temperature:	432 degrees C
Viscosity:	Not applicable
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (K_{ow}):	229
Water Solubility:	Slight
Other Solvents:	Alcohol, Ether
Molecular Weight:	44.1 grams
Formula:	CH3CH2CH3

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources. May explode if ignited in an enclosed area.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Propane	
Propylene	
Hydrocarbons, C4 and up	

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.
Irritancy: No irritation effects with the gas have been reported but in liquid form contact with skin or eyes may result in freezing burns.

12. ECOLOGICAL INFORMATION

Environmental Effects: Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident.
Biodegradability: Not available. Rapid volatilization.

13. DISPOSAL CONSIDERATIONS

Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION

Canadian Road and Rail Shipping Classification:

UN Number	UN1075
Proper Shipping Name	LIQUEFIED PETROLEUM GAS, NOT ODORIZED
Hazard Class	Class 2.1 Flammable Gases
Shipping Description	LIQUEFIED PETROLEUM GAS, NOT ODORIZED Class 2.1 UN1075

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class: Class A Compressed Gas
Class B1 Flammable Gas
Class B2 Flammable Liquid

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: No Canadian federal standards.

16. ADDITIONAL INFORMATION

LABEL STATEMENTS

Hazard Statement : Compressed Gas.
Flammable Gas.
Flammable Liquid.
The gas is an asphyxiant and may also have a mild narcotic effect.
Direct contact with liquefied gas can result in burns to skin and eyes.

Handling Statement: Eliminate all ignition sources.
Wear insulated gloves to avoid freezing burns from liquid.
Wear an approved respirator to prevent overexposure.
Bond and ground transfer containers and equipment to avoid static accumulation.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

First Aid Statement : If overcome by vapours remove to fresh air.
Treat freezing burns by immersing in lukewarm water.
Obtain medical attention.

Revisions: This MSDS has been reviewed and updated.
Changes have been made to:
Section 11
Section 14

MATERIAL SAFETY DATA SHEET

PROPANE or LIQUIFIED PETROLEUM GAS

1. Product And Company Identification

Supplier
Crystal Flash Limited Partnership of Michigan
1754 Alpine
Post Office Box 1804
Grand Rapids, MI 46501-1804

Company Contact: Clayton Sawyer
Telephone Number: (616) 365-3265
Web Site: www.crystalflash.com

Manufacturer
Various Refineries

Supplier Emergency Contacts & Phone Number
CHEMTREC: (800) 424-9300
Transportation Safety: (616) 365-3265

Manufacturer Emergency Contacts & Phone Number
None Given

Issue Date: 08/06/2001

Product Name: PROPANE or LIQUIFIED PETROLEUM GAS
CAS Number: 74-98-6
Chemical Family: Hydrocarbon
Chemical Formula: C3-H8
MSDS Number: 333

Synonyms
Liquified Petroleum Gas
LP Gas

2. Composition/Information On Ingredients

Ingredient Name	CAS Number		Percent Of Total Weight
Propane	74-98-6		100

3. Hazards Identification

Primary Routes(s) Of Entry
Inhalation

Eye Hazards
Exposure may lead to moderate irritation.

Skin Hazards
Contact with liquid may produce skin burns similar to frostbite.

Inhalation Hazards
Breathing concentrated amounts of propane can lead to symptoms ranging from dizziness to anesthesia and respiratory arrest.

Chronic/Carcinogenicity Effects
Not listed as an OSHA Carcinogen (29 CFR 1910)

4. First Aid Measures

Eye
Remove victim to fresh air and flush eyes with water.

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4. First Aid Measures - Continued

Skin

Seek medical attention for frostbite if injury is result of contact with the cryogenic liquid. No treatment normally needed for contact with vapors.

Inhalation

Remove victim to fresh air. Guard against self-injury. Provide artificial respiration if breathing has stopped.

5. Fire Fighting Measures

Flash Point: -44 °F
Flash Point Method: Closed cup
Lower Explosive Limit: 2.15% with air
Upper Explosive Limit: 9.60% with air

Fire And Explosion Hazards

Extremely flammable gas when not under pressure. Vapors are heavier than air and will accumulate in basements or other low areas. Vapors may accumulate and explode if ignited by flame, spark, or static electricity.

Extinguishing Media

Water spray, Class A-B-C or B-C fire extinguishers.

Fire Fighting Instructions

Stop flow of gas if at all possible and safe to do so. Use water to keep fire-exposed containers cool. Use water spray to cool vapor space portion of tank if propane tank is exposed to the fire to prevent BLEVE. Use water spray to disperse unignited gas or vapor. If ignition has occurred and no water is available, tank metal may weaken from overheating and cause a boiling liquid expanding vapor explosion (BLEVE). Evacuate the area. Unless fire is causing other danger, do not extinguish an ignited release from the tank relief valve. If gas has not ignited, LP-gas liquid or vapor may be dispersed by water spray or flooding.

6. Accidental Release Measures

Keep public away and evacuate nearby areas. Shut off the supply of gas or the source of the release if safe to do so. Eliminate sources of ignition. Ventilate the area. Disperse with water spray.

7. Handling And Storage

Handling And Storage Precautions

Keep containers away from heat sources and store in upright position. Containers should not be dropped. Keep container valve closed when not in use. Install protective caps and plug container service valve when not connected for use. Use explosion-proof motors and electrical equipment. Keep sources of ignition at safe distances.

EMPTY Container Warning: Empty containers retain residue (liquid or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, LAMES, SPARKS, OR OTHER SOURCES OF IGNITION. THEY MAY EXLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. All containers should be disposed in an environmentally safe manner and in accordance with governmental regulations.

8. Exposure Controls/Personal Protection

Eye/Face Protection

Goggles should be worn when transferring propane liquid for protection against the accidental release of high pressure liquid or gas.

Skin Protection

Gloves resistant to the chemical actions of LP-gases as well as for cold temperature exposure must be worn.

MATERIAL SAFETY DATA SHEET

PROPANE or LIQUIFIED PETROLEUM GAS

8. Exposure Controls/Personal Protection - Continued

Respiratory Protection

Stay out of gas or vapor areas due to asphyxiant and fire danger.

Ingredient(s) - Exposure Limits

Propane
OSHA PEL: 1000 ppm

9. Physical And Chemical Properties

Appearance

Propane is a colorless gas.

Odor

Propane has no odor. Mercaptan should have been added as a means of detecting the presence of propane gas by smell.

Chemical Type: Pure
Melting Point: -189.7 °C
Boiling Point: -44 °F -42.1 °C
Specific Gravity: 0.51
Molecular Weight: 44.00
Percent Volatiles: 100
Percent VOCs: 100.00
Vapor Pressure: 205 psig @ 100 F
Vapor Density: 1.52
Solubility: Slightly
Evaporation Rate: Gas at normal ambient temperatures

10. Stability And Reactivity

Stability: Stable
Hazardous Polymerization: will not occur

Incompatible Materials

Mixing with oxygen or air except at burner nozzle

Hazardous Decomposition Products

Under uncontrolled fire conditions or when used as an engine fuel: Fumes, carbon monoxide, aldehydes

11. Toxicological Information

U.S. Department of Health (21 CFR 184.1655): Generally recognized as safe as a direct human food ingredient when used as a propellant, aerating agent, and gas as defined in Section 170.3(o)(25).

12. Ecological Information

Propane is not known to harm the environment when used in a safe manner for its intended use.

13. Disposal Considerations

Controlled burning is the safest method of disposing of propane. Contact your supplier is this service is needed.

14. Transport Information

Proper Shipping Name

Propane, 2.1, UN1978
Liquified Petroleum Gas, 2.1, UN1075
Petroleum Gases, Liquified, 2.1, UN1075

MATERIAL SAFETY DATA SHEET

PROPANE or LIQUIFIED PETROLEUM GAS

14. Transport Information - Continued

Proper Shipping Name - Continued
Hazard Class
2.1 (Flammable Gas)

DOT Identification Number
UN1075

DOT Shipping Label
2.1 Flammable Gas

Packaging Exceptions
173.306

Packaging Requirements
173.304, 173.314,315

Additional Shipping Paper Description
(Note: There is no Packing Group assignment associated with DOT Hazardous Materials Class 2.1 materials.)

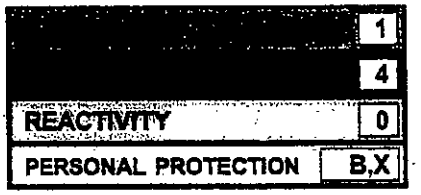
15. Regulatory Information

SARA Hazard Classes
Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard

Ingredient(s) - U.S. Regulatory Information
Propane
Clean Air Act 112(r) - Flammable Substance
SARA - Acute Health Hazard
SARA - Fire Hazard
SARA - Sudden Release Of Pressure Hazard

NFPA

HMIS



16. Other Information

Precautionary Label
DANGER: EXTREMELY FLAMMABLE
Compressed gas asphyxiant in high concentrations.
Contact with liquids causes burns similar to frostbite.

Revision/Preparer Information
MSDS Preparer: Douglas A. Lozier
MSDS Preparer Phone Number: (317) 875-4670

Reference Documentation
Information provided by Smith Gas Liquids Company materials safety data sheet dated May 1, 1996 and the National Propane Gas Association, 1600 Eisenhower Lane, Suite 100, Lisle, Illinois, 60532 (Phone: 708-515-0600)

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Disclaimer

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purposes(s).

Crystal Flash Limited Partnership of Michigan

Printed Using MSDS Generator™ 2000

new supplier 13

Ferrellgas

One Liberty Plaza • Liberty, MO 64068

MATERIAL SAFETY DATA SHEET

PROPANE

Section I

Supplier's Name:
Ferrellgas

Address:
One Liberty Plaza
Liberty, Missouri 64068

24 Hour Emergency Telephone Number:
CHEMTREC 800 424-9300

Telephone Number for Information:
(816) 792-1600

Date Prepared:
6/01/93, replaces MSDS dated 10/01/89

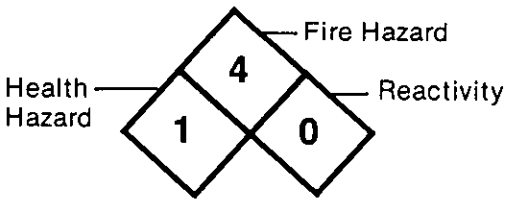
Section II — Hazardous Ingredients/Identity Information

Hazardous Component:
Propane (74-98-6)

Exposure Limit:
ACGIH — Classed as a simple asphyxiant
OSHA PEL — 1,000 ppm, 1,800 mg/m³-8Hr TWA

Identity Information:
Chemical Name or Synonym: Liquefied Petroleum Gas
Chemical Family: Alkane Hydrocarbon
Chemical Formula: $C^3 H^8$
Proper Shipping Name: Liquefied Petroleum Gas
Hazardous Classification: "Flammable Gas"
DOT Identification: UN 1075
Label(s) Required: Flammable Gas, Class 2.1

NFPA Hazard Rating



4 — Severe
3 — Serious
2 — Moderate
1 — Slight
0 — Minimal

Section III — Physical/Chemical Characteristics

Boiling Point: −44 °F

Vapor Pressure: 208 psig (max) @ 100 °F

Vapor Density (Air = 1): 1.52

Solubility in Water: Slightly

Liquid to Vapor Expansion Ratio: 1:270

Volatiles, % by Volume: 100

Specific Gravity (H_2O = 1): 0.51

Melting Point: N/A

Evaporation Rate (Butyl Acetate = 1): diffuses readily, <1

Appearance and Odor: Clear, unpleasant odor similar to garlic (odorized by - Ethyl Mercaptan)

Molecular Weight: 44.096

Section IV — Fire and Explosion Hazard Data

Flash Point: −156 °F **Auto Ignition Temperature:** 940 °F **LEL:** 2.15% **UEL:** 9.60%

Extinguishing Media: Dry Chemical Class A-B-C, CO_2, Water Spray or Halon

Special Fire Fighting Procedures: Stop flow of gas. Use water to keep fire-exposed containers cool. Use water spray to disperse unignited gas or vapor. Use self-contained breathing apparatus in confined spaces. Evacuate area until gas dissipates completely.

Unusual Fire and Explosion Hazards: Flammable liquid and gas under pressure. May form explosive mixtures with air. Containers exposed to fire or excessive heat may rupture explosively.

#03-OPR-1090/R6/93

Section V — Reactivity Data

Stability: Stable

Conditions to Avoid: Heat sparks, flame and build-up of static electricity. Prevent vapor accumulation

Incompatibility *(Materials to Avoid):* Strong Oxidizers

Hazardous Decomposition or Byproducts: Carbon Monoxide

Hazardous Polymerization: Will Not Occur

Section VI — Health Hazard Data

Route(s) of Entry: Skin - Frostbite (Primary) **Lungs** - Inhalation (Primary) **Ingestion** - N/A

Health Hazards *(Acute and Chronic):* Classified as a simple asphyxiant, minimal oxygen content should be 19.5% by volume under normal atmospheric conditions (ACGIH). Central nervous system depressant. May cause anemia and irregular heart rhythm.

Carcinogenicity: Non-carcinogenic **NTP:** N/A **IARC Monographs:** N/A **OSHA Regulated:** N/A

Signs and Symptoms of Exposure: High concentration can lead to symptoms ranging from dizziness to anesthesia and respiratory arrest if inhaled. Eyes can be moderately irritated.

Medical Conditions Generally Aggravated by Exposure: Caution is recommended for personnel with pre-existing central nervous system or chronic respiratory diseases.

Emergency and First Aid Procedures: Remove to fresh air. If not breathing, administer air, oxygen or CPR. Skin - keep affected area warm and submerge in lukewarm water. Flush eyes immediately with water.

Section VII — Precautions for Safe Handling and Use

Training: In the interest of safety, all persons employed in handling propane gas must be trained in proper handling and operating procedures. This training should also be documented.

Steps to Be Taken in Case Material is Released or Spilled: Keep public away. Shut off gas supply. Eliminate sources of ignition. Ventilate area. Disperse with water spray. Contact between skin and liquid propane can cause freezing of tissue.

Waste Disposal Method: Controlled burning in compliance with applicable codes and laws. Contact supplier.

Precautions to Be Taken in Handling and Storing: Keep containers away from heat sources and store containers in upright position. Containers should not be dropped. Container temperature should not exceed 130°F (54.4 C).

Other Precautions: Close container service valve when not in use and when empty. Install protective cap when not connected for use. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

DOT Cylinders: DOT specification cylinders must be periodically requalified or they must be removed from service. Store and use cylinders with relief valve in the containers' vapor space.

Section VIII — Control Measures

Respiratory Protection: Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded.

Ventilation: Provide adequate ventilation where this product is used to meet TLV requirements and to keep concentration in air below 25% of the L.E.L. Mechanical ventilators must meet N.E.C. requirements for being explosion proof.

Protective Gloves: Impervious plastic or neoprene-coated canvas.

Eye Protection: Face shield or chemical goggles when changing valves, hoses, fittings or performing maintenance/service operations in liquid propane service.

Other Protective Clothing or Equipment: N/A

Work/Hygienic Practices: Avoid breathing gas, secure and evacuate area if gas is smelled.

Section IX — Environmental/Regulatory Information

The following information may be useful in complying with various state and federal laws and regulations under various environmental statutes:

Reportable Quantity (RQ), EPA Regulation 40 CFR 302 (Cercla Section 102): No RQ for product or any constituent greater than 1% or 0.1% (carcinogen).

Threshold Planning Quantity (TPQ), EPA Regulation 40 CFR 355 (SARA Sections 301-304): No TPQ for product or any constituent greater than 1% or 0.1% (carcinogen).

Toxic Chemical Release Reporting, EPA Regulation 40 CFR 372 (SARA Section 313): No toxic chemical is present greater than 1% or 0.1% (carcinogen).

Hazardous Chemical Reporting, EPA Regulation 40 CFR 370 (SARA Sections 311-312)

EPA Hazard Classification Code:	Acute Hazard	Chronic Hazard	Fire Hazard	Pressure Hazard	Reactive Hazard	Not Applicable
	XXX		XXX	XXX		

OSHA Hazard Determination: This material is hazardous as defined by OSHA's Hazard Communication Standard, 29CFR 1910.1200

RCRA: This product is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

This product does **not** contain CFC's, HFC's, or other ozone depleting compounds as defined by the EPA.

Section X — Supplemental Information

Ethyl mercaptan is the preferred warning agent for propane. This is because, in addition to meeting NFPA #58 guidelines for odorization of LP-gases, its liquid/gas equilibrium properties more closely match that of propane, and it has a higher odor intensity at lower concentrations when compared to other odorizing agents. Ethyl mercaptan was first chosen as a viable warning agent in a study by the U.S. Bureau of Mines in 1931, and later confirmed in independent studies by the U.S. Energy Research and Development Administration (ERDA) in 1977.

Although ethyl mercaptan has excellent warning properties, NFPA #58 A-1-4.1 states "It is recognized that no odorant will be completely effective as a warning agent in every circumstance." Studies conducted by Gas Research Institute (GRI), Institute of Gas Technology (IGT), Bartlesville Energy Technology Center, Natural Gas Odorizing, Inc., and others highlight instances where odorants may not be as effective. For example, it has been reported that odor fading caused by chemical oxidation*, absorption, and adsorption can occur in vessels and distribution systems carrying odorized propane. In an underground leak, the odorant may be adsorbed or absorbed by certain soils as the gas passes through the soil to the surface. In a basement, the odorant may be adsorbed or absorbed by masonry surfaces. Extreme cold weather may also reduce the effectiveness of the odorant. It has also been reported that being exposed to an odor for a period of time may affect a person's ability to detect that odor. Other odors in an area, such as a musty basement, may mask or cover up the LP-gas odor. Be advised that even a faint smell of odorant could indicate a dangerous situation.

* CHEMICAL OXIDATION: Contact with air (oxygen), rust, or other oxidation agents over a period of time can result in odorant fading. Chemical oxidation is most likely to occur in newly installed tanks and in rusty, wet, or improperly prepared tanks. For this reason it is extremely important for propane tanks to be properly purged, especially when the tank is new or has been allowed to run empty, thus allowing potential air or water contamination.

Disclaimer of Liability

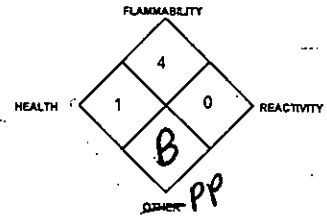
The information in this MSDS was obtained from sources which we believe are reliable. **HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS.**

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE, OR DISPOSAL OF THE PRODUCT.

13-000023

+HMIS

NFPA RATING



MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS: **PROPANE - C_3H_8**

Document Number: 001045

PRODUCT USE: For general analytical/synthetic chemical uses.

SUPPLIER/MANUFACTURER'S NAME: AIRGAS INC.

ADDRESS: 259 N. Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283

BUSINESS PHONE: 1-610-687-5253

EMERGENCY PHONE: CHEMTREC: 1-800-424-9300
International: 703-527-3887 (Call Collect)

DATE OF PREPARATION: May 12, 1996

SECOND REVISION: January 16, 1998

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		IDLH ppm	OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm		
Propane	74-98-6	> 96.0	Simple Asphyxiant	NE	1000	NE	2100 (Based on LEL)	NIOSH REL: 1000 ppm DFG MAK: 1000 ppm
Maximum Impurities		<4.0	None of the trace impurities in this mixture contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

NE = Not Established C = Ceiling Limit See Section 16 for Definitions of Terms Used

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Propane is a colorless, liquefied, flammable gas, with a faint odor at high concentrations. The liquefied gas rapidly turns into a gas at standard atmospheric temperatures and pressures. Propane is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air and may spread long distances. Distant ignition and flashback are possible. Contact with liquid or rapidly expanding gases may cause frostbite. Flame or high temperature impinging on a localized area of the cylinder of Propane can cause the cylinder to rupture without activating the cylinder's relief devices. Provide adequate fire protection during emergency response situations.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant route of overexposure for this gas is by inhalation. The following paragraphs describe symptoms of exposure by route of exposure.

INHALATION: High concentrations of this gas can cause an oxygen-deficient environment. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. The skin of a victim may have a blue color. Under some circumstances, death may occur. The effects associated with various levels of oxygen are as follows:

CONCENTRATION	SYMPTOMS OF EXPOSURE
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea and vomiting, collapse or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

OTHER POTENTIAL HEALTH EFFECTS: Contact with the liquefied gas or rapidly expanding gases may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact can quickly subside.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Overexposure to Propane may cause the following health effects:

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	1
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For routine industrial applications

See Section 16 for Definition of Ratings

ACUTE: The most significant hazard associated with this gas is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, headache, dizziness and nausea. At high concentrations, unconsciousness or death may occur. Contact with liquefied gas or rapidly expanding gases may cause frostbite.

CHRONIC: Propane is considered a weak heart sensitizing agent, based on animal tests.

TARGET ORGANS: Respiratory system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO PROPANE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

4. FIRST-AID MEASURES (Continued)

Remove victim(s) to fresh air as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen. In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

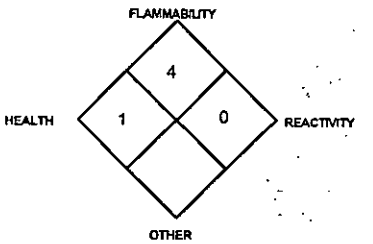
Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

5. FIRE-FIGHTING MEASURES

FLASH POINT (Closed Cup): -104°C (-156°F)
AUTOIGNITION TEMPERATURE: 450°C (842°F)
FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): 2.2%
Upper (UEL): 9.5%

NFPA RATING



FIRE EXTINGUISHING MATERIALS: Extinguish Propane fires by shutting off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material ignites to produce toxic gases including carbon monoxide and carbon dioxide.

See Section 16 for Definition of Ratings

DANGER! Fires impinging (direct flame) on the outside surface of unprotected pressure storage vessels of Propane can be very dangerous.
Direct flame exposure on the cylinder wall can cause an explosion either by BLEVE (Boiling Liquid Expanding Vapor Explosion) , or by exothermic decomposition. This is a catastrophic failure of the vessel releasing the contents into a massive fireball and explosion. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the vessel. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Static discharge may cause Propane to ignite explosively if released.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of vessel exposures, evacuate the area. Refer to the North American Emergency Response Guidebook for further information.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area and protect people. Adequate fire protection must be provided.

Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves resistant to tears, and Self-Contained Breathing Apparatus.** Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with water-spray. Allow the gas to dissipate.

Monitor the surrounding area for combustible gas levels and oxygen. Combustible gas concentration must be below 10% of the LEL (LEL = 2.2%) prior to entry of response personnel. The atmosphere must have at least 19.5% oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

THIS IS AN EXTREMELY FLAMMABLE GAS. Protection of all personnel and the area must be maintained.

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting Propane IN YOU. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Propane could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post "No Smoking or Open Flames" signs in storage or use areas.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated area, away from sources of heat, ignition, and direct sunlight. Do not allow area where cylinders are stored to exceed 52°C (125°F). Isolate from oxidizers such as oxygen, chlorine, or fluorine. Use a check valve or trap in the discharge line to prevent hazardous backflow. Post "No Smoking or Open Flame" signs in storage and use areas. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Never tamper with pressure relief devices in valves and cylinders. Electrical equipment should be non-sparking or explosion-proof. The following rules are applicable to work situations in which cylinders are being used:

Before Use: Move cylinders with a suitable hand truck. Do not drag, slide, or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap in place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Replace valve protection cap. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, *Safe Handling of Compressed Gases in Containers.* Additionally, refer to CGA Bulletin SB-2 "*Oxygen Deficient Atmospheres*" and NFPA Bulletin 58.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (e.g., nitrogen) before attempting repairs.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents Propane dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the presence of potentially explosive air-gas mixtures and the level of oxygen.

RESPIRATORY PROTECTION: Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of Propane. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards. The following are NIOSH recommendations for Propane concentrations in air and are provided for further information:

CONCENTRATION	RESPIRATORY EQUIPMENT
Up to 2100 ppm:	Facepiece Self-Contained Breathing Apparatus (SCBA) or full-facepiece Supplied-Air Respirator (SAR).
Emergency or Planned Entry into Unknown Concentration or IDLH Conditions:	Positive pressure, full-facepiece SCBA or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
Escape:	Escape-type SCBA.

NOTE: The IDLH concentration for Propane is 2100 ppm, which is based on the LEL. It must be noted that protection for chemical overexposures is not effective protection from burns in the event of a fire.

EYE PROTECTION: Splash goggles or safety glasses, for protection from rapidly expanding gases and splashes of liquid Propane. Additionally, face shields should be worn for Liquid Propane use.

HAND PROTECTION: Wear mechanically resistant-gloves when handling cylinders of Propane. Use low-temperature protective gloves (e.g., Kevlar) when working with containers of Liquid Propane.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

BODY PROTECTION: Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product, as well as fire retardant items.

9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY: 1.868 kg/m^3 (0.115 99 lb/ft^3)
SPECIFIC GRAVITY (air =1): 1.550
SOLUBILITY IN WATER: Very slight.
EVAPORATION RATE(nBuAc = 1): Not applicable.
COEFFICIENT WATER/OIL DISTRIBUTION: 2.36
ODOR THRESHOLD: 22,000-36,000 mg/m^3

pH: Not applicable.
FREEZING POINT: -187.7°C (-305.9°F)
BOILING POINT @ 1 atm: -42°C (-43.7°F)
EXPANSION RATIO: Not applicable.
SPECIFIC VOLUME (ft^3/lb): 8.7
VAPOR PRESSURE (psia): 123.7

APPEARANCE AND COLOR: Colorless gas with a faint odor at high concentrations. The liquid is also colorless and has a faint odor at high concentrations.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinct warning properties. The odor is not a reliable warning property. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide, carbon dioxide.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers (e.g., chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials and exposure to heat, sparks and other sources of ignition.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following information is for pure Propane.

Skin Contact (Rabbit): Several formulations containing an isobutane-propane mixture were tested for skin irritation effects. All formulations contained less than 13% propane. All of the formulations containing propane caused only mild irritation.

Effects on Short-Term Inhalation: Guinea-pigs breathing 5.5% propane by volume developed tremors after 5 minutes. Nausea, retching, and stupefaction were observed when animals were exposed for 30-120 minutes. All the animals survived a two-hour exposure and had no significant tissue damage. A gas concentration of 89% did not cause anesthesia, but depressed the blood pressure of cats. Inhalation of 10 percent propane by mice and 15% by dogs cause weak cardiac sensitization, Presumably, all of these effects are reversible when exposure ceases. In primates, 10% propane caused some change in heart function. At 20% there was aggravation of these symptoms and respiratory depression.

Effects of Long-Term Inhalation: No toxicity or abnormalities were observed when monkeys were exposed to approximately 750 ppm for 90 days. Similar results were obtained when monkeys were exposed to an aerosol spray containing 65% propane and isobutane.

SUSPECTED CANCER AGENT: Propane is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Propane is not irritating; however, contact with rapidly expanding gases can cause frostbite to exposed tissue.

SENSITIZATION TO THE PRODUCT: Propane is not known to cause sensitization in humans; however, some animal studies indicate that exposure to Propane can cause weak cardiac sensitization.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects Propane on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for Propane.
Embryotoxicity: No embryotoxic effects have been described for Propane.
Teratogenicity: No teratogenicity effects have been described for Propane.
Reproductive Toxicity: No reproductive toxicity effects have been described for Propane.

11. TOXICOLOGICAL INFORMATION (Continued)

REPRODUCTIVE TOXICITY INFORMATION (continued):

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions may be aggravated by overexposure to Propane.

RECOMMENDATIONS TO PHYSICIANS: Administer oxygen, if necessary. Treat symptoms and eliminate exposure.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, there are no Biological Exposure Indices for Propane.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: This gas will be dissipated rapidly in well-ventilated areas. Additional environmental data are available for Propane as follows:

PROPANE: Log K_{ow} = 2.36. Water Solubility = 62.4 ppm (25°C). Log BCF (calculated) = 1.56 and 1.78. The bioconcentration in aquatic organisms is not expected to be important. Propane is readily degraded by soil bacteria

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Any adverse effect on animals would be related to oxygen-deficient environments. No adverse effect is anticipated to occur to plant life, except for frost produced in the presence of rapidly expanding gases.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on Propane's effects on aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to Airgas Inc. Do not dispose of locally.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

For Propane Gas:

PROPER SHIPPING NAME:	Propane
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1978
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

Alternate Description:

PROPER SHIPPING NAME:	Petroleum gases, liquefied
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1075
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

MARINE POLLUTANT: *n*-Butane is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: Propane is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

15. REGULATORY INFORMATION (Continued)

CANADIAN DSL/NDSL INVENTORY STATUS: Propane is on the DSL Inventory.

U.S. TSCA INVENTORY STATUS: Propane is on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Propane is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 lb. Depending on specific operations involving the use of Propane, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Propane is not listed in Appendix A; however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.

U.S. STATE REGULATORY INFORMATION: Propane is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Propane.
California - Permissible Exposure Limits for Chemical Contaminants: Propane.
Florida - Substance List: No.
Illinois - Toxic Substance List: Propane.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Propane.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Propane.
Missouri - Employer Information/Toxic Substance List: Propane.
New Jersey - Right to Know Hazardous Substance List: Propane.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: Propane.
Rhode Island - Hazardous Substance List: Propane.
Texas - Hazardous Substance List: Propane.
West Virginia - Hazardous Substance List: Propane.
Wisconsin - Toxic and Hazardous Substances: Propane.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Propane is not on the California Proposition 65 lists.

LABELING:

DANGER:

FLAMMABLE LIQUID AND GAS UNDER PRESSURE.
CAN FORM EXPLOSIVE MIXTURES WITH AIR.
MAY CAUSE FROSTBITE.
Keep away from heat, flames, and sparks.
Store and use with adequate ventilation.
Cylinder temperature should not exceed 52°C (125°F).
Do not get liquid in eyes, on skin or clothing.
Close valve after each use and when empty.
Use in accordance with the Material Safety Data Sheet.

FIRST-AID:

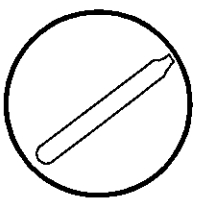
IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

IN CASE OF FROSTBITE, obtain immediate medical attention.

DO NOT REMOVE THIS PRODUCT LABEL

CANADIAN WHMIS SYMBOLS:

Class A: Compressed Gases
Class B1: Flammable Gas



16. OTHER INFORMATION

PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.
9163 Chesapeake Drive, San Diego, CA 92123-1002
619/565-0302

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. AIRGAS, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, AIRGAS, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:
ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV** - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered.
OSHA - U.S. Occupational Safety and Health Administration. **PEL** - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.
IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration **(OSHA)**. NIOSH issues exposure guidelines called Recommended Exposure Levels **(RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]. Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).
NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury).

NATIONAL FIRE PROTECTION ASSOCIATION (Continued):
Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:
Much of the information related to fire and explosion is derived from the National Fire Protection Association **(NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:
Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m^3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water.

REGULATORY INFORMATION:
This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act **(SARA)**; the Canadian Domestic/Non-Domestic Substances List **(DSL/NDSL)**; the U.S. Toxic Substance Control Act **(TSCA)**; Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act **(CERCLA or Superfund)**; and various state regulations.

Section I MATERIAL SAFETY DATA SHEET *Maintenance*

Suppliers Name: Buckeye Gas Products Company Emergency Phone NO. (616) 897-9348

Address 12312 E. Fulton, Lowell, Mi. 49331

Chemical Name Liquefied Petroleum Gas or Propane CAS Registry No. 74-98-6 .

Chemical Family Hydrocarbon Formula C_3H_8

Section II HAZARDOUS INGREDIENTS

Hazardous Mixtures Air with 2.15 to 9.60 percent propane

Section III PHYSICAL DATA

Boiling Point -44°F Specific Gravity (H_2O=1) 0.51 Vapor Pressure (mm HG) at 100°F 9825
Percent, Volatile by Volume (%) 100 Vapor Density (Air=1) 1.52 Evaporative Rate None
Solubility in Water Slightly Appearance and Odor - Clear - unpleasant odor (caused by odorant)*

Section IV FIRE AND EXPLOSION HAZARD DATA

Flash Point NIA Classification Flammable Gas UN 1075 Flammable Limits LEL 2.15 UEL 9.60
Extinguishing Media Water Spray: Class A-B-C or BC Fire Extinguishers
Special Fire Fighting Procedures Stop flow of gas. Use water to keep fire-exposed containers cool. Use water spray to disperse unignited gas or vapor. If ignition has occurred and no water available, tank metal may weaken from over-heating. Evacuate area. If gas has not ignited, LP-gas liquid or vapor may be dispersed by water spray or flooding.

Section V HEALTH HAZARD

Threshold Limit Value 1,000 PPM Effects of Overexposure Inhalation - concentration can lead to symptoms ranging from dizziness to anesthesia and respiratory arrest. Eyes - moderate irritation.

Emergency & First Aid Procedures Inhalation - Remove to fresh air. Guard against self-injury. Apply artificial respiration if breathing has stopped.

Section VI REACTIVITY DATA

Stable X Unstable ____ Hazardous Decomposition Products None
Incompatability (materials to avoid) Mixing with oxygen or air, except at burner
Hazardous Polymerization: May occur ____ Will not occur X

Section VII SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released: Keep public away. Shut off supply of gas. Eliminate sources of ignition. Ventilate the area. Disperse with water spray. Contact between skin and these gases in liquid form can cause freezing of tissue causing injury to thermal burn. Waste Disposal Method Controlled burning. Contact supplier.

Section VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection Stay out of gas or vapor (because of fire hazard).
Ventilation Explosion-proof motors and keep sources of ignition at safe distances.
Personal Protective Equipment and Apparel: Use Insulated, Impervious Plastic or Neoprene-Coated Canvas Gloves and Chemical-Type Goggles and Face Shield for protection against accidental release of pressurized products.

Section IX SPECIAL PRECAUTIONS

Precautions to be taken when handling and storing Keep containers away from heat sources and store in upright position. Containers should not be dropped. Keep container valve closed when not in use.
Other Precaution Install protective caps when not connected for use.

Section X TOXICOLOGICAL INFORMATION

OSHA Carcinogen Classification (29 CFR 1910) Not listed/applicable X
Category I Carcinogen ____ Category II Carcinogen ____
Listed as Possible Category I ____ Listed as Possible Category II ____

Section XI DOT LABELING INFORMATION (49 CFR 100-199)

Proper Shipping Name Liquefied Petroleum Gas Hazardous Classification Flammable Gas
Identification No. UN 1075 Label(s) Required Flammable, Class 2

Date of Preparation or Last Change: November 12, 1985

* For use with unodorized gas, remove these words: "UNPLEASANT ODOR (CAUSED BY ODORANT)"

MATERIAL SAFETY DATA SHEET

QUICK REFERENCE: **PUR - FLO 511**

H - O - H CHEMICALS, INC.
500 SOUTH VERMONT STREET
PALATINE, ILLINOIS 60067

EMERGENCY PHONE Nos:
847 - 358 - 7400 (H - O - H BUSINESS Hrs.)
800 - 424 - 9300 (CHEMTREC - 24 Hrs.)

HMIS:
4 = EXTREME
3 = SEVERE
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

HEALTH	2
FLAMMABILITY	1
REACTIVITY	0

DOT:
HAZARD LABELING
NONE REQUIRED
IN DOT LISTED POLYETHYLENE CONTAINERS

PRODUCT IDENTIFICATION

PRODUCT NAME	CHEMICAL FAMILY	DATE	Rev. No.	SUPERSEDES	EPA - TPQ	BY
PUR - FLO 511	WASTEWATER FLOCCULANT	1-1-01	2	1-1-00	NA	

HAZARDOUS COMPONENTS

CHEMICAL NAME	COMMON NAME	CAS No.	PERCENT	OSHA PEL	ACGIH-TLV	OTHER
Petroleum distillate hydrotreated light		064742-47-8	17-24			
Formaldehyde		50-00-0	<0.1			RQ = 100 lbs.
Isopropanol		67-63-0	0-0.4			
Glycol ether			.03-.12			

COMMENT

1. THIS PRODUCT CONTAINS A CATIONIC POLYACRYLAMIDE EMULSION IN A HYDROCARBON OIL. EXERCISE CAUTION IN THE EVENT OF A SPILL. THIS PRODUCT IS VERY SLIPPERY AND MAY CREATE CONDITIONS WHERE SLIPS AND FALLS ARE LIKELY.

PHYSICAL DATA

BOILING POINT (Degrees Fahrenheit)	212	SOLUBILITY (In Water)	LIMITED BY VISCOSITY	EVAPORATION RATE (water = 1.0)	NA
VAPOR PRESSURE (In millimeters of Mercury)	WATER	SPECIFIC GRAVITY (water = 1.0)	~1.00	pH	5.5-6.5
VAPOR DENSITY (air = 1.0)	WATER	PERCENT (%) VOLATILE (by volume)	~65-70		
APPEARANCE and ODOR	VISCOUS GRAYISH MILKY OPAQUE LIQUID WITH AMINE ODOR.				

FIRE AND EXPLOSION

FLASH POINT (Degrees Fahrenheit)	METHOD	FLAMMABLE LIMITS	LOWER EXPLOSIVE LIMIT	UPPER EXPLOSIVE LIMIT
>213	PM closed cup		NOT APPLICABLE	NOT APPLICABLE

EXTINGUISHING MEDIA	SPECIAL FIRE FIGHTING PROCEDURES	UNUSUAL FIRE AND EXPLOSION HAZARDS
WATER, CO2, DRY CHEMICAL USE WATER, CARBON DIOXIDE, OR DRY CHEMICAL TO EXTINGUISH FIRES. USE WATER SPRAY TO COOL CONTAINERS TO PREVENT RUPTURE.	NONE	NONE

REACTIVITY DATA

STABILITY STABLE [X] UNSTABLE [ ]	CONDITIONS TO AVOID	AVOID TEMPERATURES > 104 F (40 C) FOR LONG PERIODS OF TIME.
INCOMPATABILITY (Materials to Avoid)		LIME OR OTHER ALKALINE SUBSTANCES MAY CAUSE THE RELEASE OF AMINE COMPOUNDS.
HAZARDOUS DECOMPOSITION PRODUCTS		NITROGEN OXIDES, CARBON OXIDES, AMMONIA, HYDROGEN CHLORIDE.
HAZARDOUS POLYMERIZATION MAY WILL OCCUR [ ] WON'T OCCUR [X]	CONDITIONS TO AVOID	NONE KNOWN

SPECIAL PRECAUTIONS

STORAGE AND HANDLING

1. PROTECT CONTAINERS AGAINST PHYSICAL DAMAGE.
2. STORE IN A COOL, DARK, WELL-VENTILATED LOCATION AWAY FROM DIRECT SUNLIGHT AND OTHER SOURCES OF RADIANT HEAT.
3. KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE. **NEVER** MOVE AN OPEN OR LOOSELY CLOSED CHEMICAL CONTAINER.
4. WEAR HAND AND FOOT PROTECTION WHEN MOVING HEAVY CONTAINERS.

OTHER

1. NOT TO BE TAKEN INTERNALLY.
2. NOT TO BE USED FOR OTHER THAN SPECIFIED PURPOSE.
3. KEEP AWAY FROM CHILDREN.
4. **NEVER** MIX THIS MATERIAL WITH ANY OTHER CHEMICAL UNLESS AT THE SPECIFIC DIRECTION OF H - O - H PERSONNEL.
5. TRIPLE RINSE EMPTY CONTAINERS BEFORE OFFERING FOR DISPOSAL OR SALVAGE. **NEVER** REUSE EMPTY CONTAINERS.

HEALTH HAZARD DATA	THRESHOLD LIMIT VALUE	NONE ESTABLISHED.	PUR-FLO 511

ACUTE HEALTH HAZARDS	CHRONIC HEALTH HAZARDS
IRRITANT	NONE KNOWN

EFFECTS OF EXPOSURE	SKIN AND EYES / TARGET ORGAN	INHALATION	INGESTION
	TISSUE IRRITATION MAY CAUSE EYE IRRITATION, ESPECIALLY AFTER PROLONGED OR REPEATED CONTACT. PROLONGED DERMAL CONTACT MAY PRODUCE ITCHING, DRY SKIN, OR POSSIBLE IRRITATION	NON-VOLATILE NOT EXPECTED TO BE HARMFUL IF INHALED.	NONE KNOWN MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT.
CONDITIONS AGGRAVATED	DERMATITIS, BLISTERS, BURNS, OR ANY PRE-EXISTING SKIN IRRITATION IF CONTACT OCCURS.	IN NORMAL USE, NO EFFECT SHOULD BE NOTED.	IF INGESTION OCCURS, STOMACH ULCERS OR OTHER PRE-EXISTING DIGESTIVE CONDITIONS.

EMERGENCY PROCEDURES	SKIN AND EYES	INHALATION	INGESTION
	EYES FLUSH EYES WITH WATER FOR 15 MINUTES. GET PROMPT MEDICAL ATTENTION IF IRRITATION DEVELOPS. SKIN FLUSH WITH WATER AND WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND WASH WELL BEFORE REUSE. IF IRRITATION DEVELOPS, SEEK MEDICAL ADVICE.	NON-VOLATILE IF LIQUID OR CONCENTRATED SPRAY OR MIST IS INHALED, REMOVE SUBJECT TO FRESH AIR. HAVE THE SUBJECT COUGH AND ATTEMPT TO CLEAR ANY LIQUIDS FROM THE BREATHING TRACT. IF BREATHING BECOMES DIFFICULT, GET PROMPT MEDICAL ATTENTION. IF NOT BREATHING, APPLY MOUTH-TO-MOUTH ARTIFICIAL RESPIRATION.	DO NOT INDUCE VOMITING DO NOT INDUCE VOMITING DUE TO LOW ORAL TOXICITY. GET IMMEDIATE MEDICAL ATTENTION.

CARCINOGEN LISTING	NATIONAL TOXICOLOGY PROGRAM (NTP)	I.A.R.C MONOGRAPHS	O.S.H.A REGULATED
	NO	NO	NO

SPILL OR LEAK PROCEDURES	SPILLS AND RELEASES	WASTE DISPOSAL METHODS
	SPILLS WILL BE EXTREMELY SLIPPERY. DO NOT FLUSH WITH WATER. ABSORB SPILL WITH AN INERT MATERIAL AND COLLECT INTO SUITABLE CONTAINER FOR DISPOSAL. DO NOT ALLOW SPILLS TO ENTER WATERWAYS. WATER MAY BE USED TO COMPLETE CLEANING.	CONSULT FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WASTE DISPOSAL.

CONTROL MEASURES				
	EYE PROTECTION	SAFETY GLASSES WITH SIDE SHIELDS OR A FACE MASK.		
	RESPIRATORY PROTECTION	NOT REQUIRED FOR ORDINARY USE. DURING EMERGENCY CONDITIONS OR IF A SERIOUS SPILL OCCURS, AN AIR PURIFING RESPIRATOR DESIGNED TO ABSORB ORGANIC VAPORS SHOULD BE USED.		
	OTHER PROTECTIVE EQUIPMENT	EYE WASH AND QUICK DRENCH SHOWER.		
	LOCAL EXHAUST	YES	SPECIAL VENTILATION	NOT REQUIRED FOR NORMAL USE.
	MECHANICAL VENTILATION	NOT REQUIRED FOR NORMAL USE.	OTHER VENTILATION	NOT REQUIRED FOR NORMAL USE.
	PROTECTIVE GLOVES	NON-SLIP VINYL OR RUBBER GLOVES.	PROTECTIVE CLOTHING	WATER REPELLENT APRON OR COVERALLS

REFERENCES

1. *Threshold Limit Values For Chemical Substances And Physical Agents In The Work Environment;* ACGIH, 1989.
2. *OSHA Safety and Health Standards;* 29CFR 1900 to 1910, July 1, 1988
3. *Fifth Annual Report on Carcinogens;* U.S. Dept. of Health and Human Services, National Toxicology Program, 1989 (Summary).
4. M. Sittig, *Handbook of Toxic & Hazardous Chemicals,* (Noyes Publications, Park Ridge, N.J., 1981).
5. *Community Right-To-Know Manual,* (Thompson Publishing Group, Washington, D.C., 1990).
6. *Right-To-Know Chemical Manual* (ILLINOIS MANUFACTURES ASSOCIATION; Rooks, Pitts, and Poust, 1990).
7. *Toxic and Hazardous Industrial Chemicals Safety Manual* (THE INTERNATIONAL TECHNICAL INFORMATION INSTITUTE, 1975).
8. M. J. Lefevre, S. A. Conibear, *First Aid Manual for Chemical Accidents, 2nd ed.* (Van Nostrand Reinhold, New York, 1989).
9. *Hazardous Materials Guide; Shipping, Materials Handling and Transportation* (J. J. KELLER & ASSOCIATES, Inc., Neenah, Wisconsin, Dec. 1990)
10. *Hazard Communication Guide; Federal & State Right to Know Standards* (J. J. KELLER & ASSOCIATES, Inc., Neenah, Wisconsin, Dec. 1990)

REPORTABLE QUANTITY	IF MORE THAN THE INDICATED QUANTITY IS DISCHARGED TO DRAINAGE (Sewer / surface water), AIR, OR SOIL, IMMEDIATELY REPORT AS INDICATED.		
	CERCLA OR EPA (Extremely Hazardous) NATIONAL RESPONSE CENTER (800-424-8802)	STATE EMERGENCY RELEASE NOTIFICATION ILLINOIS (Only) 800-782-7860 (Consult for others)	LOCAL EMERGENCY RESPONSE AUTHORITY Record Telephone No. of Local Response Authority
WRITTEN REPORT MUST FOLLOW	100,000 lbs. / 10,000 gal.	CONTACT	CONTACT

MATERIAL SAFETY DATA SHEETS

EMERGENCY PHONE NUMBERS

IN PLANT: 1st: Janice Barnes ext 5709 or 866-2284
2nd: Madeleine Barrette ext 5766 or 361-5944

PHYSICIAN: Dr. Steve Ottenweller 456-9601

PARAMEDICS: Days: Nurse's office 5635
Nights: Rockford Ambulance 173-013

FIRE DEPT: 173-012 451-2911

POLICE: State: 173-010 866-4411
Rockford 173-011 866-9557

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MATERIAL SAFETY DATA SHEET

SECTION I: MATERIAL IDENTIFICATION

PRODUCT: QUEBRACHO-COLD AUGUST 14, 1995

INCLUDING THE FOLLOWING BRANDS: UNITAN ATO, CAP ATD, HORSEHEAD, CROWN, COLATAN & ATS

DISTRIBUTOR: TANNIN CORPORATION

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300

CHEMICAL NAME AND SYNONYMS: QUEBRACHO EXTRACT VEGETABLE TANNIN
CHEMICAL FAMILY: POLYPHENOLIC POLYMERS
TRADE NAME AND SYNONYMS: HORSEHEAD-CROWN-SUPERIOR

CAS # 72854-274

SECTION II: HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES & SOLVENTS	%	TLV
PIGMENTS		NA
CATALYST		NA
SOLVENTS		NA
ADDITIVES		
OTHERS		

ALLOYS AND METALLIC COATINGS	%	TLV
BASE METALS		NA
ALLOYS		NA
METALLIC COATINGS		NA
FILLER METAL PLUS		
COATING OR CORE FLUX		NA
OTHERS		

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES
HAZARDOUS MIXTURES WILL DEPEND ON CHEMICALS MIXED WITH QUEBRACHO EXTRACTS.

SECTION III: PHYSICAL DATA

BOILING POINT (°C) DECOMPOSES:	170°C
VAPOR PRESSURE mmHg:	UNKNOWN
VAPOR DENSITY (AIR=1):	UNKNOWN
SOLUBILITY IN WATER:	*

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PHYSICAL DATA (CONT'D.)

* WARM SOLUBLE - 100% (HOT WATER)
  COLD SOLUBLE - 100% (COLD WATER)
  SEMISOLUBLE - 100% (HOT WATER) 80% (COLD WATER)

APPEARANCE AND ODOR:	PLEASANT, CHARACTERISTIC ODOR, BROWN POWDER
SPECIFIC GRAVITY (H_2O=1):	0.3/0.7
PERCENT VOLATILE BY VOLUME (%):	UNKNOWN
EVAPORATION RATE:	NA

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED):	NON FLAMMABLE
FLAMMABLE LIMITS: LEL: UEL:	
EXTINGUISHING MEDIA:	WATER
SPECIAL FIRE FIGHTING PROCEDURES:	NONE
UNUSUAL FIRE AND EXPLOSION HAZARDS:	NONE

SECTION V: HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:	NONE ESTABLISHED
EFFECTS OF OVEREXPOSURE:	NONE ESTABLISHED

EMERGENCY AND FIRST AID PROCEDURES:
ALTHOUGH INGESTION AND SKIN CONTACT ARE NOT HARMFUL, INGESTION SHOULD BE AVOIDED AS A PRECAUTION

EYE CONTACT:
IRRIGATE WITH SALINE SOLUTION

SECTION VI: REACTIVITY DATA

STABILITY:	STABLE
INCOMPATIBILITY (MATERIALS TO AVOID):	NONE KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS:	NONE
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR

SECTION VII: SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
IF SPRAYDRIED EXTRACT IS SPILLED, IT COULD BE SWEPT UP TO MINIMIZE DUSTING AND THE RESIDUE COULD BE WASHED AWAY WITH WATER

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SPILL OR LEAK PROCEDURES (CONT'D.)

WASTE DISPOSAL METHOD:
IDEM

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): USUAL RESPIRATORY MASKS FOR HANDLING POWDERED MATERIAL

VENTILATION:
LOCAL EXHAUSTS:
SPECIAL: NOT ESSENTIAL
MECHANICAL (GENERAL):
OTHER:

PROTECTIVE GLOVES: NOT NECESSARY
EYE PROTECTION: NOT NECESSARY-IF WANTED USE DUST GOGGLES
OTHER PROTECTIVE EQUIPMENT: NONE

SECTION IX: SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DRY, COOL STORAGE CONDITIONS ARE RECOMMENDED AS QUEBRACHO EXTRACT IS SLIGHTLY HYGROSCOPIC (I.E. SLIGHT TENDENCY TO ABSORB HUMIDITY)

OTHER PRECAUTIONS: NONE

SECTION X: OTHER INFORMATION

"This information is furnished without warranty expressed or implied, except that it is accurate to the best knowledge of Tannin Corporation. The data on this sheet relates only to the specific material designated herein. Tannin Corporation assumes no legal responsibility or use or reliance upon these data.

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Ecological classification of quebracho extracts

The term "vegetable tannin" is applicable to any organic chemical substance which can, by means of a chemical process caused by the action of tannins, turn animal fibrous tissue (collagen) into non-degradable leather.

When a substance has such properties, it is called a "tannin". Although there is a considerable number of different naturally occurring tannins with a different composition according to their origin, and major or minor variations, in spite of such differences there are some common features and properties. Among the best known of such properties are the high P.M. value and colloidal features of watery solutions, with different particle dispersion characteristics, in some cases even when in suspension.

So far we have referred to some of the common features, but there is a great variety of such products which occur naturally and show specific differences enabling distinctions between them. In spite of the differences, they may be classified into two major groups, as follows:

a) Galloltannins, Pyrogallols or Hydrolizable (non-fluorescent): These include China Tannin or Tannic acid; in view of the similarities the members of the group are generically referred to as Tannic Acid. This is why the ecological classification lists all group members as CAS # 1401-55-4.

The most representative examples of this group are Valonia, Sumac, Myrabolam, Divi Divi, Tara, Chestnut, and Oak tannins.

These extracts are actually combinations of simple phenols such as pyrogallol and ellagic acid and sugar esters, mainly glucose, of gallic and digallic acid, which hydrolize easily and form the different acids.

b) Flavotannins, Condensed, Catechin tannins; or Non-Hydrolizable (fluorescent): Catechin polyphenols; containing partly insoluble components, very high-P.M. polymers (flavophenes).

This second group includes, among others, quebracho extracts.

Our extracts in general and particularly Unitán ATO and Superior Sólido fall into this category; therefore they must be treated with sodium bisulphite during the process in order to solubilize the flavophenes present, which leads to extracts that are fully soluble in water at 18° C; consequently they have been classified as CAS # 72854-27-4. As a result of the bisulphite treatment and due to the fact that they belong to a chemical group which is completely different from that of "tannic acid", it is appropriate to classify them as mentioned above.

In order to better understand this classification, below is a summary of the extract manufacturing process.

1. Quebracho wood is turned into chips by using special machines.
2. Tannin (condensed type) is extracted by means of an upstream water and steam leaching process.
3. The extract thus obtained during the extraction process is filtered out and concentrated.
4. Next, the concentrated extract is treated with bisulphite solution in appropriate concentration, temperature and pressure conditions until the flavophenes are fully solubilized (in the case of soluble extracts) or partly solubilized (in the case of partly soluble extracts), so as to bring about a reaction in almost all of the bisulphite, while controlling its residual contents. Other chemical parameters are adjusted.
5. Spray-drying is performed.
6. Extract packing.

STAHL USA
MATERIAL SAFETY DATA SHEET

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RA-44-601

HMIS RATING

HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE	.2	***	***	OSHA 50 PPM
CAS NO. 1336-21-6 SYN: AQUA AMMONIA				ACGIH 25 PPM
SOLVENT NAPHTHA(PETROLEUM)LT.AROM.	4.8	10.00	25.0	OSHA NOT ESTAB
CAS NO. 64742-95-6 SYN: ...				ACGIH NOT ESTAB
-PENTANONE,4-HYDROXY-4-METHYL-	7.9	***	***	OSHA 50 PPM
CAS NO. 123-42-2 SYN: DIACETONE ALCOHOL				ACGIH 50 PPM

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.
*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:311-345 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 13
WEIGHT PER GALLON: 8.30 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 109 DEGREES F
EXTINGUISHING MEDIA

S - Sam

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

MAY FLOAT ON WATER WHILE BURNING.

DO NOT STORE OR MIX WITH STRONG OXIDANTS.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

2-PENTANONE,4-HYDROXY-4-METHYL (SEE SECTION 2) IS TOXIC AND AN EYE IRRITANT.

USE PROTECTIVE CLOTHING TO PREVENT CONTACT WITH INGREDIENTS LISTED IN SECTION 2.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

MAY CAUSE EYE BURNS.

LIQUID MAY CAUSE PERMANENT EYE INJURY.

MAY CAUSE NARCOSIS IN HIGH CONCENTRATIONS.

POSSIBLE ANESTHESIA FROM HIGH CONCENTRATIONS.

MODERATELY TOXIC. MAY CAUSE STOMACH DISCOMFORT, NAUSEA, VOMITING, DIARRHEA, AND NARCOSIS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

CONTAINS A PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING, GUARD AGAINST ASPIRATION INTO LUNGS.

OTHERS

NOTE TO PHYSICIAN:

ASPIRATION OF ONE OF THE SOLVENTS LISTED IN SECTION 2 DUE TO VOMITING MAY CAUSE CHEMICAL PNEUMONITIS (LUNG DAMAGE), WHICH MAY BE FATAL.

THERE IS NO SPECIFIC ANTIDOTE. TREATMENT OF OVEREXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION.

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

SECTION 6 - REACTIVITY DATA - CONTINUED -

STRONG OXIDIZING OR REDUCING AGENTS.
LIQUID CHLORINE AND CONCENTRATED OXYGEN.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

HEAT, SPARKS, OPEN FLAMES, AND OTHER IGNITION SOURCES.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

KEEP OUT OF PUBLIC SEWERS, STREAMS, AND RIVERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.
WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

AVOID BREATHING MISTS.
AVOID SPLASH FILLING.
IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH, KEEP AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES
FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

Spray finish

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RA-2357

HMIS RATING

HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE CAS NO. 1336-21-6 SYN: AQUA AMMONIA	.4	***	***	OSHA 50 PPM ACGIH 25 PPM
2-BUTOXYETHANOL CAS NO. 111-76-2 SYN: ETHYLENE GLYCOL EB {1}	11	.40	20.0	OSHA 50 PPM(SKIN) ACGIH 25 PPM(SKIN)
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3- CAS NO. 26172-55-4 SYN:	00-10	*	*	OSHA NOT ESTAB ACGIH NOT ESTAB
2-METHYL-4-ISOTHIAZOLIN-3-ONE CAS NO. 2682-20-4 SYN:	00-10	*	*	OSHA NOT ESTAB ACGIH NOT ESTAB
-2-ETHANEDIOL CAS NO. 107-21-1 SYN: ETHYLENE GLYCOL{1}	.06	.12	25.0	OSHA 50 PPM(CEIL) ACGIH 100 PPM CEIL

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".
{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.

*** NOT KNOWN TO MANUFACTURER
* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)

BOILING RANGE:338-341 DEGREES F (SOLVENT ONLY)

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 11
WEIGHT PER GALLON: 8.43 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 142 DEGREES F

EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.
SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.
OVEREXPOSURE TO ETHYLENE GLYCOL(SEE SECTION 2)MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION, LIVER AND KIDNEY INURYY. LABORATORY

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

ANIMALS EXPOSED TO ETHYLENE GLYCOL DURING PREGANCY DEVELOPED BIRTH DEFECTS.
LIQUID MAY CAUSE EYE BURNS.
MAY CAUSE SEVERE EYE IRRITATION.
LIQUID MAY CAUSE CORNEAL INJURY.
LIQUID MAY CAUSE PERMANENT EYE INJURY.
CAUSES SEVERE EYE IRRITATION, EXPERIENCED AS DISCOMFORT OR PAIN, EXCESS BLINKING AND TEAR PRODUCTION, MARKED EXCESS REDNESS AND SWELLING OF THE CONJUNCTIVA AND CHEMICAL BURNS OF THE CORNEA. CORNEAL INJURY MAY BE SEVERE, EXTENSIVE AND PERMANENT IF NOT TREATED PROMPTLY.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
MATERIAL MAY READILY PENETRATE SKIN. FREQUENT OR WIDESPREAD CONTACT MAY RESULT IN ABSORPTION OF POTENTIALLY HARMFUL AMOUNTS, WITH POSSIBLE INJURY TO KIDNEYS, LIVER, AND/OR BONE MARROW.
MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.
INGESTION MAY CAUSE MINOR GASTROINTESTINAL DISCOMFORT; DROWSINESS; LOSS OF COORDINATION; DIZZINESS; FATIGUE.
REPEATED OVEREXPOSURE MAY RESULT IN DAMAGE TO BLOOD. HOWEVER, THIS POSSIBILITY IS BASED ON ANIMAL TESTS, WHICH VARY CONSIDERABLY AMONG SPECIES. IN HUMAN BEINGS, EVEN AT LEVELS AS HIGH AS 200 PPM, THESE BLOOD EFFECTS DID NOT OCCUR AT ALL.
SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

SECTION 6 - REACTIVITY DATA - CONTINUED -

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.
AVOID CONTAMINATION WITH ALKALIES.
STRONG OXIDIZING AGENTS SUCH AS, BUT NOT LIMITED TO, NITRIC ACID, OZONE,AND LIQUID OXYGEN.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.
KEEP OUT OF PUBLIC SEWERS, STREAMS, AND RIVERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

THIS PRODUCT SHOULD BE HANDLED IN COVERED EQUIPMENT, IN WHICH CASE GENERAL (MECHANICAL) ROOM VENTILATION IS SATISFACTORY. SPECIAL LOCAL VENTILATION MAY BE NEEDED AT POINTS WHERE VAPORS CAN BE EXPECTED TO ESCAPE TO WORKPLACE AIR.

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.
STRICTLY AVOID ALL SKIN CONTACT. IMPERMEABLE GLOVES REQUIRED.
WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.
AVOID BREATHING MISTS.
AVOID SKIN AND EYE CONTACT. AVOID INHALATION OF HIGH CONCENTRATIONS OF VAPOR.
REMOVE CONTAMINATED CLOTHING. WASH BEFORE REUSE.
KEEP CONTAINERS CLOSED.
IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH,KEEP AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

DATE: 3/20/03

STAHL USA

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC-1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RC-1761

HMIS RATING

HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
2-BUTOXYETHANOL CAS NO. 111-76-2 SYN: ETHYLENE GLYCOL EB (1)	9	.40	20.0	OSHA 50 PPM(SKIN) ACGIH 25 PPM(SKIN)
1-2-ETHANEDIOL CAS NO. 107-21-1 SYN: ETHYLENE GLYCOL(1)	.04	.12	25.0	OSHA 50 PPM(CEIL) ACGIH 100 PPM CEIL

(1) THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY (1) AT THE END OF THE SYNONYM ABOVE.

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:338-341 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 9
WEIGHT PER GALLON: 8.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 152 DEGREES F

EXTINGUISHING MEDIA

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF

Sarc

LIQUID ENTERS SEWER/PUBLIC WATERS.
SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

OVEREXPOSURE TO ETHYLENE GLYCOL(SEE SECTION 2)MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION, LIVER AND KIDNEY INURYY. LABORATORY ANIMALS EXPOSED TO ETHYLENE GLYCOL DURING PREGANCY DEVELOPED BIRTH DEFECTS.

MAY CAUSE SEVERE EYE IRRITATION.
LIQUID MAY CAUSE CORNEAL INJURY.
CAUSES SEVERE EYE IRRITATION, EXPERIENCED AS DISCOMFORT OR PAIN, EXCESS BLINKING AND TEAR PRODUCTION, MARKED EXCESS REDNESS AND SWELLING OF THE CONJUNCTIVA AND CHEMICAL BURNS OF THE CORNEA. CORNEAL INJURY MAY BE SEVERE, EXTENSIVE AND PERMANENT IF NOT TREATED PROMPTLY.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
MATERIAL MAY READILY PENETRATE SKIN. FREQUENT OR WIDESPREAD CONTACT MAY RESULT IN ABSORPTION OF POTENTIALLY HARMFUL AMOUNTS, WITH POSSIBLE INJURY TO KIDNEYS, LIVER, AND/OR BONE MARROW.
MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.
INGESTION MAY CAUSE MINOR GASTROINTESTINAL DISCOMFORT; DROWSINESS; LOSS OF COORDINATION; DIZZINESS; FATIGUE.
REPEATED OVEREXPOSURE MAY RESULT IN DAMAGE TO BLOOD. HOWEVER, THIS POSSIBILITY IS BASED ON ANIMAL TESTS, WHICH VARY CONSIDERABLY AMONG SPECIES. IN HUMAN BEINGS, EVEN AT LEVELS AS HIGH AS 200 PPM, THESE BLOOD EFFECTS DID NOT OCCUR AT ALL.
SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE.. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.
AVOID CONTAMINATION WITH ALKALIES.
STRONG OXIDIZING AGENTS SUCH AS, BUT NOT LIMITED TO, NITRIC ACID, OZONE,AND LIQUID OXYGEN.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

KEEP OUT OF PUBLIC SEWERS, STREAMS, AND RIVERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION

5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.
THIS PRODUCT SHOULD BE HANDLED IN COVERED EQUIPMENT, IN WHICH CASE GENERAL (MECHANICAL) ROOM VENTILATION IS SATISFACTORY. SPECIAL LOCAL VENTILATION MAY BE NEEDED AT POINTS WHERE VAPORS CAN BE EXPECTED TO ESCAPE TO WORKPLACE AIR.

PROTECTIVE GLOVES
USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION
SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT
IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS
NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.
USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.
STRICTLY AVOID ALL SKIN CONTACT. IMPERMEABLE GLOVES REQUIRED.
WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.
AVOID BREATHING MISTS.
AVOID SKIN AND EYE CONTACT. AVOID INHALATION OF HIGH CONCENTRATIONS OF VAPOR.
REMOVE CONTAMINATED CLOTHING. WASH BEFORE REUSE.
KEEP CONTAINERS CLOSED.

OTHER PRECAUTIONS OR NOTES
FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RC-4230

HMIS RATING

HEALTH	2
FLAMMABILITY	2
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
AMMONIUM HYDROXIDE	.4	***	***	OSHA 50 PPM
CAS NO. 1336-21-6 SYN: AQUA AMMONIA				ACGIH 25 PPM
2-BUTOXYETHANOL	6	.60	20.0	OSHA 25 PPM SKIN)
CAS NO. 111-76-2 SYN: ETHYLENE GLYCOL EB {1}				ACGIH 25 PPM(SKIN)

THIS PRODUCT CONTAINS AMMONIUM HYDROXIDE. AMMONIA GAS, MAY BE EMITTED BY THIS PRODUCT. THE CAS# FOR AMMONIA IS 7664-41-7. AMMONIA (7664-41-7) IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF "SARA".

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR AMMONIA IS 35PPM.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:340-341 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 6
WEIGHT PER GALLON: 8.46 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 139 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

LIQUID MAY CAUSE EYE BURNS.

MAY CAUSE SEVERE EYE IRRITATION.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

LIQUID MAY CAUSE CORNEAL INJURY.
LIQUID MAY CAUSE PERMANENT EYE INJURY.
MATERIAL MAY READILY PENETRATE SKIN. FREQUENT OR WIDESPREAD CONTACT MAY RESULT IN ABSORPTION OF POTENTIALLY HARMFUL AMOUNTS, WITH POSSIBLE INJURY TO KIDNEYS, LIVER, AND/OR BONE MARROW.
MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.
INGESTION MAY CAUSE MINOR GASTROINTESTINAL DISCOMFORT; DROWSINESS; LOSS OF COORDINATION; DIZZINESS; FATIGUE.
REPEATED OVEREXPOSURE MAY RESULT IN DAMAGE TO BLOOD. HOWEVER, THIS POSSIBILITY IS BASED ON ANIMAL TESTS, WHICH VARY CONSIDERABLY AMONG SPECIES. IN HUMAN BEINGS, EVEN AT LEVELS AS HIGH AS 200 PPM, THESE BLOOD EFFECTS DID NOT OCCUR AT ALL.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

INCOMPATIBILITY
AVOID CONTAMINATION WITH ALKALIES.
STRONG OXIDIZING AGENTS SUCH AS, BUT NOT LIMITED TO, NITRIC ACID, OZONE,AND LIQUID OXYGEN.

HAZARDOUS DECOMPOSITION PRODUCTS
COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

SECTION 6 - REACTIVITY DATA - CONTINUED -

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

THIS PRODUCT SHOULD BE HANDLED IN COVERED EQUIPMENT, IN WHICH CASE GENERAL (MECHANICAL) ROOM VENTILATION IS SATISFACTORY. SPECIAL LOCAL VENTILATION MAY BE NEEDED AT POINTS WHERE VAPORS CAN BE EXPECTED TO ESCAPE TO WORKPLACE AIR.

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.

STRICTLY AVOID ALL SKIN CONTACT. IMPERMEABLE GLOVES REQUIRED.

WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

AVOID BREATHING MISTS.

AVOID SKIN AND EYE CONTACT. AVOID INHALATION OF HIGH CONCENTRATIONS OF VAPOR.

REMOVE CONTAMINATED CLOTHING. WASH BEFORE REUSE.

KEEP CONTAINERS CLOSED.

IF AMMONIUM HYDROXIDE CONTENT SHOWN IN SECTION 2 IS HIGH,KEEP

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

AWAY FROM FLAMMABLE LIQUID OR FORMALDEHYDE STORAGE. AVOID BREATHING VAPORS, AS THEY COULD CAUSE SEVERE RESPIRATORY IRRITATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : RED WATER DYE
IDENTIFICATION NUMBER : WD-3
PRODUCT USE/CLASS : Dye solution

DATE PRINTED: 06/09/00

SUPPLIER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

MANUFACTURER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

PREPARER: Lori Schneider, PHONE: 414-691-1930, PREPARE DATE: 01/16/98

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % EQUAL TO
01	Chromium compounds		11.7 %

	EXPOSURE LIMITS					
	ACGIH		OSHA		COMPANY	
ITEM	TLV-TWA	TLV-STEL	PEL-TWA	PEL-CEILING	TLV-TWA	SKIN
01	0.5 mg/m3	N.E.	0.5 mg/m3		N.E.	NO

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: The trivalent chromium in this compound is an integral part of the molecule and is not biologically available or toxic. Trivalent chromium is not a carcinogen.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Can cause eye irritation, redness, tearing.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use. If product is sprayed, inhalation of solid airborne particles may irritate the respiratory tract and lungs.

(Continued on Page 2)

SECTION 3 - HAZARDS IDENTIFICATION

EFFECTS OF OVEREXPOSURE - INGESTION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: No chronic effects expected in normal use.

PRIMARY ROUTE(S) OF ENTRY: Unknown

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

FIRST AID - INHALATION: Remove from exposure, treat symptomatically. Get medical attention if symptoms persist.

FIRST AID - INGESTION: If swallowed, give water to dilute. Do not induce vomiting.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: N.A.

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE: N.D.

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Not applicable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Absorb small spills with inert material and place in chemical waste container. For a large spill: dike area of spill and pump to salvage container. Collect remainder on inert material and place in chemical waste container.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

(Continued on Page 3)

SECTION 7 - HANDLING AND STORAGE

STORAGE: Keep from freezing. Keep container closed when not in use.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

RESPIRATORY PROTECTION: Good general ventilation should be sufficient to control airborne levels. If material is sprayed, sufficient local exhaust must be used to remove solid airborne particles.

SKIN PROTECTION: Gloves should be worn to avoid prolonged skin contact.

EYE PROTECTION: Wear safety glasses with side shields or goggles.

OTHER PROTECTIVE EQUIPMENT: Where splashing is possible, an impermeable apron and boots should be worn.

HYGIENIC PRACTICES: Wash hands before eating. Avoid prolonged or repeated contact with skin.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: 212 - 212 F	VAPOR DENSITY	: Is heavier than air
ODOR	: Mild	ODOR THRESHOLD	: N.D.
APPEARANCE	: Red liquid	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	: Complete		
FREEZE POINT	: N.D.	SPECIFIC GRAVITY	: 1.0702
VAPOR PRESSURE	: N.D.	pH @ 0.0 %	: N.D.
PHYSICAL STATE	: N.D.	VISCOSITY	: N.D.
WEIGHT % SOLIDS	: 13.91		

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Hazardous polymerization will not occur.

INCOMPATIBILITY: None.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

(Continued on Page 4)

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

Toxic section 11B: No Information.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: No Information.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Not considered a hazardous waste by RCRA regulations. Liquids cannot be landfilled under current regulations.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

CERCLA - SARA HAZARD CATEGORY:
This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

None

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	WT/WT %
Chromium compounds		11.7 %

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 07/21/93

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.00 lbs/gal, 0 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

2

Stockhausen

Material Safety Data Sheet

rec'd 11-4-86

(Approved by U.S. Department of Labor as "essentially similar" to Form LSB-OOS-4)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME: STOCKHAUSEN, INC.	EMERGENCY TELEPHONE NO.: (919) 378-9393
ADDRESS: 2408 Doyle St. Greensboro, N.C. 27406	
TRADE NAME AND SYNONYMS: Reduran, hand cleanser for removing dye stains.	
CHEMICAL NAME AND SYNONYMS: Mixture of reducing agent, surfactants and fatty substances	
CHEMICAL FAMILY: See above	MOLECULAR FORMULA: N/A

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE (UNITS)
None		

Acute oral LD_{50} of Reduran = 11.7 g/kg male mice.

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR: Off white/yellowish, somewhat granular paste, slightly perfumed

BOILING POINT (DEGREES FAHRENHEIT)	N/A	SPECIFIC GRAVITY (WATER = 1)	ca 1.24
VAPOR PRESSURE (MM. OF MERCURY)	N/A	PERCENT VOLATILE (BY VOLUME)	N/A
VAPOR DENSITY (AIR = 1)	N/A	EVAPORATION RATE (BUTYL ACETATE = 1)	N/A
SOLUBILITY IN WATER	Soluble	EVAPORATION RATE (ETHYL ETHER = 1)	N/A

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) (DEGREES FAHRENHEIT)	N/A	FLAMMABLE LIMITS (PERCENT BY VOLUME)	LOWER N/A UPPER
FIRE-EXTINGUISHING MEDIA	N/A		
SPECIAL FIRE-FIGHTING PROCEDURES	N/A		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

N/E

EFFECTS OF OVEREXPOSURE

In case of contact with eyes, the product may cause irritation.

EMERGENCY AND FIRST AID PROCEDURES

Eyes: Rinse with plenty of water for at least 15 minutes.
Ingestion: Consult a physician if illness occurs.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	N/A

INCOMPATIBILITY (Materials to avoid)

Oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS

N/A

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	N/A

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Collect, sweep residuals to the drain for effluent treatment.

WASTE DISPOSAL METHOD

Incinerate or otherwise dispose of in accordance with all applicable federal, state, and local regulations. Product is non-hazardous.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

N/A

VENTILATION			
	LOCAL EXHAUST	SPECIAL	
	N/A	N/A	
	MECHANICAL (General)	OTHER	
	N/A	N/A	

PROTECTIVE GLOVES	EYE PROTECTION
N/A	N/A

OTHER PROTECTIVE EQUIPMENT

N/A

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

N/A

OTHER PRECAUTIONS

Do not ingest.

NA = Not Applicable
NE = Not Established

Date	Serial	Approved By
1/83	2	BPB

Rec'd 2-18-00

3M General Offices

3M Center
St. Paul, MN 55144-1000
1-800-364-3577 or (651) 737-6501 (24 hours)

01-98
2632

MATERIAL SAFETY
DATA SHEET

3M

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1) the information is copied in full with no changes unless prior agreement is obtained from 3M, and
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DIVISION: SAFETY & SECURITY SYSTEMS DIVISION
TRADE NAME:
REFLECTIVE INK,PART B

ISSUED: DECEMBER 1, 1997
SUPERSEDES: SEPTEMBER 30, 1997
DOCUMENT: 08-2126-4

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ALUMINUM COATED GLASS BEADS	None	100

2. PHYSICAL DATA

BOILING POINT: N/A
VAPOR PRESSURE: N/A
VAPOR DENSITY: N/A
EVAPORATION RATE: N/A
SOLUBILITY IN WATER: N/A
SP. GRAVITY: N/A
PERCENT VOLATILE: N/A
pH: N/A
VISCOSITY: N/A
MELTING POINT: N/A
APPEARANCE AND ODOR: Glass beads

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A
FLAMMABLE LIMITS - LEL: N/A
FLAMMABLE LIMITS - UEL: N/A
AUTOIGNITION TEMPERATURE: N/A
EXTINGUISHING MEDIA:
Not applicable
SPECIAL FIRE FIGHTING PROCEDURES:
Not applicable
UNUSUAL FIRE AND EXPLOSION HAZARDS:
None known.
NFPA HAZARD CODES: HEALTH: 0 **FIRE:** 0 **REACTIVITY:** 0
UNUSUAL REACTION HAZARD: none

4. REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY - MATERIALS TO AVOID:
None known.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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MATERIAL SAFETY
DATA SHEET

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4. REACTIVITY DATA (continued)

HAZARDOUS POLYMERIZATION: Will Not Occur
HAZARDOUS DECOMPOSITION PRODUCTS:
Aluminum fumes

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Contain spill. Collect spilled material. Place in a closed container.

RECOMMENDED DISPOSAL:
Dispose of waste product in a sanitary landfill.

ENVIRONMENTAL DATA:
Not applicable.

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

None

EPCRA HAZARD CLASS:
FIRE HAZARD: No **PRESSURE:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
No need for first aid is anticipated.

IF SWALLOWED:
No need for first aid is anticipated.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

VENTILATION PROTECTION:
Use with appropriate local exhaust ventilation.

7. PRECAUTIONARY INFORMATION (continued)

RESPIRATORY PROTECTION:
half-mask dust respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

RECOMMENDED STORAGE:
Keep container dry.

FIRE AND EXPLOSION AVOIDANCE:
Not applicable.

EXPOSURE LIMITS

INGREDIENTS	VALUE	UNIT	TYPE	AUTH	SKIN*
ALUMINUM COATED GLASS BEADS	NONE	NONE	NONE	NONE	

*** SKIN NOTATION:** Listed substances indicated with "Y" under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Level (
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mechanical eye irritation: signs/symptoms can include irritation, redness, scratching of the cornea and tearing.

SKIN CONTACT:
Mechanical skin irritation: signs/symptoms can include itching and redness.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

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MSDS: REFLECTIVE INK,PART B
DECEMBER 1, 1997

SECTION CHANGE DATES

ENVIRON. DATA SECTION CHANGED SINCE SEPTEMBER 30, 1997 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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M A T E R I A L S A F E T Y D A T A S H E E T

CLARIANT CORPORATION
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CHARLOTTE, N.C. 28205

RELCA OIL ZDP
296580 VERSION: 01 REVISED DATE: 03/24/1999

Clariant

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	B

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: RELCA OIL ZDP
PRODUCT CODE: 296580
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: FATLIQUOR
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER TANNING AGENT

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC	64742-52-5	> 50	5 MG/M3 OSHA ACGIH (MIST)

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION:

EFFECTS OF EXPOSURE:

DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC: NO ACUTE INHALATION EFFECTS EXPECTED TO TWICE EXPOSURE LIMIT. PRACTICALLY NON-TOXIC IF ABSORBED BY THE SKIN (LD50 > 2000 MG/KG. MINIMAL EYE IRRITATION. PULMONARY ASPIRATION HAZARD IF SWALLOWED AND VOMITING OCCURS. ESTIMATED LD50 (RATS) > 30000 MG/KG. MODERATE SKIN IRRITATION ON PROLONGED EXPOSURES.

RELCA OIL ZDP: EYE CONTACT WILL CAUSE IRRITATION, TEARING, REDNESS AND STINGING. SKIN CONTACT MAY CAUSE IRRITATION OR RASH. EXTENDED CONTACT MAY CAUSE DERMATITIS. MAY BE A RESPIRATORY TRACT IRRITANT WITH PROLONG-

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

ED EXPOSURE AT HIGH TEMPERATURES.

KNOWN EFFECTS ON OTHER ILLNESSES:
NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:
NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR FIFTEEN MINUTES.

FIRST AID FOR INHALATION:
GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:
DO NOT INDUCE VOMITING. SEEK MEDICAL ASSISTANCE. MAY GIVE MILK OR WATER TO DILUTE IF VICTIM IS CONCIOUS. DO NOT GIVE SODIUM BICARBONATE, VINEGAR, OR FRUIT JUICES.

NOTE TO PHYSICIAN:
NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): > 230 COC
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON.

EXTINGUISHING MEDIA:

WATER:
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILL. ALL SPILLS SHOULD BE COLLECTED AS LIQUID OR ABSORBED ON A SUITABLE ABSORBANT. CLEAN UP SHOULD BE ACCOMPLISHED BY REMOVAL OF CONTAMINATED SOIL OR SCRUBBED WITH SOAP AND WATER AND CLEANING WASTES REMOVED WITH ABSORBANT MATERIALS. WEAR PROPER PROTECTIVE EQUIPMENT.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

IF USE CONDITIONS GENERATE VAPOR IN AREAS WHERE ADEQUATE VENTILATION IS NOT AVAILABLE, NIOSH APPROVED VAPOR RESPIRATOR SHOULD BE WORN.

PROTECTIVE GLOVES:

NEOPRENE

EYE PROTECTION:

SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

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SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

OTHER PROTECTIVE EQUIPMENT:
IMPERVIOUS PROTECTIVE CLOTHING AND CHEMICALLY RESISTANT FOOTWEAR SHOULD BE WORN TO MINIMIZE CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: PALE YELLOW LIQUID, SLIGHT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: NOT SOLUBLE
SPECIFIC GRAVITY: 0.905 TYPICAL
BOILING POINT ('F): > 230
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT AVAILABLE

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SECTION 11 - TOXICOLOGICAL INFORMATION (CONT.)

EYE IRRITATION-RABBIT: NOT AVAILABLE

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: LEATHER SOFTENER

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: N

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

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SECTION 15 - REGULATORY INFORMATION (CONT.)

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO THE LUNGS.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

AVOID BREATHING MIST. WEAR APPROPRIATE RESPIRATORY PROTECTION.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

INGESTION:

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SECTION 16 - OTHER INFORMATION (CONT.)

GIVE TWO GLASSES OF WATER OR MILK TO DILUTE STOMACH CONTENTS. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. SEEK MEDICAL ATTENTION. INDUCE VOMITING ONLY AT THE INSTRUCTIONS OF A DOCTOR OR NURSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

Finish Dept

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

RELCA WAX 40
296609 VERSION: 01 REVISED DATE: 03/25/1999

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------
HEALTH 2
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: RELCA WAX 40
PRODUCT CODE: 296609
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: FATLIQUOR
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER TANNING AGENT

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
NONE UNDER 29 CFR 1910.1200			
NONE UNDER TITLE III OF SARA			
NONE UNDER CANADIAN HAZARDOUS PRODUCTS ACT (WHMIS)			

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

RELCA OIL ZDP: EYE CONTACT WILL CAUSE IRRITATION, TEARING, REDNESS AND STINGING. SKIN CONTACT MAY CAUSE IRRITATION OR RASH. EXTENDED CONTACT MAY CAUSE DERMATITIS. MAY BE A RESPIRATORY TRACT IRRITANT WITH PROLONGED EXPOSURE AT HIGH TEMPERATURES.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR FIFTEEN MINUTES.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

DO NOT INDUCE VOMITING. SEEK MEDICAL ASSISTANCE. MAY GIVE MILK OR WATER TO DILUTE IF VICTIM IS CONCIOUS. DO NOT GIVE SODIUM BICARBONATE, VINEGAR, OR FRUIT JUICES.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 485 PMCC
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON.

EXTINGUISHING MEDIA:

WATER:
ALCOHOL FOAM: X
CO2: X

SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILL. ALL SPILLS SHOULD BE COLLECTED AS LIQUID OR ABSORBED ON A SUITABLE ABSORBANT. CLEAN UP SHOULD BE ACCOMPLISHED BY REMOVAL OF CONTAMINATED SOIL OR SCRUBBED WITH SOAP AND WATER AND CLEANING WASTES REMOVED WITH ABSORBANT MATERIALS. WEAR PROPER PROTECTIVE EQUIPMENT.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

IF USE CONDITIONS GENERATE VAPOR IN AREAS WHERE ADEQUATE VENTILATION IS NOT AVAILABLE, NIOSH APPROVED VAPOR RESPIRATOR SHOULD BE WORN.

PROTECTIVE GLOVES:

NEOPRENE

EYE PROTECTION:

SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:

IMPERVIOUS PROTECTIVE CLOTHING AND CHEMICALLY RESISTANT FOOTWEAR SHOULD BE WORN TO MINIMIZE CONTACT.

VENTILATION:

LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BROWN SOLID, MILD WAX/LUBE OIL ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: SOLUBLE
SPECIFIC GRAVITY: 0.87 @60.8'F
BOILING POINT ('F): > 425
MELTING POINT ('F): 110-120
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NIL
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

OTHER PHYSICAL AND CHEMICAL PROPERTIES:
VISCOSITY: 41.5 SUS
CONGEALING POINT: 120'F

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: AVOID EXCESSIVE TEMPERATURES

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT AVAILABLE
EYE IRRITATION-RABBIT: NOT AVAILABLE

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RELCA WAX 40
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SECTION 11 - TOXICOLOGICAL INFORMATION (CONT.)

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:

NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:

NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT AVAILABLE
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT AVAILABLE

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:

IF RECYCLING IS NOT POSSIBLE, DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: LEATHER SOFTENER

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 14 - TRANSPORT INFORMATION (CONT.)

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: N

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

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SECTION 15 - REGULATORY INFORMATION (CONT.)

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:

PENNSYLVANIA: NON-HAZARDOUS COMPONENTS BEING WITHHELD AS TRADE SECRET INFORMATION.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:

LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO THE LUNGS.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

AVOID BREATHING MIST. WEAR APPROPRIATE RESPIRATORY PROTECTION.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

INGESTION: GIVE TWO GLASSES OF WATER OR MILK TO DILUTE STOMACH CONTENTS.

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4000 MONROE ROAD
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SECTION 16 - OTHER INFORMATION (CONT.)

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. INDUCE VOMITING ONLY AT THE INSTRUCTIONS OF A DOCTOR OR NURSE. SEEK MEDICAL ATTENTION.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

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CLARIANT CORPORATION

0069404668 maint.

MATERIAL SAFETY DATA SHEET (MSDS) 6A076

This MSDS should be attached or kept with the respective product with which it is associated.

##

MATERIAL SAFETY DATA SHEET - 2SF16

Associated Grainger Items

3UP24, 3UP25, 3UP26, 3UP27, 3UP28, 3UP29, 3UP30, 3UP31, 3UW95, 3UW96,
3UW97, 3UW98, 3UW99, 3UX01, 3UX02, 3UX03, 3UX04, 3UX05, 3UX06, 3UX07,
3UX08, 3UX09, 3UX10, 3UX11, 3UX12, 3UX13, 3UX14, 3UX15, 3UX16, 3UX17,
3UX18, 3UX19, 3UX20, 3UX21, 3UX22, 3UX23, 3VV70, 3VV71, 3VV72, 3VV73,
3VV74, 3VV75, 3VV76, 3VV77, 3WL25, 3WL31, 3WL57, 3WL61, 3WL88, 3WL90,
3WL94, 3WL95, 3WL97, 3WL98, 3WM02, 3WM03, 3WM04, 3WM05, 3WM08, 3WM09,
3WM10, 3WM18, 3WM19, 3WM20, 3WM27, 3WM28, 3WM29, 3WM30, 3WN02, 3WN03,
3WN04, 3WN05, 3WN06, 3WN07, 3WN08, 3WN39, 3WN40, 3WN45, 3WN54, 3WN55,
3WN72, 3WN74, 3WN75, 3WN87, 3WN92, 3WR04, 3WR05, 3WR06, 3WT03, 3WT04,
3WT05, 3WT07, 3WT09, 3WT10, 3WT11, 3WT12, 3WT13, 3WT14, 3WT16, 3WT17,
3WT19, 3WT20, 3WT21, 5A934, 5A937, 5A938, 5A941, 6A076, 6A077, 6A078,
6A079, 6A080, 6A081, 6A095, 6A096, 6A097, 6A098, 6A099, 6A100, 6A101,
6A102, 6A103, 6A104, 6A105, 6A106, 6A107, 6A108, 6A426, 6A427, 6A428,
6A429, 6A430, 6A431, 6A624

5A921-5A929
5A863-5A879
6A076-6A081 Flammability
6A095-6A108 Rating
6A624 NORTON Health 0 Reactivity
5A930-5A941 Rating 1 0 Rating
HAZARD RATING
MATERIAL SAFETY DATA SHEET Please rate consistent with
NFPA Code

SECTION I NAME AND PRODUCT = 2SF16 =

MANUFACTURER'S NAME CONTACT
NORTON COMPANY THOMAS Z. RICHARDS

ADDRESS STREET, CITY, STATE AND ZIP CODE EMERGENCY TELEPHONE NO.
1 NEW BOND STREET, WORCESTER, MA 01615-0008 508-795-2690
TRADE NAME, COMMON NAME OR SPECIFICATION APPROVED BY
RESINOID BONDED GRINDING WHEELS
DATE 4/30/90
CHEMICAL FAMILY OR PRODUCT TYPE
ANY GRADE

SECTION II COMPOSITION PER 29CFR 1910.1200 (G) (4)

OSHA CHEMICAL NAME %	CARCINI MAX (Y/N)	COMMON NAME	REG*
Alpha-Alumina	90	Alundum, Seeded Gel	Y
Silicon Carbide	90	Crystolon	Y
Zirconia Alumina	90	NZ, ZF, ZS	Y

The grinding wheel may be comprised of 1 or more of the above abrasives.
The chemicals listed below may be a part of the bond system.

Fluorides (as F)	3	***N/A	Y

Calcium Oxide	3	Lime	Y
Glass, Fibrous or Dust	10	Fiberglass	Y
Silicon Dioxide	1	Crystalline Silica	Y

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations.

	CAS #	PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	OGEN (Y/N)
Alpha-Alumina (Total Dust)	1344-28-1 (Total Dust)	10mg/m3	10mg/m3	N
Silicon Carbide (Total Dust)	409-21-2 (Total Dust)	10mg/m3	10mg/m3	N
Zirconia Alumina (as Zirconium)	**NAIF (as Zirconium)	5mg/m3	5mg/m3	N

The grinding wheel may be comprised of 1 or more of the above abrasives. The chemicals listed below may be a part of the bond system.

Fluorides (as F)	***N/A	2.5mg/m3	2.5mg/m3	N
Calcium Oxide	1305-78-8	5mg/m3	2mg/m3	N
Glass, Fibrous or Dust	**NAIF	**NAIF	10mg/m3	N
Silicon Dioxide	148908-70-7	0.1mg/m3	0.1mg/m3	Y

*Materials are regulated by OSHA 29 CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations.

Actual grinding tests with wheels known to contain Crystaline Silica did not produce any detectable amount of respirable free Silica.

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT **NAIF MELTING POINT **NAIF

VAPOR PRESSURE **NAIF PERCENT VOLATILE BY VOL **NAIF

EVAPORATION RATE **NAIF SOLUBILITY IN WATER Slight

SOLUBILITY IN OTHER SOLVENT **NAIF

SPECIFIC GRAVITY 2.4

VAPOR DENSITY **NAIF

SOLUBILITY IN ALCOHOL **NAIF

APPEARANCE AND ODOR

SOLID PRODUCT: MAY GIVE OFF ODOR IN USE.

SECTION IV SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - NONE

OTHER PRECAUTIONS:

**NAIF

SECTION V CORROSIVITY AND REACTIVITY DATA

STABILITY UNSTABLE X STABLE POLYMERIZATION MAY OCCUR X WILL NOT OCCUR

INCOMPATABILITY (MATERIALS TO AVOID)

Avoid acids of all types with a Ph = 4.0

DECOMPOSITION PRODUCTS

In use, dust and decomposing odors are generated. In most cases, the airborne material removed from the workpiece will be significantly greater than the grinding wheel components. Coolants may produce other decomposition products.

CONDITIONS TO BE AVOIDED

**NAIF

**NAIF = NO APPLICABLE INFORMATION FOUND ***N/A = NOT APPLICABLE

SECTION VI HEALTH, FIRST AID AND MEDICAL DATA

PRIMARY ROUTE(S) OF ENTRY		ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE
INHALATION (During Grinding)		ACUTE: COUGHING, SHORTNESS OF BREATH. CHRONIC: MAY AFFECT BREATHING CAPACITY.
INGESTION (During Grinding)		NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.
SKIN (During Grinding	CONTACT & ABSORPTION	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.
EYE (During Grinding)		DUSTS MAY IRRITATE EYES.
OTHER POTENTIAL HEALTH RISKS (During Grinding)		GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CONDITIONS.

PRIMARY ROUTE(S) OF ENTRY		FIRST AID AND MEDICAL INFORMATION
INHALATION (During Grinding)		REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.
INGESTION (During Grinding)		OBTAIN MEDICAL ASSISTANCE.
SKIN (During	CONTACT &	WASH AFFECTED AREAS WITH SOAP AND

Grinding	ABSORPTION	WATER, OBTAIN MEDICAL ASSISTANCE.
EYE (During Grinding)		WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSIS- TANCE, IF NEEDED.
OTHER POTENTIAL HEALTH RISKS (During Grinding)		OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN. DITIONS.

SECTION VII STORAGE, HANDLING AND USE PROCEDURES

NORMAL STORAGE AND HANDLING
SEE ANSI STANDARD B7.1

NORMAL USE
HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) and 29 CFR1910.1000 (AIR CONTAMINANTS)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS.
NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHOD
STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS.
PRODUCTS WITH LISTED FLOURIDES MAY HAVE SLIGHTLY SOLUBLE FLOURIDE SWARF.

SECTION VIII PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE) AS NEEDED. FOR APPROVED DUST RESPIRATORS SEE OSHA 29CFR 1910.134.

VENTILATION	LOCAL	RECOMMENDED
MECHANICAL (GENERAL)	RECOMMENDED	
OTHER	**NAIF	
PROTECTIVE GLOVES		AS DESIRED BY USER
EYE PROTECTION		RECOMMENDED SEE OSHA 29CFR 1910.133
OTHER EQUIPMENT		AS NEEDED HEARING PROTECTION SEE OSHA 29CFR 1910.95 (HEARING PROTECTION)

MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT WITH THIS MATERIAL.

SEE SECTION VII & VIII

SECTION IX FIRE AND EXPLOSION HAZARD DATA

FLASH POINT **NAIF METHOD USED *** NAIF
FLAMMABLE LIMITS LEL N/A UEL ***N/A

EXTINGUISHING MEDIA USE WATER

SPECIAL FIRE FIGHTING PROCEDURES NONE

EXPLOSION POTENTIAL **MAIF

FOR COMPANY USE

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof; however, Norton Company makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
PRODUCT SAFETY & REGULATORY AFFAIRS
100 Bayer Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (412) 923-1800
BAYER INFORMATION PHONE.: (800) 662-2927

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Retingan R5
PRODUCT CODE.....: 78919
CHEMICAL FAMILY.....: Mixture of methylene-linked condensation products of arylsulfonic acids/dicyandiamide

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)

***** HAZARDOUS INGREDIENTS *****

This product contains no hazardous ingredients as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW

Color: Yellow; Form: Powder; Odor: Odorless; Product poses little or no hazard if spilled and no unusual hazard if involved in a fire.

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Eye and skin contact; inhalation of dusts.

Continued on next page

WWW_104(e)_017783

3. HAZARDS IDENTIFICATION (Continued)

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE EFFECTS OF EXPOSURE.....: Based on animal toxicity testing (see Section 11), we would expect this product to be non-irritating to the skin and eyes and essentially non-toxic by ingestion.

CHRONIC EFFECTS OF EXPOSURE...: No applicable information was found concerning any adverse chronic health effects from overexposure to this product.

CARCINOGENICITY.....: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Although we have no data available on the effects of inhaling this product, persons with impaired pulmonary function may be more susceptible to the effects of inhaling any type of dusty material.

EXPOSURE LIMITS.....: Although no exposure limit has been established for this product, the OSHA-PEL for nuisance dust of 15 mg/m3-total dust, 5 mg/m3-respirable dust is recommended. In addition, the ACGIH-TLV for nuisance dust of 10 mg/m3 is recommended.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

FIRST AID FOR SKIN.....: In case of contact, flush skin with plenty of water. Remove contaminated clothing and wash before reuse. If irritation develops, contact a physician.

FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

FIRST AID FOR INGESTION.: If swallowed, call a physician.

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Not Applicable

EXTINGUISHING MEDIA.....: Water; Dry Chemical; Carbon Dioxide; Foam

SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Avoid dusting. Dust can form explosive mixtures with air.

Continued on next page

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Utilize recommended protective clothing and equipment. Spills should be swept up and placed in containers. Spill area can be washed with water. Collect wash water for approved disposal.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): Not Established
SHELF LIFE.....: Not Established
SPECIAL SENSITIVITY.....: Avoid contact with moisture to keep product from caking.
HANDLING/STORAGE PRECAUTIONS: Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Store in a dry place away from excessive heat, in original or similar waterproof containers. Reseal containers immediately after use.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles.
SKIN PROTECTION REQUIREMENTS.....: Rubber gloves and long sleeved shirts and pants to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.
VENTILATION REQUIREMENTS.....: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.
RESPIRATOR REQUIREMENTS.....: Work ambient concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved dust respirator should be worn.
ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations should be available.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Powder
COLOR.....: Yellow
ODOR.....: Odorless
pH .....: 8-9 at 100 g/l water
BOILING POINT.....: Not Applicable
MELTING/FREEZING POINT....: Not Applicable
SOLUBILITY IN WATER .....: 10 g/l at 68 F (20 C)

Continued on next page

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

SPECIFIC GRAVITY .....: Not Established
BULK DENSITY.....: 500-700 kg/m3
VAPOR PRESSURE .....: Not Applicable
VOC BY WEIGHT .....: Less than 1% - Tested by EPA Method 24A

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: Oxidizing and reducing agents
INSTABILITY CONDITIONS.....: None known.
DECOMPOSITION PRODUCTS.....: CO, CO2, oxides of nitrogen, sulfur and other potentially toxic fumes.

11. TOXICOLOGICAL INFORMATION:

ACUTE TOXICITY
ORAL LD50.....: 5000 mg/kg (Rat)
EYE EFFECTS.....: Non-irritating to rabbit eyes
SKIN EFFECTS.....: Non-irritating to rabbit skin

12. ECOLOGICAL INFORMATION:

AQUATIC TOXICITY.....: LCo: Greater than 100 mg/1 (96 H) Brachydanio rerio

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Waste disposal should be in accordance with existing federal, state and local environmental regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Mixture of methylene-linked condensation products
FREIGHT CLASS BULK.....: Chemicals, NOI

Continued on next page

14. TRANSPORTATION INFORMATION (Continued)

FREIGHT CLASS PACKAGE.....: Chemicals, NOI (NMFC 60000)
PRODUCT LABEL.....: Retingan R5

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION .....: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

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15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: On TSCA Inventory
CERCLA REPORTABLE QUANTITY..: None
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None
SECTION 311/312
HAZARD CATEGORIES.....: Non-hazardous under Section 311/312
SECTION 313
TOXIC CHEMICALS.....: None
RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE

Continued on next page

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15. REGULATORY INFORMATION (Continued)

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Trade Secret Ingredient NJTSRN (31765300002)-6007P	Greater than 1 %	PA3, NJ4
Formaldehyde, polymers with sulfonated 1,1'-oxybis{methylbenzene}, sodium salts 73378-66-2	Greater than 1 %	PA3, NJ4
Sodium sulfate 7757-82-6	Greater than 1 %	PA3, NJ4
Water 7732-18-5	Greater than 1 %	PA3, NJ4
Nickel 7440-02-0	.500 ppm	CA

CA = California Proposition 65
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
NJTSRN = New Jersey Trade Secret Registry Number
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

16. OTHER INFORMATION:

HMIS RATINGS:

Health	Flammability	Reactivity
0	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Add VOC Data, Update to 16 Chapter
PREPARED BY.....: Dawn M. Martin
APPROVED BY.....: J. M. Mostowy
APPROVAL DATE.....: 01/20/1998
SUPERSEDES DATE.....: 08/15/94
MSDS NUMBER.....: 10093

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

21-360493

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product Name	**RH-6659**	Validation Date 9/21/2005
PIC	US-P06659	
Chemical product name	Modified polyurethane dispersion	In Case of Emergency
Supplier	STAHL USA 13 Corwin St. P.O. Box 3039 Peabody, MA. 01960 USA Tel: 978-531-0371 Fax: 978-532-9062	**days: 978-531-0371** **nights: 800-424-9300**

Section 2. Composition and Information on Ingredients

Defined as non-hazardous by OSHA under 29 CFR 1910.1200(d).

Section 3. Hazards Identification

Physical State and Appearance	Liquid.
Emergency Overview	No specific hazard.
Flammability of the Product	Non-flammable.
Routes of Entry	Inhalation.

Potential Acute Health Effects

Eyes No known significant effects or critical hazards.

Skin No known significant effects or critical hazards.

Inhalation No known significant effects or critical hazards.

Ingestion No known significant effects or critical hazards.

Potential Chronic Health Effects

Carcinogenic effects None identified.

Mutagenic effects None identified.

Teratogenic effects None identified.

The potential health hazards identified above will not present an actual health risk in the workplace, if exposure is eliminated. also, these hazards are based upon the hazards of the components of the product. in some cases, these components may be contained in a small percentage, which will reduce the degree of risk that this potential hazard could actually manifest itself.

Continued on Next Page

Section 4. First Aid Measures

Eye Contact	Wash out with plenty of water with the eyelid held wide open.
Skin Contact	Wash contaminated skin with soap and water.
Inhalation	If breathing is difficult: Remove victim to fresh air.
Ingestion	Rinse mouth. Do not induce vomiting.

Consult a doctor in event of any complaints.

Section 5. Fire Fighting Measures

Flammability of the Product	Non-flammable.
Flash points	Not applicable.
Protective Clothing (Fire)	In case of fire and/or explosion do not breathe fumes. A self-contained breathing apparatus should be used to avoid inhalation of the product.
Special Remarks on Explosion Hazards	If involved in a fire, it may emit gases which are dangerous for health.

Section 6. Accidental Release Measures

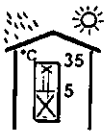
Personal precautions	Use personal protective equipment as described in section 8.
Environmental Precautions and Clean-up Methods	Do not allow to enter sewage system. In the event of major spillage: Clean up only under supervision of an expert. In the event of minor spillage: Absorb in sand or other inert material. Collect spilled material. Disposal according to the local legislation. Clean up affected area with water

Note: See section 8 for personal protective equipment and section 13 for waste disposal. See section 3 for hazards identification

Section 7. Handling and Storage

Handling	Take the usual precautions. Follow good housekeeping practices. Use personal protective equipment as described in section 8.
Storage	Keep container tightly closed in a cool, well-ventilated place. Keep container dry. Keep away from heat.

Keep from freezing.



Section 8. Exposure Controls/Personal Protection

Personal Protection

Respiratory	A respirator is not needed under normal and intended conditions of product use.
Eyes	Safety glasses with side shields.
Hands	Chemical resistant gloves.
Body	Wear suitable protective clothing.

Continued on Next Page

Protective Clothing (Pictograms)	
Personal Protection in Case of a Large Spill	Use personal protective equipment as described in section 8.

Normal good housekeeping, industrial hygiene, and personal hygiene practices should be adhered to. Unnecessary, excessive, and/or prolonged personal contact should be avoided. Use only with adequate ventilation. wash hands before eating, drinking, smoking, or using toilet facilities. promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plently of soap and water.

No occupational exposure limits have been established

Section 9. Physical and Chemical Properties

Physical State and Appearance	Liquid.
Color	Off-white.
Odor	Repulsive.
Flash points	Not applicable.
Initial boiling point	100°C (212°F)
Solubility	Easily soluble in cold water.
pH	7 to 8 [Basic.]
Viscosity	Dynamic: <200 cP
Approximate VOC	1 %

Section 10. Stability and Reactivity

Stability	Stable under normal conditions.

Section 11. Toxicological Information

Chronic Effects on Humans	Repeated or prolonged exposure is not known to aggravate any medical condition.
Carcinogenic effects	No known significant effects or critical hazards.
Mutagenic effects	No known significant effects or critical hazards.
Reproduction toxicity	No known significant effects or critical hazards.

Continued on Next Page

Section 12. Ecological Information

Hazardous Decomposition Products These products are carbon oxides (CO, CO_2) and water, nitrogen oxides (NO, NO_2 etc.).

Section 13. Disposal Considerations

Waste Information Follow all local, state and federal regulations. Regulations vary in different locations. Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

Empty containers contain product residue. Observe all precautions for the product. Do not reuse container without thorough cleaning and reconditioning. Consult applicable regulations regarding disposal of empty containers.

Section 14. Transport Information

For transport classification, please refer to your local Stahl company.

Section 15. Regulatory Information

U.S. Federal Regulations All components of this material are included or are exempt from listing on the TSCA Inventory of Chemical Substances.

TSCA 12B No products were found.

SARA No products were found.

SARA 313

No products were found. Form R

No products were found. Supplier notification

State regulations

State lists (RTK)

		New Jersey	Pennsylvania
1) Polyethylene glycol octaphenyl ether	9036-19-5	X	
2) TRIETHYLAMINE	121-44-8	X	environmental hazard; generic environmental hazard;
3) TERT-BUTYL HYDROPEROXIDE	75-91-2	X	generic environmental hazard;
4) Dipropylene glycol	25265-71-8		generic environmental hazard;
5) Propylene glycol	57-55-6		generic environmental hazard;
6) SODIUM 2-BIPHENYLATE	132-27-4		
7) sodium hydroxide	1310-73-2	X	environmental hazard; generic environmental hazard;
8) SODIUM SULFATE	7757-82-6		environmental hazard; generic environmental hazard;

Proposition 65 **WARNING:** This product contains chemical/chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.: SODIUM 2-BIPHENYLATE
WARNING: This product contains chemical/chemicals known to the state of California to cause reproductive harm (female).: No products were found.
California prop. 65 (no significant risk level): SODIUM 2-BIPHENYLATE
WARNING: This product contains chemical/chemicals known to the state of California to cause cancer.: SODIUM 2-BIPHENYLATE

International Regulations

WHMIS (Canada) Not controlled under WHMIS (Canada).

EU Regulations -

This product is not classified according to EU legislation.

Continued on Next Page

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Fire hazard	1
Reactivity	0

Version : 1

Printed 9/21/2005.

CALL 978-531-0371

Notice to Reader

The above information is to the best of our knowledge correct as at the date of publication, and is intended to describe the product only for the purpose of health and safety requirements. It should not, therefore, be construed as guaranteeing any specific property or specification of the product. User should satisfy himself as to the suitability and completeness of such information for his own particular use. Since the conditions of use are beyond our control, no liability is accepted by STAHL for any loss, injury or damage which may result from the use of this information.

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RH-6698

HMIS RATING

HEALTH 0
FLAMMABILITY 0
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
OCTYLPHENOXYPOLYETHOXYETHANOL	00-10	*	*	OSHA NOT ESTAB. ACGIH NOT ESTAB.

CAS NO. 9036-19-5 SYN: NONIONIC SURFACTANT

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.
BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 8.60 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.
UNUSUAL FIRE AND EXPLOSION HAZARDS
NONE KNOWN TO MANUFACTURER.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

SPECIAL FIRE FIGHTING PROCEDURES
NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2
EFFECTS OF OVEREXPOSURE
** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.
MAY CAUSE EYE BURNS.
MAY CAUSE SEVERE EYE IRRITATION.
EXTENSIVE OR PROLONGED SKIN CONTACT MAY CAUSE MINOR BURNING, ITCHING OR REDNESS.
INHALATION OF MIST MAY BE IRRITATING TO MUCOUS MEMBRANES.
MODERATELY TOXIC. MAY CAUSE STOMACH DISCOMFORT, NAUSEA, VOMITING, DIARRHEA, AND NARCOSIS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

Maint

RID RUST II 15-3/4 OZ NW

MSDS ID: 92095

Premier Farnell Corp.
4500 Euclid Avenue
Cleveland, Ohio 44103

Emergency/Information Telephone:
216-391-8300

(In Canada)
Premier Fastener Ltd.
271 Attwell Drive
Etobicoke, Ontario M9W 5B9

Formula: 47523
MSDS Effective: 10/27/00

Section I - Product Identification

Part Number: 92095
Product Name: RID RUST II 15-3/4 OZ NW
Trade Name/Synonyms: RID RUST II
Chemical Family: AEROSOL LUBRICANT

Section II - Hazardous Ingredients

Ingredient	CAS No.	WT %	Pel	TLV	Stel	Units	LC50,PPM	LD50,MG/KG
MINERAL SPIRITS	64742-88-7	75	N/A	N/A	N/A		RAT >3000	RAT I28000
.								RAB A 4000
PARAFFIN OIL	08012-95-1	10-15	5*	5*	10*	MG/M3	N/A	RAT I13000
.								RAB A 2000
N-BUTANE	00106-97-8	5	800	800	N/A	PPM	RAT277374	N/A
PROPANE	00074-98-6	5	1000	N/A	N/A	PPM	MLO 10000	N/A

Section III - Physical Data

Boiling Pt Deg F/C: N/A
Vapor Pressure(MM HG):N/A
Vapor Density(Air=1):Heavier than air
Solubility In Water: INSOLUBLE
Physical State: AEROSOL
Freeze PT Deg F/C: N/A

Specific Gravity:0.75
%Volatile Volume:87
Evaporation Rate:Faster than ether
Water/Oil Dist Coeff:0
PH: N/A
Threshold Odor,PPM: N/A

Appearance And Odor: Gray liquid with petroleum odor.
Voc:Lbs/Gal=5.27; Grams/Liter=631 ; Grams Voc/Gram Solid=N/A ; % Voc 85

Section IV - Fire and Explosion Hazard Data

Classification: FLAMMABLE AEROSOL
NFPA Rating: 2,4,0 HMIS: 2,4,0
Combustion Products: CO,CO2
Flash Point Deg F/C: PROPELLANT < 0F/-18C
Lel%:1.0 Uel%:9.5
Extinguishing Media: Carbon Dioxide, Dry Chemical or Foam
Auto Ign. Temp Deg F/C: N/A
Special Fire Fighting Procedures:
Water may be used to keep fire exposed containers cool. Firefighters should wear self-contained breathing equipment.
Unusual Fire And Explosion Hazards:

Section IV - Fire and Explosion Hazard Data (Cont.)

Exposure to fire, heat or prolonged sunlight may cause bursting. If used in confined spaces, hazardous vapors may spread,burn or build up in low areas. Contact with flame or hot surfaces may produce toxic gases.

Explosive Power: HIGH
Impact Sensitive: No
Burning Rate: HIGH
Static Sensitive: Yes FLAMMABLE

Section V - Health Hazard Data

Routes Of Entry: SKIN CONTACT,EYE,INHALATION

Effects Of Overexposure:

Causes eye, skin & respiratory system irritation. Excess inhalation may cause dizziness, giddiness & nausea. Repeated & prolonged overexposure to solvents may cause permanent damage to central nervous system. Misuse or deliberate inhalation may be harmful or fatal. Extreme overexposure may result in unconsciousness & possible death. Ingestion causes nausea,cramps, vomiting, diarrhea.

Any suspected carcinogen = or > 0.1%?: No

Emergency and First Aid Procedures:

EYES: Immediately flush with plenty of water for 15 min. & call physician. SKIN: Wash thoroughly with plenty of soap & water. Launder contaminated clothing before reuse. INHALATION: If affected, remove to fresh air, administer oyxgen & call physician. INGESTION: Seek physician immediately, show label or MSDS. Do not induce vomiting. Give 1-2 glasses of water.

Section VI - Reactivity Data

Stable: Yes Conditions to Avoid: N/A

Incompatibility(Materials to Avoid): No

Hazardous Decomposition Products: CO, CO2

Hazardous Polymerization: No

Section VII - Spill or Leak Procedures

Listed In: SARA Title III; #302: No #304,Cercla: No #313: No

Steps to be Taken in Case Material is Released or Spilled:

Remove all sources of ignition. Ventilate the area. Clean up with absorbent material.

Disposal Method:

Dispose of wastes in accordance with federal, state, and local regulations. Do not puncture, incinerate or burn containers.

Section VIII - Safe Handling and Protection Information

Ventilation-Local: Recommended
Special:N/A
Mechanical: Required
Other: N/A
Protective Gloves: See Below
Eye Protection:Safety Glasses

Precautions in Use:

If ventilation is inadequate, wear approved respiratory equipment. Do not spray near sparks, flame or heated surface. GLOVES: None required under normal application where skin contact is minimal.

Section VIII - Safe Handling and Protection Information (Cont.)

Estimated LD50, MG/KG: No
Estimated LC50, PPM: No
Sensitization: No
Irritant: Yes EYES,SKIN Synergistic Agents: No

Section IX - Special Precautions

Precautions to be Taken in Handling and Storing:
Keep away from heat, sparks, flame or sources of ignition. Do not puncture, incinerate, burn or store containers above 120F(49C). Use only in well ventilated areas. Do not breathe vapor or spray mist. Avoid contact with eyes, skin & clothing. Wash thoroughly after using. Do not take internally. In case of accident or illness,seek physician immediately, show label or MSDS.
Other Precautions:
Keep out of reach of children. Always read & follow directions on product label. Additional technical data sheets and/or material safety data sheets (MSDS) are available upon request. For professional & industrial use only.

Symbols, Abbreviations and Notations:
#=Listed in SARA Title III Section 313; @=Non-hazardous ingredient among the 5 most predominant substances; +=Contains encapsulated Silica-Crystalline or Carbon Black.
Normal product usage should not result in respirable dust that would be hazardous to the respiratory system; N/A=Not available or applicable; *=If found as dust, mist or fume; C=Ceiling limit; S=Skin designation; M=Human; RAB=Rabbits; GPG=Guinea Pigs; MIC=Mice; I=Ingestion; A=Skin absorption; LO=Little observable effect; NO=No effect; Pel=OSHA permissible exposure limit; TLV=ACGIH threshold limit value; Stel=Short term exposure limit.

All components of this product are listed or are exempt from listing on the TSCA inventory and/or the Canadian DSL or NDSL. MSDS prepared by the Corporate Compliance department.
The information and recommendations provided herein are believed to be correct as of the date hereof. However, such information and recommendations are provided without warranty of any kind and Premier Farnell Corp. disclaims any and all liability or legal responsibility for use or reliance upon same.

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RM-16-603

HMIS RATING

HEALTH	2
FLAMMABILITY	1
REACTIVITY	1

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
TRIETHYLENE GLYCOL MONOBUTYL ETHER CAS NO. 143-22-6 SYN: {1}	23.0	*	*	OSHA NOT ESTAB ACGIH NOT ESTAB

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.

BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 23
WEIGHT PER GALLON: 8.90 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL,

Sara

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.
MAY CAUSE SEVERE EYE IRRITATION.
MAY CAUSE SKIN IRRITATION.
OVEREXPOSURE TO MISTS OR VAPOR CAN CAUSE RESPIRATORY TRACT IRRITATION, HEADACHE, NAUSEA, AND DROWSINESS.
INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.
DELAYED KIDNEY INJURY POSSIBLE FROM OVEREXPOSURE.
MAY AGGRAVATE EXISTING SKIN, EYE, AND LUNG CONDITIONS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

AVOID COMBINING WITH STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

OXIDES OF CARBON AND NITROGEN.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

SECTION 10 -USER RESPONSIBILITY - CONTINUED -

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

Operations Mgr. C.C. rec'd 4/10/86
Maintenance

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Bureau of Labor Standards

6065-5000
5004
5005

MATERIAL SAFETY DATA SHEET

1
2 0

SECTION I

FORMULA / TRADE SECRET	
MANUFACTURER'S NAME: FRANKLIN OIL CORP.(OHIO)	EMERGENCY TELEPHONE NO. 216/252-3000
ADDRESS (Number, Street, City, State, and ZIP Code): BOX 46030 · FRANKLIN PARK, CLEVELAND, OHIO 44146	
IDENTITY: ROCOL TUFGEAR	DATE PREPARED: 1/2/86
CHEMICAL FAMILY: PETROLEUM HYDROCARBON	SIGNATURE OF PREPARER: [illegible]

SECTION II HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS:	OSHA PEL	ACGIH TLV	%
HEAVY NAPTHENIC DISTILLATE CAS #64741-53-3	5mg/M^3	5mg/M^3	

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	>400°F	SPECIFIC GRAVITY (H_2O=1)	1.01
VAPOR PRESSURE (mm Hg.)	< 1	PERCENT VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR=1)	> 1	EVAPORATION RATE (BUTYL ACETATE=1)	< 1
SOLUBILITY IN WATER	INSOLUBLE	pH	N/A
APPEARANCE AND ODOR	DARK TACKY GREASE WITH MILD PETROLEUM ODOR.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 390°F. MIN. ASTM D-92	FLAMMABLE LIMITS	Lel: NOT DETERMINED	Uel

EXTINGUISHING MEDIA
WATER FOG, DRY CHEMICAL, CO_2, OR FOAM.

SPECIAL FIRE FIGHTING PROCEDURES
WEAR SELF CONTAINED BREATHING APPARATUS.
KEEP FIRE EXPOSED CONTAINERS COOL WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS
HOT VAPORS FORM EXPLOSIVE MISTURES WITH AIR.

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	SPARKS AND OPEN FLAME

INCOMPATIBILITY (Materials to avoid) STRONG ACIDS AND OXIDANTS

HAZARDOUS DECOMPOSITION PRODUCTS
UPON COMBUSTION: CO, CO_2, OXIDES OF SULFUR, HCl, Cl_2, PHOSGENE

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VI HEALTH HAZARD DATA

ROUTE(s) OF ENTRY:	INHALATION?	SKIN?	INGESTION?
	X	X	X

HEALTH HAZARDS (ACUTE & CHRONIC): CAUSES IRRITATION: MAY BE SKIN DEFATTER UPON PROLONGED OR REPEATED CONTACT.

CARCINOGENICITY:	NTP?	IARC MONOGRAPHS?	OSHA REGULATED?
SEE ATTACHMENT	NOT LISTED	LISTED	NOT LISTED

THIS PRODUCT CONTAINS UNTREATED MINERAL OIL WHICH IS CLASSIFIED AS CARCINOGENIC BY IARC. UNTREATED MINERAL OILS HAVE PRODUCED SKIN CANCER IN LABORATORY ANIMAL EXPERIMENTS.

SIGNS & SYMPTOMS OF EXPOSURE: OIL MIST INHALATION MAY CAUSE DIZZINESS, NAUSEA, AND DIFFICULTY BREATHING.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: SENSITIVE DRY SKIN.

EMERGENCY AND FIRST AID PROCEDURES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINS., CALL A PHYSICIAN. WASH SKIN WITH SOAP AND WATER. IF SWALLOWED, DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION. REMOVE FLUID SOAKED CLOTHING AND SHOES. LAUNDER BEFORE REUSE. IF INHALED REMOVE TO FRESH AIR. GET MEDICAL ATTENTION.

SECTION VII PRECAUTIONS FOR SAFE HANDLING

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

IN CASE OF SPILL, DO NOT USE WATER, SOAK UP WITH SAND, EARTH, OR OTHER INERT MATERIAL. PUT IN A SUITABLE CONTAINER. DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

WASTE DISPOSAL METHOD: BURY IN AN APPROVED LANDFILL OR INCINERATE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: AVOID CONTACT WITH EYES, SKIN AND CLOTHING. REMOVE CONTAMINATED CLOTHING, LAUNDER BEFORE REUSE. WASH THOROUGHLY AFTER HANDLING. AVOID BREATHING MIST OR VAPORS.

OTHER PRECAUTIONS: SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUE, FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

SECTION VIII CONTROL MEASURES

RESPIRATORY PROTECTION *(Specify type)*
NIOSH APPROVED RESPIRATOR IF EXPOSED TO HOT VAPOR OR MIST

VENTILATION	LOCAL EXHAUST: RECOMMENDED	SPECIAL: N/A	
	MECHANICAL *(General)*: N/A	OTHER: N/A	
PROTECTIVE GLOVES	NEOPRENE	EYE PROTECTION	CHEMICAL SAFETY GOGGLES OR SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT	USE AS REQUIRED TO PREVENT SKIN CONTACT		

HYGENIC PRACTICES: WASH AFTER HANDLING.

WE BELIEVE THE STATEMENTS, TECHNICAL INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE RELIABLE, BUT THEY ARE GIVEN WITHOUT WARRANTY OR GUARANTEE OF ANY KIND, EXPRESSED OR IMPLIED, AND WE ASSUME NO RESPONSIBILITY FOR ANY LOSS, DAMAGE, OR EXPENSE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THEIR USE.

Franklin Oil

Franklin Oil Corporation (Ohio)
Box 46030, Franklin Park
Cleveland, Ohio 44146-0030

PHONE: 216-232-3000
TELEX: 810 427-2270

WATS Ohio: 1-800-362-1388
WATS Out of State: 1-800-321-2152

TECHNICAL INFORMATION

ATTACHMENT: ROCOL TUFGEAR CONTAINS A CHLORINATED PARAFFIN

STOCK # 6065-5000,5004, & 5005

Clorinated paraffins are a class of compounds that are similarly manufactured, but vary in molecular structure by carbon chain length and degree of chlorination. The chlorinated paraffin in, Rocol Tufgear, has not been shown to have adverse health effects. However, two chlorinated paraffins, C_{12}/58% chlorine and C_{24}/43% chlorine, in recent National Toxicology Program bioassays caused tumors in laboratory animals to which those chemicals were force fed at high doses in combination with corn oil. In another study, C_{14-17}/52% chlorinated paraffin, when fed to pregnant rats, resulted in the death of offspring during weaning. The relevance of these studies to the chlorinated paraffin in, Rocol Tufgear, if any, has not been determined.

All information, recommendations and suggestions appearing in this literature concerning the use of our products are based upon tests and data believed to be reliable, however, it is the user's responsibility to determine the suitability for his own use of the products described herein. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Franklin Oil Corp. (Ohio) as to the effects of such use or the results to be obtained nor does Franklin Oil Corp. (Ohio) assume any liability arising out of use, by others, of the products referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations. Nothing herein contained is to be construed as permission or as a recommendation to infringe any patent.
FRANKLIN OIL CORP. (OHIO)

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: ROHAPON® 6000
Product Code: 104590
Synonyms:
Pancreatic Bate
Intended Use: Enzyme Blend

Product Code:
104590

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Confidential Concentration	Inorganic acid salt 85.00 - 95.00 % by wt	NE	NE	NE	NE	N	N	N
Confidential Concentration	Proprietary Enzyme Blend 5.00 - 10.00 % by wt	NE	NE	NE	NE	N	N	N
Confidential Common Name: Concentration	Proprietary Surfactant Surfactant > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2*
Flammability:	1
Reactivity:	0
Personal Protection:	F

Emergency Overview: May cause allergic respiratory reaction. May cause eye, skin and respiratory tract irritation.

Eye: Irritating.

Skin Contact: Irritating. Prolonged or repeated contact with skin may cause contact dermatitis.

Ingestion: Can cause gastrointestinal irritation.

Inhalation: Irritating. May cause lung sensitization, an allergic reaction, which becomes evident on re-exposure to this material.

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4. FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists.

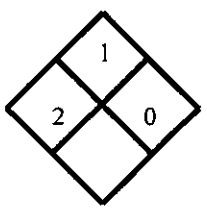
Skin: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.

Ingestion: If swallowed, get medical attention immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



General Hazards: As for any finely divided powder, containing organic material, excessive dust generation can lead to a dust explosion hazard.

Fire Fighting Extinguishing Media: Use water spray or fog, foam, dry chemical or CO_2.

Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Collect material and place in a disposal container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

Large Spill: Powders should be collected in a manner that minimizes dusting.

7. HANDLING AND STORAGE

Signal Word: CAUTION!

Precautions: May cause eye, skin or respiratory tract irritation. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Wash thoroughly after handling. Use with adequate ventilation. For industrial use only.

Special Handling: A component of this product is considered a pulmonary sensitizer, and overexposure can lead to allergic reactions. Minimize dust generation and accumulation.

Special Storage: Store in a cool, dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Eye Protection: Wear safety glasses with side shields.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: Use appropriate NIOSH-approved respiratory protective equipment where inhalation of dusts is unavoidable.

Engineering Controls: If use operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Other Exposure Information:

DUST EXPOSURE LIMIT	VALUE	LIMIT		
Particulates Not Otherwise Classified (PNOC)	Inhalable particulate	10mg/m3	TWA/TLV	ACGIH
	Respirable particulate	3 mg/m3	TWA/TLV	ACGIH
Particulates Not Otherwise Regulated (PNOR)	Total particulate	15 mg/m3	TWA/PEL	OSHA
	Respirable particulate	5 mg/m3	TWA/PEL	OSHA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Tan
Odor:	Faint odor
Solubility in Water:	Appreciable
Vapor Pressure:	Not available
Specific Gravity:	> 1
Boiling Point:	Not available
Evaporation Rate:	Not available
Vapor Density:	Is heavier than air
pH:	5 - 6 @ 10.0%

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage conditions.

Hazardous Decomposition Products: Ammonia.

Hazardous Polymerization: Will not occur under normal conditions.

Conditions of Reactivity: High temperature.

11. TOXICOLOGICAL INFORMATION

Toxicology Information:
The toxicological properties of this product have not been fully investigated.

12. ECOLOGICAL INFORMATION

Ecological Information: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard. This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Inventory Status: This product or its components are listed in or exempt from the TSCA inventory requirements.

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: None

This product contains the following substances known to the State of California to cause adverse reproductive effects: None

TSCA 12(b) Export Notification: This product contains the following substances subject to export notification under Section 12(b) of TSCA: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): Hazard Classifications: Immediate (acute), Delayed (chronic)

SARA Title III: Section 313 - Toxic Chemical(s): This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical Name	% by weight
Glycol Ethers	<1

16. OTHER INFORMATION

MSDS No:	196
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	09/14/97
Supersedes Date:	09/17/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

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TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TOGETHER FOR LEATHER

Material Safety Data Sheet

17-120154

17-120154

1. PRODUCT IDENTIFICATION

Trade Name: ROHAPON® N6NA
Product Code: 104520
Synonyms:
Pancreatic Blend
Intended Use: High Conc. Panreatic Bate

Product Code:
104520

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Confidential Concentration	Proprietary Enzyme Blend 5.00 - 20.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2*
Flammability:	1
Reactivity:	0
Personal Protection:	E

Emergency Overview: May cause allergic respiratory reaction. Dust may form explosive mixtures with air. May cause eye, skin and respiratory tract irritation.

Eye: Irritating.

Skin Contact: Irritating.Contact with skin may cause a contact dermatitis.

Ingestion: Can cause gastrointestinal irritation.

Inhalation: May cause lung sensitization, an allergic reaction, which becomes evident on re-exposure to this material. Irritating. May lead to obstructive disorders of the respiratory organs (occupational asthma).

4. FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists.

Skin: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.

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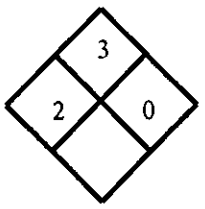
Ingestion: If swallowed, get medical attention immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Use water spray or fog, foam, dry chemical or CO2.

Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

Other Flammable Properties: Dusts at sufficient concentrations can form explosive mixtures with air.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:. Collect material and place in a disposal container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

7. HANDLING AND STORAGE

Special Handling: Use with adequate ventilation. Minimize dust generation and accumulation. May form flammable dust-air mixtures. Avoid breathing dust or fumes.

Special Storage: Store in a cool, dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Eye Protection: Wear safety glasses with side shields.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: In case of overexposure, use appropriate NIOSH-approved respiratory protective equipment.

Engineering Controls: If use operations generate dust, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Other Exposure Information:

DUST EXPOSURE	VALUE	LIMIT		
Particulates Not Otherwise Classified (PNOC)	Inhalableparticulate	10mg/m3	TWA/TLV	ACGIH
	Respirable particulate	3 mg/m3	TWA/TLV	ACGIH
Particulates Not Otherwise Regulated (PNOR)	Total particulate	15 mg/m3	TWA/PEL	OSHA
	Respirable particulate	5 mg/m3	TWA/PEL	OSHA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Light tan
Odor:	Faint odor
Solubility in Water:	Appreciable
Vapor Pressure:	Not available
Specific Gravity:	.9 - .95
Boiling Point:	Not available
Evaporation Rate:	Is slower than Butyl Acetate
Vapor Density:	Is heavier than air
pH:	5 - 7 @ 10.0%

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage conditions.

Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide. Ammonia.

Hazardous Polymerization: Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information:
The toxicological properties of this product have not been fully investigated.

12. ECOLOGICAL INFORMATION

Ecological Information: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: This product or its components are listed in or exempt from the TSCA inventory requirements.

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: None

This product contains the following substances known to the State of California to cause adverse reproductive effects: None

TSCA 12(b) Export Notification: This product contains the following substances subject to export notification under Section 12(b) of TSCA: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): Hazard Classifications: Immediate (acute), Delayed (chronic)

SARA Title III: Section 313 - Toxic Chemical(s): This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: None

16. OTHER INFORMATION

MSDS No:	202
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	10/10/97
Supersedes Date:	10/10/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410

Effective Date: 01/18/2005

Contact: Customer Service
8 am to 5 pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec):
1-800-424-9300

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: ROHAPON® OO
Product Code: 104530
Synonyms:
Enzyme Blend
Intended Use: Pancreatic Bate

Product Code:
104530

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	3*
Flammability:	0
Reactivity:	0
Personal Protection:	

Emergency Overview: May cause allergic respiratory reaction. May cause eye, skin and respiratory tract irritation.

Eye: Irritating.

Skin Contact: Irritating.Contact with skin may cause a contact dermatitis.

Ingestion: Can cause gastrointestinal irritation.

Inhalation: Irritating. May cause lung sensitization, an allergic reaction, which becomes evident on re-exposure to this material.

4. FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists.

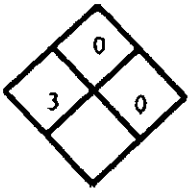
Skin: Immediately flush skin with plenty of water. Remove contaminated clothing. Obtain medical attention if irritation develops or persists.Wash clothing before reuse.

Ingestion: If swallowed, get medical attention immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Use water spray or fog, foam, dry chemical or CO2.

Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Collect material and place in a disposal container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

7. HANDLING AND STORAGE

Special Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid breathing dust or fumes.

Special Storage: Store in a cool, dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Eye Protection: Wear safety glasses with side shields.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: In case of overexposure, use appropriate NIOSH-approved respiratory protective equipment.

Engineering Controls: If use operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Other Exposure Information:

DUST EXPOSURE LIMIT	VALUE	LIMIT	
Particulates Not Otherwise Classified (PNOC)	Inhalable particulate	10mg/m3	TWA/TLV	ACGIH
	Respirable particulate	3 mg/m3	TWA/TLV	ACGIH

Particulates Not Otherwise Regulated (PNOR)	Total particulate	15 mg/m3	TWA/PEL	OSHA
	Respirable particulate	5 mg/m3	TWA/PEL	OSHA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Light tan
Odor:	Faint odor
Solubility in Water:	Appreciable
Vapor Pressure:	Not available
Specific Gravity:	> 1
Boiling Point:	Not available
Evaporation Rate:	Is slower than Butyl Acetate
Vapor Density:	Is heavier than air
pH:	5 - 7 @ 10.0%

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage conditions.

Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide. Ammonia.

Hazardous Polymerization: Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information:
The toxicological properties of this product have not been fully investigated.

12. ECOLOGICAL INFORMATION

Ecological Information: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: This product or its components are listed in or exempt from the TSCA inventory requirements.

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: None

This product contains the following substances known to the State of California to cause adverse reproductive effects: None

TSCA 12(b) Export Notification: This product contains the following substances subject to export notification under Section 12(b) of TSCA: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): Hazard Classifications: Immediate (acute), Delayed (chronic)

SARA Title III: Section 313 - Toxic Chemical(s): This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: None

16. OTHER INFORMATION

MSDS No:	206
Approved By:	Jim Biles
Approved Date:	05/30/01
Supersedes Date:	05/19/98

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

ROHAPON® OO

Bating Agent

Features:

ROHAPON OO is based on pancreatic enzymes.

ROHAPON OO is most active between pH 7 - 9.

Handling:. Although **ROHAPON OO** is provided in a low-dust formulation, some dust formation should be kept in mind when weighing the product. A protective face mask and protective gloves should be worn.

Shelf Life: 2 years when kept in a cool and dry place. Moisture and temperatures above 75°F reduce the enzymatic activity.

Benefits:

ROHAPON OO is suitable for all types of leathers.

ROHAPON OO should be used for loads less than 10,000 pounds.

ROHAPON OO improves grain elasticity resulting in a fine grain pattern.

ROHAPON OO slackens hide structure gently without causing excessive decomposing of the flanks and structural proteins.

ROHAPON OO is especially suitable for hides with a high fat content.

Application:

ROHAPON OO is added, undissolved, 20-60 minutes after the deliming agents. The deliming agent should be added in such a way the pH value of the bating liquor remains within the desired range (pH 7-9). The pH value should not be allowed to drop below 5, since scud fixation may occur and the outer layers of the hide, particularly the grain, may be damaged due to acid swelling. For improved scud release, compatible surfactants, e.g. BORRON, should be added to the bate. The bating effect is more pronounced at high, e.g. 100°F, than at low temperatures. For a uniform bating effect with gently scud removal, extend the bating period at lower temperatures, e.g. 80° - 90°F.
Usually a better bating effect is achieved when bating is conducted in a fresh bath (not in deliming bath).

The following quantities may be used as guidelines:

Raw Stock	Type of Leather	ROHAPON OO	Bating Time
large cattle hides	upholstery	1.5 - 2.0 %	60 - 90 minutes
large cattle hides	upper leather	0.5 - 1.0 %	45 - 60 minutes
calf skins	box calf	0.5 - 1.0 %	45 - 60 minutes
sheep skins	garment	1.0 - 1.5 %	90 - 120 minutes
goat skins	garment	2.0 - 2.5 %	120 - 180 minutes
pig skins	garment	2.0 - 3.0 %	180 - 300 minutes
pig skins	upper leather	1.0 - 2.0 %	90 - 180 minutes

ANY TECHNICAL ADVICE FURNISHED BY TFL WITH REFERENCE TO THE USE OF ITS PRODUCTS IS GIVEN GRATIS AND TFL ASSUMES NO OBLIGATION OR LIABILITY FOR THE ADVICE GIVEN OR RESULTS OBTAINED, AND ANY TECHNICAL ADVICE FURNISHED BY TFL SHALL NOT CONSTITUTE A WARRANTY WHICH IS EXPRESSLY DISCLAIMED, ALL SUCH ADVICE BEING GIVEN AND ACCEPTED AT BUYER'S RISK.

ROHAPON® OO

Product Specification

Test Point	Requirement / Tolerance	Test Method
Trade Form at 70°F	dedusted, powder	visual
Appearance at 70°F	beige	visual
Enzymatic activity	900-1100 LVU	TEGEWA

Edition: 11/2001

Regarding toxicological and ecological data, see the safety data sheet of above product.

ROHAPON®, BORRON® - registered/licensed trademark(s) of TFL.

LIMITATION OF WARRANTY AND REMEDY: TFL MAKES NO WARRANTY, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE EXCEPT THAT THE PRODUCTS SHIPPED MEET TFL'S SPECIFICATIONS. TFL NEITHER ASSUMES, NOR AUTHORIZES ANY REPRESENTATIVE OR OTHER PERSONS TO ASSUME FOR IT, ANY OBLIGATION OR LIABILITY OTHER THAN SUCH EXPRESSLY SET FORTH THEREIN.

17-120113

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410

Effective Date: 5/30/01

Contact: Customer Service
8 am to 5 pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec):
1-800-424-9300

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: ROHAPON® WNA
Product Code: 104580
Synonyms:
Pancreatic Bate
Intended Use: Enzyme Blend

Product Code:
104580

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	3*
Flammability:	0
Reactivity:	0
Personal Protection:	

Emergency Overview: May cause allergic respiratory reaction. May cause eye, skin and respiratory tract irritation.

Eye: Irritating.

Skin Contact: Irritating.Contact with skin may cause a contact dermatitis.

Ingestion: Can cause gastrointestinal irritation.

Inhalation: Irritating. May cause lung sensitization, an allergic reaction, which becomes evident on re-exposure to this material.

4. FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops or persists.

Skin: Immediately flush skin with plenty of water. Remove contaminated clothing. Obtain medical attention if irritation develops or persists. Wash clothing before reuse.

Ingestion: If swallowed, get medical attention immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

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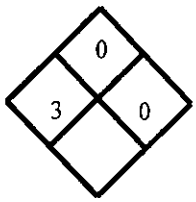
5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Use water spray or fog, foam, dry chemical or CO2.

Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Collect material and place in a disposal container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

7. HANDLING AND STORAGE

Special Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Avoid breathing dust or fumes.

Special Storage: Store in a cool, dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Eye Protection: Wear safety glasses with side shields.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: In case of overexposure, use appropriate NIOSH-approved respiratory protective equipment.

Engineering Controls: If use operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Other Exposure Information:

DUST EXPOSURE LIMIT		VALUE	LIMIT	
Particulates Not Otherwise Classified (PNOC)	Inhalable particulate	10mg/m3	TWA/TLV	ACGIH
	Respirable particulate	3 mg/m3	TWA/TLV	ACGIH

Particulates Not Otherwise Regulated (PNOR)	Total particulate	15 mg/m3	TWA/PEL	OSHA
	Respirable particulate	5 mg/m3	TWA/PEL	OSHA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Tan
Odor:	Faint odor
Solubility in Water:	Appreciable
Vapor Pressure:	Not available
Specific Gravity:	> 1
Boiling Point:	Not available
Evaporation Rate:	Not available
Vapor Density:	Is heavier than air
pH:	5 - 7

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage conditions.

Hazardous Decomposition Products: Ammonia.

Hazardous Polymerization: Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information:
The toxicological properties of this product have not been fully investigated.

12. ECOLOGICAL INFORMATION

Ecological Information: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

WWW_104(e)_017828

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirementsof the OSHA Hazard Communication Standard.

TSCA Inventory Status: This product or its components are listed in or exempt from the TSCA inventory requirements.

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: None

This product contains the following substances known to the State of California to cause adverse reproductive effects: None

TSCA 12(b) Export Notification: This product contains the following substances subject to export notification under Section 12(b) of TSCA: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): Hazard Classifications: Immediate (acute), Delayed (chronic)

SARA Title III: Section 313 - Toxic Chemical(s): This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372: None

16. OTHER INFORMATION

MSDS No:	212
Approved By:	Jim Biles
Title:	Regulatory Affairs
Approved Date:	05/30/01
Supersedes Date:	05/19/98

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_017829

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED: 05/14/98
SUPERSEDES DATE: 01/09/98

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
RONEX MP

PRODUCT CODE
255164 - 05164

Ronex MP
[redacted] REACTIVITY 0
FLAMMABILITY 1 PERSONAL PROTECTION B
0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

PRODUCT CATEGORY
Petroleum Lubricating Grease

PRODUCT APPEARANCE AND ODOR
Smooth dark green grease
Mild, bland odor

MEDICAL EMERGENCY TELEPHONE NUMBER
(713) 656-3424

TRANSPORTATION EMERGENCY TELEPHONE NUMBERS:
(BAYTOWN) (281) 834-3296 (CHEMTREC) 1-800-424-9300

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Greater than 96%
or	or	
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	
and	and	
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	
and	and	
Residual oils (petroleum), hydrotreated	64742-57-0	
or	or	
Residual oils (petroleum), solvent-dewaxed	64742-62-7	
and	and	
Lithium Complex Soap Thickener	Mixture	
Proprietary additives	Mixture	Less than 4%

This product, as manufactured by Exxon, does not contain polychlorinated biphenyls (PCB's).

All components of this product are listed on the U.S. TSCA inventory.

See Section E for Health and Hazard Information.

See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT	BASIS
5 mg/m3 for oil mist (aerosol) for an 8-hour workday	OSHA Regulation 29 CFR 1910.1000 and recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). ACGIH states that the air is to be sampled by a method that does not collect vapor; in addition, it lists a

10 mg/m3 STEL.

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
If lubricant gets into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN
In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry-clean clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION
Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION
If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
221°C (430°F)
ASTM D 92, Cleveland Open Cup

AUTOIGNITION TEMPERATURE
Greater than 260°C (500°F)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

HANDLING PRECAUTIONS
Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES
Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam or carbon dioxide to extinguish the fire. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, sulfur oxides, phosphorus oxides, nitrogen

oxides, metal oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING
"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Do not attempt to refill or clean containers since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

"Empty" drum liners retain residue (solid, liquid, and/or vapor) that will burn and can be dangerous. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do not reuse liners for any purpose whatsoever. Liners should be emptied of contents to the maximum extent practical, then segregated from liners containing other products. Dispose of "empty" liners in an environmentally safe manner and in accordance with governmental regulations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
Prolonged or repeated skin contact may cause skin irritation.

NATURE OF HAZARD AND TOXICITY INFORMATION
Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection.

In accordance with the current OSHA Hazard Communication Standard criteria, this product does not require a cancer hazard warning. This is because the product is formulated from base stocks which are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. Alternatively, it may consist of components not otherwise affected by IARC criteria, such as atmospheric distillates or synthetically derived materials, and as such is not characterized by current IARC classification criteria.

Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria.

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE
None recognized

I. PROTECTION AND PRECAUTIONS

VENTILATION
Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, or use of flame or other ignition sources.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS
To prevent fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system in accordance with (THE) National Fire Protection Association PUBLICATIONS.

Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

In order to prevent fire or explosion hazards, use appropriate equipment.

Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

PERSONAL HYGIENE
Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

TRANSPORTATION INCIDENT INFORMATION
For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.

U.S. DOT HAZARDOUS MATERIALS SHIPPING DESCRIPTION
Not regulated

OSHA REQUIRED LABEL INFORMATION
In compliance with hazard and right-to-know requirements, where applicable OSHA Hazard Warnings may be found on the label, bill of lading or invoice accompanying this shipment.

Note: Product label may contain non-OSHA related information also.

The health and safety information presented herein must be used in conjunction with the pertinent standards for training, work practices and facilities design established by OSHA, NIOSH, NFPA, API, NEC, NSC, UNDERWRITERS, BUREAU OF MINES, and similar organizations.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR LUBRICANTS TECHNICAL ASSISTANCE CALL: 1-800-443-9966

FOR FUELS TECHNICAL ASSISTANCE CALL: 713-656-4955

FOR AN MSDS OR ASSISTANCE WITH AN MSDS, DIRECT INQUIRIES TO THE ADDRESS BELOW OR CALL:
MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
ROOM 2344
P. O. BOX 2180
HOUSTON, TX 77252-2180
(713) 656-5949

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HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALCRYL A-2024

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALCRYL A-2024
Common Name: Acrylic Polymer Emulsion

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Acrylic Polymer Emulsion	N/A Mixture	100	PEL: N.E. TLV: N.E.

N.E. = Not Established

WWW_104(e)_017835

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:
Temporary irritation of nose and throat may occur

Eye:
Temporary irritation or redness may occur.

Skin:
Temporary irritation of the skin may occur in some individuals.

Ingestion:
This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea and systemic poisoning.

ACUTE EFFECTS:
Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:
None identified

SECTION 4 - First Aid Measures

Eye and Skin Contact:
Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:
Remove to fresh air. If symptoms persist contact a physician.

Ingestion:
This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: >200°F
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
.No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases. Polymer film can burn.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
.Do not freeze. Protect in transit, store in a warm place. DISCARD IF FROZEN.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	Approx. 212°F	**Density :**	8.72 lbs/gal
Flash Point :	>200°F	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.1 g/cc	**% Volatiles :** (by Weight)	Not Applicable
pH :	Not Available	**Vapor Pressure :**	Not Available
Solubility in Water :	Complete	**Viscosity :**	Not Available

Appearance and Odor :
Milky white liquid with slight odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :

None known

Hazardous Decomposition Products :

May decompose if involved in a fire releasing irritant / toxic fumes.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:

No testing conducted

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:

Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:

Dispose of waste material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:

Hazard Class: Non Regulated

Shipping Name:

Harmonized Tariff Code: 3809.93.00 00

HODGSON
Process Chemicals Inc., Leather

ROYALCRYL A-2024

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA), or the National Toxicology Program (NTP).

State Regulations :

n/a

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
N/A						

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/27/98	Updated form.

Prepared by: Sharon Mathis

/0

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet

Royalcryl A-2091

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: Royalcryl A-2091
Common Name: Acrylic Resin

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Acrylic Resin	n/a	100 %	PEL: N.E.

N.E. = Not Established

WWW_104(e)_017841

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Temporary irritation of nose and throat may occur but is not likely.

Eye:

Temporary irritation or redness may occur.

Skin:

Temporary irritation of the skin may occur in some individuals.

Ingestion:

This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea and systemic poisoning.

ACUTE EFFECTS:

Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:

None identified

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	Not determined	**Density :**	8.66 lb/gal
Flash Point :	Not flammable	**Evaporation Rate :**	Not determined
Specific Gravity : (Water=1)	1.04	**% Volatiles :** (by Weight)	Not determined
pH :	7.5	**Vapor Pressure :**	Not determined
Solubility in Water :	Miscible/dispersible with water	**Viscosity :**	Not determined

Appearance and Odor :
Milky white liquid with typical acrylic odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :
Strong acids and oxidizers

Hazardous Decomposition Products :
None known.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:
No testing conducted.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:
Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:
Dispose of waste material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:

Hazard Class: Non Regulated

Shipping Name:

Harmonized Tariff Code: 3906.90.00 00

HODGSON
Process Chemicals Inc., Leather

Royalcryl A-2091

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA), or the National Toxicology Program (NTP).

State Regulations :

n/a

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
n/a						

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 – Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
08/27/99	Original Issue

Prepared by: Sharon Mathis

WWW_104(e)_017845

Bl 3/1/99

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALCRYL HI 63

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALCRYL HI 63
Common Name: Acrylic Resin Emulsion

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Acrylic Resin Emulsion	Trade Secret	100	PEL: N.E. TLV: N.E.

N.E. = Not Established

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:
Temporary irritation of nose and throat may occur

Eye:
Temporary irritation or redness may occur.

Skin:
Temporary irritation of the skin may occur in some individuals.

Ingestion:
This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea and systemic poisoning.

ACUTE EFFECTS:
Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:
May aggravate existing skin, eye and lung conditions.

SECTION 4 - First Aid Measures

Eye and Skin Contact:
Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:
Remove to fresh air. If symptoms persist contact a physician.

Ingestion:
This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200°F (93°C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Product may congeal or stratify if cold. Warm to room temperature and mix well before using.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	~ 212°F (100°C)	**Density :**	8.7 lb/gal
Flash Point :	> 200°F (93°C)	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.050 g/cc	**% Volatiles :** (by Weight)	65
pH :	Not Available	**Vapor Pressure :**	Not Available
Solubility in Water :	Dispersible	**Viscosity :**	Not Available

Appearance and Odor :
Yellow opaque liquid with acrylic odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :
Strong oxidizing agents.

Hazardous Decomposition Products :
Carbon dioxide and carbon monoxide

SECTION 11 - Toxicological Information

ACUTE EFFECTS:
Conclusions are drawn from sources other than direct testing.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:
Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:
Dispose of waste material by incineration in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:
Hazard Class: Non Regulated
Shipping Name:
Harmonized Tariff Code: 3209.90.00 00

HODGSON
Process Chemicals Inc., Leather

ROYALCRYL HI 63

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA), or the National Toxicology Program (NTP).

State Regulations :

n/a

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
N/A						

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/27/98	Updated form.

Prepared by: Sharon Mathis

WWW_104(e)_017851

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALCRYL PA-803

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALCRYL PA-803
Common Name: Acrylic Resin Emulsion

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH:	1
FLAMMABILITY:	1
REACTIVITY:	0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Acrylic Resin Emulsion,	Trade Secret	99	PEL: N.E. TLV: N.E.
Ammonia, Aqueous	7664-41-7	1	PEL: 25 ppm 8-hr. TWA (ammonia) TLV: 25 ppm 8-hr. TWA, 35 ppm STEL (ammonia)

N.E. = Not Established

WWW_104(e)_017852

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Overexposure to mist or vapor may cause respiratory tract irritation and headache.

Eye:

Temporary irritation or redness may occur.

Skin:

Temporary irritation of the skin may occur in some individuals.

Ingestion:

This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea and systemic poisoning.

ACUTE EFFECTS:

Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:

Dermatitis. May aggravate existing skin, eye and lung conditions.

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200°F (93°C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Protect from freezing in storage and transit. Do not store below 50°F (10°C). Mix well before using.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	> 212°F (100°C)	**Density :**	8.64 lb/gal
Flash Point :	> 200°F (93°C)	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.037	**% Volatiles :** (by Weight)	60
pH :	As is: 6.0	**Vapor Pressure :**	Not Available
Solubility in Water :	Dispersible	**Viscosity :**	Not Available

Appearance and Odor :
Thin milky liquid with acrylic odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :

Strong oxidizing agents.

Hazardous Decomposition Products :

Carbon dioxide, carbon monoxide and oxides of nitrogen.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:

Conclusions are drawn from sources other than direct testing.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:

Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:

Dispose of waste material by incineration in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:

Hazard Class: Non Regulated

Shipping Name:

Harmonized Tariff Code: 3209.10.00 00

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Ammonia, Aqueous (cas 7664-41-7) is listed by the Occupational Safety and Health Administration (OSHA) in Subpart Z.

State Regulations :

Massachusetts Hazardous Chemicals List present:
Ammonia, Aqueous (cas 7664-41-7) 1 %
New Jersey Hazardous Chemicals List present:
Ammonia, Aqueous (cas 7664-41-7) 1 %
Pennsylvania Hazardous Chemicals List Present:
Ammonia, Aqueous (cas 7664-41-7) 1 %

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
Ammonia, Aqueous	7664-41-7	1 %	Listed	500 lbs	yes	100 lbs

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/27/98	Updated form.

Prepared by: Sharon Mathis

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALREZ 1683

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALREZ 1683
Common Name: Polymer Resin Emulsion

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH:	1
FLAMMABILITY:	1
REACTIVITY:	0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Polymer Resin Emulsion	Trade Secret	100	PEL: N.E. TLV: N.E.

N.E. = Not Established

WWW_104(e)_017858

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Not considered hazardous under normal conditions of use. Exposure to mist or spray may cause irritation of respiratory passages.

Eye:

Temporary irritation or redness may occur.

Skin:

Temporary irritation of the skin may occur in some individuals.

Ingestion:

May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

ACUTE EFFECTS:

Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:

None identified

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200°F (93°C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Protect from freezing in storage and transit. Do not store below 50°F (10°C). Mix well before using.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	~212°F (100°C)	**Density :**	8.45 lb/gal
Flash Point :	≥ 200°F (93°C)	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.014 g/cc	**% Volatiles : (by Weight)**	55 (water)
pH :	Not Available	**Vapor Pressure :**	Not Available
Solubility in Water :	Dispersible	**Viscosity :**	Not Available

Appearance and Odor :
Opaque milky liquid with slight odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :
Strong oxidizing agents.

Hazardous Decomposition Products :
Carbon dioxide, carbon monoxide and oxides of nitrogen.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:
Conclusions are drawn from sources other than direct testing.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:
Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:
Dispose of waste material by incineration in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:

Hazard Class: Non Regulated

Shipping Name:

Harmonized Tariff Code: 3209.90.00 00

HODGSON
Process Chemicals Inc., Leather

ROYALREZ 1683

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA), or the National Toxicology Program (NTP).

State Regulations :

n/a

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
N/A						

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/27/98	Updated form.

Prepared by: Sharon Mathis

WWW_104(e)_017863

Rec 3/8/99 Dept 21

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALTHANE 1688

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALTHANE 1688
Common Name: Polyurethane Resin Solution

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH:	2
FLAMMABILITY:	1
REACTIVITY:	0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Urethane Polymer,	Trade Secret	30	PEL: N.E. TLV: N.E.
N-Methyl-2-Pyrrolidone,	872-50-4	13	PEL: N.E. TLV: N.E.
Triethylamine,	121-44-8	1	PEL: 10 ppm 8-hr TWA, 15 ppm STEL TLV: 1 ppm, skin, 8-hr TWA, 5 ppm STEL
Water	7732-18-5	56	PEL: N.E. TLV: N.E.

N.E. = Not Established

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Overexposure to mist or vapor can cause respiratory tract irritation, headache, giddiness, confusion, nausea, chest pain, coughing and lung injury.

Eye:

Causes irritation which may be severe.

Skin:

Can cause irritation and dermatitis, especially on prolonged contact. Triethylamine may be toxic if absorbed.

Ingestion:

Can cause gastrointestinal tract irritation, nausea, vomiting, diarrhea, dizziness, faintness, drowsiness, thirst, collapse.

ACUTE EFFECTS:

Skin, eye and respiratory tract irritation, central nervous system depression.

CHRONIC EFFECTS:

Dermatitis, central nervous system depression. May aggravate existing skin, eye, lung and nervous system conditions.

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200°F (93°C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: None known

Unusual Fire/Explosion Hazards:
No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Do not freeze. Protect in transit, store in a warm place. Warm to room temperature and mix well before using.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	212-396°F (100-202°C)	**Density :**	8.70 lb/gal
Flash Point :	> 200°F (93°C)	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.044	**% Volatiles :** (by Weight)	57
pH :	As is: 8.0	**Vapor Pressure :**	Not Available
Solubility :	Complete	**Viscosity :**	Not Available

Appearance and Odor :
Amber translucent liquid with slight ammonia - like odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :
Strong oxidizing agents.

Hazardous Decomposition Products :
Carbon dioxide, carbon monoxide and oxides of nitrogen.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:

N-Methyl-2-Pyrrolidone: Acute Oral LD50 = 4.2 g/kg (rat), Acute Dermal LD50 = 8.0 g/kg (rabbit)

Triethylamine: Acute Oral LD50 = 460 mg/kg (rat), Acute Dermal LD50 = 570 mg/kg (rabbit), Inhalation LCLo = 1000 ppm/4H (rat)

Triethylamine caused lung, liver, kidney and heart damage in laboratory animals.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:
Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:
Dispose of waste material by incineration in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:
Hazard Class: Non Regulated
Shipping Name:
Harmonized Tariff Code: 3209.90.00 00

HODGSON
Process Chemicals Inc., Leather

ROYALTHANE 1688

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP). Triethylamine (cas 121-44-8) is listed by the Occupational Safety and Health Administration (OSHA) in Subpart Z.

State Regulations :

Massachusetts Hazardous Chemicals List present:

N-Methyl-2-Pyrrolidone (cas 872-50-4) 13 %
Triethylamine (cas 121-44-8) 1 %

Pennsylvania Hazardous Chemicals List Present:

N-Methyl-2-Pyrrolidone (cas 872-50-4) 13 %
Triethylamine (cas 121-44-8) 1 %

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
Triethylamine	121-44-8	1	Listed	n/a	Yes	5,000 lbs
N-Methyl-2-Pyrrolidone	872-50-4	13 %	Listed	n/a	n/a	n/a

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/27/98	Updated form.

Prepared by: Sharon Mathis

WWW_104(e)_017869

Dec. 2/99

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALTHANE P-79

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALTHANE P-79
Common Name: Waterborne Polyurethane

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH:	2
FLAMMABILITY:	1
REACTIVITY:	0

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
N-Methyl-2-Pyrrolidone,	872-50-4	< 2 %	PEL/TLV: N.E.
Triethylamine	121-44-8	< 0.4 %	PEL: N.E. TLV: 10 ppm

N.E. = Not Established

WWW_104(e)_017870

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:
Temporary irritation of nose and throat may occur. May cause sneezing, coughing, burning sensation of the throat, constricting of the larynx, and difficulty in breathing.

Eye:
Vapor may cause irritation and temporary disturbance of vision. Liquid may produce severe irritation experienced as excess redness and swelling of the conjunctiva with chemical burns of the cornea.

Skin:
Prolonged contact causes irritation, redness and defatting of the skin.

Ingestion:
This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea, burning of the mouth, throat and esophagus, and systemic poisoning.

ACUTE EFFECTS:
High concentrations may cause damage to the liver, kidney, and heart. May cause tracheitis, bronchitis, pneumonitis, and pulmonary edema.

CHRONIC EFFECTS:
None identified

SECTION 4 - First Aid Measures

Eye and Skin Contact:
Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:
Remove to fresh air. If symptoms persist contact a physician.

Ingestion:
This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200 ° F(93 °C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
Flashback along vapor trail may occur. This material may be ignited by heat, sparks, flame or static electricity. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Keep product away from heat, sparks, pilot lights, static electricity, and open flame.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	212 ° F	**Density :**	8.37 lbs/gal
Flash Point :	> 200 ° F(93 °C)	**Evaporation Rate :**	Slower than ether
Specific Gravity : (Water=1)	1.005 g/cc	**% Volatiles :** (by Weight)	Not Available
pH :	7.63	**Vapor Pressure :**	Not Available
Solubility in Water :	Not Available	**Viscosity :**	Not Available

Appearance and Odor :
Milky white liquid with characteristic resin odor.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :
Strong mineral acids and oxidizers.

Hazardous Decomposition Products :
Burning can produce nitrogen oxides, carbon monoxide, and carbon dioxide.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:
No testing conducted.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:
Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:
Dispose of waste material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:
Hazard Class: Non Regulated
Shipping Name:
Harmonized Tariff Code: 3209.90.00 00

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Triethylamine (cas 121-44-8) is listed by the Occupational Safety and Health Administration (OSHA) in Subpart Z.

State Regulations :

Massachusetts Right to Know:
- N-Methyl-2-Pyrrolidone (cas 872-50-4) < 2 %
- Triethylamine (cas 121-44-8) < 0.4 %

Pennsylvania Hazardous Substance List:
- N-Methyl-2-Pyrrolidone (cas 872-50-4) < 2 %
- Triethylamine (cas 121-44-8) < 0.4 %

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
Triethylamine	121-44-8	< 0.4 %	Listed	n/a	yes	5,000 lbs
N-Methyl-2-pyrrolidone	872-50-4	< 2 %	Listed	n/a	n/a	n/a

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
07/01/98	Review and Updated form.

Prepared by: Sharon Mathis

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet
ROYALTHANE PL-1300

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: ROYALTHANE PL-1300
Common Name: Polyurethane Elastomer

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

HAZARD RATINGS

HEALTH:	**2**
FLAMMABILITY:	**1**
REACTIVITY:	**0**

Technical Contact Person: Volker Lorenz

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Urethane Polymer.	Trade Secret	36.0	PEL: N.E. TLV: N.E.
N-Methyl-2-Pyrrolidone.	872-50-4	12.0	PEL: N.E. TLV: N.E.
Triethylamine.	121-44-8	1.2	PEL: 25 ppm 8-hr. TWA, 15 ppm STEL TLV: 1 ppm, skin, 8-hr. TWA, 5 ppm STEL
Water	7732-18-5	50.8	PEL: N.E. TLV: N.E.

N.E. = Not Established

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Overexposure to mist or vapor can cause respiratory tract irritation, headache, giddiness, confusion, possible lung in jury and sensitization.

Eye:

Causes severe irritation with possible temporary corneal clouding.

Skin:

Causes irritation and dermatitis, especially on prolonged contact. Possible sensitizer. May be toxic on absorption.

Ingestion:

Can cause gastrointestinal tract irritation, nausea, vomiting, diarrhea and possible kidney and liver injury.

ACUTE EFFECTS:

Skin, eye and respiratory tract irritation, possible allergic reaction and central nervous system depression.

CHRONIC EFFECTS:

Dermatitis, central nervous system depression, kidney, liver and lung injury. May aggravate existing skin, eye, lung, kidney, liver and nervous system conditions.

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 200°F (93°C)
Method: TCC
Flammable Limits: Not Available

Explosive Limits

LEL: Not Available
UEL: Not Available
Autoignition Temperature: Not Available

Unusual Fire/Explosion Hazards:
No special procedures are expected to be necessary for this product. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:
Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:
Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:
Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:
Protect from freezing in storage and transit. Do not store below 50°F (10°C). Mix well before using.

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	212-396°F (100-202°C)	**Density :**	8.5 lb/gal
Flash Point :	> 200°F (93°C)	**Evaporation Rate :**	Not Available
Specific Gravity : (Water=1)	1.020	**% Volatiles : (by Weight)**	52
pH :	Not Available	**Vapor Pressure :**	Not Available
Solubility in Water :	Dispersible	**Viscosity :**	Not Available

Appearance and Odor :
Translucent liquid with slight ammonia-like odor.

HODGSON
Process Chemicals Inc., Leather

ROYALTHANE PL-1300

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Triethylamine (cas 121-44-8) is listed by the Occupational Safety and Health Administration (OSHA) in Subpart Z.

State Regulations :

Massachusetts Hazardous Chemicals List present:

N-Methyl-2- Pyrrolidone (cas 872-50-4) 12 %

Triethylamine (cas 121-44-8) 1.2 %

Pennsylvania Hazardous Chemicals List Present:

N-Methyl-2- Pyrrolidone (cas 872-50-4) 12 %

Triethylamine (cas 121-44-8) 1.2 %

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
N-Methyl-2-Pyrrolidone	872-50-4	12	Listed	n/a	n/a	n/a
Triethylamine	121-44-8	1.2	Listed	n/a	yes	5,000 lbs

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/30/98	Updated form.

Prepared by: Sharon Mathis

WWW_104(e)_017880

DATE PREPARED: May 11, 2000

MATERIAL SAFETY DATA SHEET

US DEPARTMENT OF LABOR - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
THIS DOCUMENT IS PREPARED PURSUANT TO THE OSHA HAZARD COMMUNICATION STANDARD (29CFR 1910.1200)

SECTION 1

MANUFACTURER: **ATLAS REFINERY, INC.**	EMERGENCY PHONE NUMBERS: (973) 589-2002 / (973) 589-2004 NIGHT
ADDRESS: 142 LOCKWOOD STREET NEWARK, NEW JERSEY 07105 U.S.A.	FAX: (973) 589-7377 E-MAIL info@atlasrefinery.com
CHEMICAL NAME & SYNONYMS: BLEND OF SULFATED AND SULFONATED OILS	TRADE NAME: **RS 102-50-C**
CHEMICAL ABSTRACT SERVICE REGISTRY NUMBER: (C.A.S.#) BLEND	

SECTION II – INGREDIENTS AND OTHER COMPOUNDS

HAZARDOUS	TLV UNITS	NON-HAZARDOUS
HEXYLENE GLYCOL CAS NO. 107-41-5	25 ppm	SULFATED FATTY ACID ESTERS, SODIUM SALTS CAS NO. 68153-10-6
ETHANOL CAS NO. 64-17-5	1000 ppm	WATER CAS NO. 7732-18-5
		SULFATED FATTY ESTERS, SODIUM SALTS CAS NO. 68082-60-0
		SULFONIC ACIDS, FISH OIL, OXIDIZED, SODIUM SALTS CAS NO. 97488-98-7
		NONENE, HYDROFORMULATED, SULFATED, SODIUM SALTS CAS NO. 71243-86-2

SECTION III - PHYSICAL DATA

BOILING POINT (?F) HIGHER THAN	212°F	SPECIFIC GRAVITY (H_2O = 1)	1.019
VAPOR PRESSURE (mmHg)	N/E	PERCENT VOLATILE BY WEIGHT (%)	32*
VAPOR DENSITY (AIR = 1)	N/E	EVAPORATION RATE (BuAc= 1)	N/E
SOLUBILITY IN WATER	SOLUBLE	LBS. / GALLON	8.13

APPEARANCE AND ODOR: BROWN LIQUIR

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: CLEVELAND OPEN CUP (C.O.C.) HIGHER THAN 350°F

FLAMMABLE LIMITS: Lel: N/E Uel: N/E

EXTINGUISHING MEDIA: CO_2/ FOAM/DRY CHEMICALS & WATER SPRAY (FOG) SAME AS FOR NON HAZARDOUS FATS & OILS

SPECIAL FIRE FIGHTING PROCEDURES: NONE UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

N/E = NOT ESTABLISHED *CONTAINS 32% WATER (CONTINUED ON REVERSE SIDE)
N/A = NOT APPLICABLE

SECTION V – HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: UNKNOWN

EFFECTS OF OVER EXPOSURE: UNKNOWN

EMERGENCY FIRST AID PROCEDURES: IF CONTACT IS MADE WITH THE EYES OR SKIN, FLUSH WITH PLENTY OF WATER FOR 15 MINUTES OR UNTIL IRRITATION SUBSIDES. IF IRRITATION PERSISTS CALL A PHYSICIAN.

SECTION VI – REACTIVITY DATA

STABILITY: ☒ STABLE ☒ UNSTABLE

CONDITIONS TO AVOID:

MATERIALS TO AVOID:

HAZARDOUS DECOMPOSITION PRODUCTS:

HAZARDOUS POLYMERIZATION: ☒ WILL NOT OCCUR ☒ MAY OCCUR

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: CONFINE SPILL, ABSORB ON DRYING MATERIALS (SAND, SAWDUST, ETC) AND PLACE IN DRUMS FOR PROPER DISPOSAL.

FLUSH REMAINING TRACES WITH WATER.

WASTE DISPOSAL METHOD: CONTACT THE APPROPRIATE STATE AGENCY FOR THE LIST OF PROPER LANDFILL SITES. CONTAINER IS NOT A FEDERAL HAZARDOUS WASTE WHEN EMPTY.

SECTION VIII – HEALTH HAZARD DATA

RESPIRATORY PROTECTION (SPECIFY TYPE):

VENTILATION LOCAL EXHAUST: YES	SPECIAL:
MECHANICAL (General):	OTHER:
PROTECTIVE GLOVES: CHEMICAL RESISTANT GLOVES	EYE PROTECTION: GOGGLES

OTHER PROTECTIVE EQUIPMENT:

SECTION IX – SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: STANDARD PRECAUTIONS FOR HANDLING FATS, OILS, AND SOAPS

OTHER PRECAUTIONS:

PREPARED BY: ROBERT J. WEBER JR.
TITLE: VICE PRESIDENT OF OPERATIONS

SIGNATURE: R.J. Weber

STAHL USA
MATERIAL SAFETY DATA SHEET

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RU-21-053

HMIS RATING

HEALTH	2
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) / ACGIH (TLV)
-METHYL-2-PYRROLIDONE	1.7	***	***	OSHA NOT ESTAB. / ACGIH NOT ESTAB.

CAS NO. 872-50-4 SYN: N-METHYLPYRROLIDONE{1}

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
BOILING RANGE: APPROX. 212 F
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 2
WEIGHT PER GALLON: 8.44 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA
USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.
UNUSUAL FIRE AND EXPLOSION HAZARDS

S (Sam)

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

MAY CAUSE SEVERE EYE IRRITATION.

MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.

INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.

N-METHYLPYRROLIDONE HAS BEEN SHOWN TO PRODUCE REPRODUCTIVE AND DEVELOMPMENTAL EFFECTS IN TEST ANIMALS AND THEIR EMBRYOS, BUT ONLY AT HIGH DOSES THAT ARE POTENTIALLY LETHAL TO THE TEST

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

ANIMAL. THESE OBSERVATIONS ARE NOT THOUGHT TO BE RELEVANT TO OCCUPATIONAL USAGE OF N-METHYLPYRROLIDONE. TOXICOLOGICAL STUDIES ON EXPERIMENTAL ANIMALS INDICATE THAT N-METHYLPYRROLIDONE IS NOT A CARCINOGEN, MUTAGEN, TERATOGEN, OR REPRODUCTIVE TOXIN IN HUMANS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

ENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

AVOID BREATHING MISTS.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RU-3901

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHANAMINE,N,N-DIETHYL-	1.0	54.00	20.0	OSHA 10PPM
CAS NO. 121-44-8 SYN: TRIETHYLAMINE {1}				ACGIH 01 PPM

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR TRIETHYLAMINE IS 3 PPM.

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.

BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : LESS THAN 1 %
WEIGHT PER GALLON: 8.60 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.
THIS PRODUCT CONTAINS A SMALL AMOUNT OF TRIETHYLAMINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 12 DEGREES F, CLOSED CUP.
SHOULD THIS TRIETHYLAMINE BURN, THE COMBUSTION PRODUCTS ARE SEVERLY IRRITATING TO THE SKIN, EYES,NOSE, AND RESPIRATORY SYSTEM.

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

TRIETHYLAMINE (SEE SECTION 2) COULD POSSIBLY CAUSE THE FOLLOWING EFFECTS OF OVEREXPOSURE:

- CONTACT WITH THE EYES AND SKIN MAY RESULT IN SEVERE IRRITATION. BURNS AND PERMANENT EYE INJURY MAY RESULT. THE VAPOR IS IRRITATING TO THE EYES.
- INHALATION OF VAPORS MAY RESULT IN RESPIRATORY IRRITATION; PROLONGED INHALATION MAY RESULT IN LUNG INJURY. SEVERE INHALATION OVEREXPOSURE MAY CAUSE CENTRAL NERVOUS SYSTEM STIMULATION.
- OVEREXPOSURE TO SOME AMINE VAPORS MAY RESULT IN A CONDITION KNOWN AS "BLUE HAZE". SYMPTOMS MAY INCLUDE BLURRED VISION, AND THE APPEARANCE OF HALOS. THE EFFECT DISAPPEARS WITHIN A A FEW HOURS AND PRODUCES NO LONG-TERM EFECTS.

IF THE PERCENTAGE OF TRIETHYLAMINE IS SMALL (SEE SECTION 2), THE LIKELIHOOD OF THE ABOVE EFFECTS OCCURING IS LESSENED.
POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

NOTE TO PHYSICIAN:

THE MAIN HAZARDS WITH TRIETHYLAMINE (SEE SECTION 2 FOR % IN THIS PRODUCT) ARE DUE TO ITS CORROSIVE PROPERTIES. THERE IS NO SPECIFIC ANTIDOTE. TREATMENT SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION.

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG MINERAL ACIDS.

OXIDIZER (LIQUID OXYGEN, OZONE, PEROXIDE); CHLORINE, HYPO-CHLORITES; KETONES, ALDEHYDES (ACROLEIN), EPOXIDES, ESTERS, ALKYHYDES (CARBON TETRACHLORIDE, TRICHLORETHYLENE, ETC).

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE. OXIDES OF NITROGEN (THERMAL DECOMP).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.
TOXIC TO FISH; AVOID DISCHARGE TO NATURAL WATERS.
CONTAINS TRIETHYLAMINE WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN WHEN HANDLING SPILLS. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF TRIETHYLAMINE IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

DUE TO THE PRESENCE OF TRIETHYLAMINE, THE FOLLOWING PRECAUTIONS SHOULD BE CONSIDERED WHEN HANDLING THIS PRODUCT:

- -DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.
- -KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES.
- -AVOID BREATHING VAPORS. KEEP CONTAINER CLOSED.
- -WASH THOROUGHLY AFTER HANDLING.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.
TRIETHYLAMINE (SEE SECTION 2) IS HIGHLY TOXIC TO FISH, SO IT SHOULD NOT BE ALLOWED TO DRAIN INTO NATURAL WATER WAYS. ALSO, LABORATORY STUDIES INDICATE THAT IT WILL NOT BE DEGRADED RAPIDLY IN A BIOLOGICAL WASTEWATER TREATMENT SYSTEM.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RU-6002

HMIS RATING

HEALTH 2
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
1-METHYL-2-PYRROLIDONE	3.6	***	***	OSHA NOT ESTAB. ACGIH NOT ESTAB.

CAS NO. 872-50-4 SYN: N-METHYLPYRROLIDONE{1}

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
BOILING RANGE: APPROX. 212 F
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 4
WEIGHT PER GALLON: 8.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 200 DEGREES F
EXTINGUISHING MEDIA
USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.
UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

MAY CAUSE SEVERE EYE IRRITATION.

MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.

INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.

N-METHYLPYRROLIDONE HAS BEEN SHOWN TO PRODUCE REPRODUCTIVE AND DEVELOMPMENTAL EFFECTS IN TEST ANIMALS AND THEIR EMBRYOS, BUT ONLY AT HIGH DOSES THAT ARE POTENTIALLY LETHAL TO THE TEST ANIMAL. THESE OBSERVATIONS ARE NOT THOUGHT TO BE RELEVANT TO OCCUPATIONAL USAGE OF N-METHYLPYRROLIDONE. TOXICOLOGICAL STUDIES ON EXPERIMENTAL ANIMALS INDICATE THAT N-METHYLPYRROLIDONE IS NOT A CARCINOGEN, MUTAGEN, TERATOGEN,

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

OR REPRODUCTIVE TOXIN IN HUMANS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

AVOID BREATHING MISTS.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC-1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RU-6125

HMIS RATING
HEALTH 3
FLAMMABILITY 1
REACTIVITY 0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
1-METHYL-2-PYRROLIDONE	6.4	***	***	OSHA NOT ESTAB.
CAS NO. 872-50-4 SYN: N-METHYLPYRROLIDONE{1}				ACGIH NOT ESTAB.
ETHANAMINE,N,N-DIETHYL-	1.4	54.00	20.0	OSHA 25PPM
CAS NO. 121-44-8 SYN: TRIETHYLAMINE {1}				ACGIH 01 PPM

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR TRIETHYLAMINE IS 3 PPM.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:394-395 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 8
WEIGHT PER GALLON: 8.60 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. WHEN HEATED ABOVE FLASH POINT, RELEASES FLAMMABLE VAPORS. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED.

THIS PRODUCT CONTAINS A SMALL AMOUNT OF TRIETHYLAMINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 12 DEGREES F, CLOSED CUP.

SHOULD THIS TRIETHYLAMINE BURN, THE COMBUSTION PRODUCTS ARE SEVERLY IRRITATING TO THE SKIN, EYES,NOSE, AND RESPIRATORY SYSTEM.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMA-

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

TITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED IN SECTION 2.

TRIETHYLAMINE (SEE SECTION 2) COULD POSSIBLY CAUSE THE FOLLOWING EFFECTS OF OVEREXPOSURE:

- CONTACT WITH THE EYES AND SKIN MAY RESULT IN SEVERE IRRITATION. BURNS AND PERMANENT EYE INJURY MAY RESULT. THE VAPOR IS IRRITATING TO THE EYES.
- INHALATION OF VAPORS MAY RESULT IN RESPIRATORY IRRITATION; PROLONGED INHALATION MAY RESULT IN LUNG INJURY. SEVERE INHALATION OVEREXPOSURE MAY CAUSE CENTRAL NERVOUS SYSTEM STIMULATION.
- OVEREXPOSURE TO SOME AMINE VAPORS MAY RESULT IN A CONDITION KNOWN AS "BLUE HAZE". SYMPTOMS MAY INCLUDE BLURRED VISION, AND THE APPEARANCE OF HALOS. THE EFFECT DISAPPEARS WITHIN A A FEW HOURS AND PRODUCES NO LONG-TERM EFECTS.

IF THE PERCENTAGE OF TRIETHYLAMINE IS SMALL (SEE SECTION 2), THE LIKELIHOOD OF THE ABOVE EFFECTS OCCURING IS LESSENED.

MAY CAUSE SEVERE EYE IRRITATION.

MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.

INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

N-METHYLPYRROLIDONE HAS BEEN SHOWN TO PRODUCE REPRODUCTIVE AND DEVELOMPMENTAL EFFECTS IN TEST ANIMALS AND THEIR EMBRYOS, BUT ONLY AT HIGH DOSES THAT ARE POTENTIALLY LETHAL TO THE TEST ANIMAL. THESE OBSERVATIONS ARE NOT THOUGHT TO BE RELEVANT TO OCCUPATIONAL USAGE OF N-METHYLPYRROLIDONE. TOXICOLOGICAL STUDIES ON EXPERIMENTAL ANIMALS INDICATE THAT N-METHYLPYRROLIDONE IS NOT A CARCINOGEN, MUTAGEN, TERATOGEN, OR REPRODUCTIVE TOXIN IN HUMANS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

NOTE TO PHYSICIAN:

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

THE MAIN HAZARDS WITH TRIETHYLAMINE (SEE SECTION 2 FOR % IN THIS PRODUCT) ARE DUE TO ITS CORROSIVE PROPERTIES. THERE IS NO SPECIFIC ANTIDOTE. TREATMENT SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION.

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.
STRONG MINERAL ACIDS.

OXIDIZER (LIQUID OXYGEN, OZONE, PEROXIDE); CHLORINE, HYPOCHLORITES; KETONES, ALDEHYDES (ACROLEIN), EPOXIDES, ESTERS, ALKYHYDES (CARBON TETRACHLORIDE, TRICHLORETHYLENE, ETC).

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.
OXIDES OF NITROGEN (THERMAL DECOMP).

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

TOXIC TO FISH; AVOID DISCHARGE TO NATURAL WATERS. CONTAINS TRIETHYLAMINE WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN WHEN HANDLING SPILLS. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF TRIETHYLAMINE IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.
WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.
AVOID BREATHING MISTS.

DUE TO THE PRESENCE OF TRIETHYLAMINE, THE FOLLOWING PRECAUTIONS SHOULD BE CONSIDERED WHEN HANDLING THIS PRODUCT:

- -DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.
- -KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES.
- -AVOID BREATHING VAPORS. KEEP CONTAINER CLOSED.
- -WASH THOROUGHLY AFTER HANDLING.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.
TRIETHYLAMINE (SEE SECTION 2) IS HIGHLY TOXIC TO FISH, SO IT SHOULD NOT BE ALLOWED TO DRAIN INTO NATURAL WATER WAYS.
ALSO, LABORATORY STUDIES INDICATE THAT IT WILL NOT BE DEGRADED RAPIDLY IN A BIOLOGICAL WASTEWATER TREATMENT SYSTEM.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /508/ 531-0371
NIGHTS: CHEMTREC-1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: RU-6259

HMIS RATING

HEALTH	0
FLAMMABILITY	0
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)

THIS PRODUCT IS BELIEVED TO BE NON-HAZARDOUS UNDER OSHA DEFINITIONS

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: NOT APPLICABLE MOSTLY WATER VAPOR
NOT APPLICABLE. MOSTLY WATER VAPOR.

BOILING RANGE: APPROX. 212 F
NOT APPLICABLE. MOSTLY WATER VAPOR.

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 0
WEIGHT PER GALLON: 8.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

THIS PRODUCT IS NOT EXPECTED TO SUPPORT COMBUSTION UNDER MOST CIRCUMSTANCES. IF FIRE DOES OCCUR, USE FOAM, DRY CHEMICAL, OR CARBON DIOXIDE TO EXTINGUISH.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

NONE KNOWN TO MANUFACTURER.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS OF OVEREXPOSURE. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY
STABLE.

INCOMPATIBILITY

NO HAZARDOUS INCOMPATIBILITIES KNOWN TO MANUFACTURER.

SECTION 6 - REACTIVITY DATA - CONTINUED -

HAZARDOUS DECOMPOSITION PRODUCTS

NONE KNOWN TO MANUFACTURER.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

IT MAY BE POSSIBLE TO FLUSH SPILLS TO SEWER, BUT THOSE HANDLING THE SPILL MUST DETERMINE IF THAT IS APPROPRIATE, AND IF IT IS IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. (SEE WASTE DISPOSAL)

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT THE SUPPLIER IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

NONE REQUIRED WHEN USED WITH NORMAL GOOD VENTILATION UNDER NORMAL

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

CONDITIONS OF USE.

VENTILATION

USE WITH ADEQUATE VENTILATION. LOCAL EXHAUST IS PREFERABLE, BUT GENERAL DILUTION VENTILATION MAY BE ADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

SECTION 1

Rw

MANUFACTURERS NAME: STAHL USA
ADDRESS: 26 HOWLEY ST., P.O. BOX 3599,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /508/ 531-0371
NIGHTS:/508/ 531-6846
PRODUCT NAME: RU-7920

HMIS RATING

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHANAMINE,N,N-DIETHYL-	.8	54.00	20.0	OSHA 10PPM
CAS NO. 121-44-8 SYN: TRIETHYLAMINE				ACGIH 10 PPM
1-METHYL-2-PYRROLIDINONE	7.6	***	***	OSHA NOT ESTAB.
CAS NO. 872-50-4 SYN: M-METHYLPYRROLIDONE				ACGIH NOT ESTAB.

THE VAPOR PRESSURE OF THE CYCLIC AMIDE SHOWN ABOVE IS LESS THAN 1MM OF MERCURY AT 70 DEGREES F.
ACGIH/OSHA SHORT TERM EXPOSURE LIMIT (STEL) FOR TRIETHYLAMINE IS 15PPM.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)

BOILING RANGE:394-395 DEGREES F (SOLVENT ONLY)

PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 9
WEIGHT PER GALLON: 8.50 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 200 DEGREES F

EXTINGUISHING MEDIA

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION 4--FIRE AND EXPLOSION DATA - CONTINUED -

THE FLASH POINT OF THIS PRODUCT IS GREATER THAN 100 DEGREES F. HOWEVER, THIS PRODUCT CONTAINS SOME FLAMMABLE OR COMBUSTIBLE SOLVENTS (SEE SECTION 2) AND THEREFORE MAY PRESENT THE HAZARDS ASSOCIATED WITH A COMBUSTIBLE LIQUID, UNDER CERTAIN CIRCUMSTANCES. THIS PRODUCT CONTAINS A SMALL AMOUNT OF TRIETHYLAMINE (SEE SECTION 2) WHICH HAS A FLASH POINT OF 17 DEGREES F, CLOSED CUP.
SHOULD THIS TRIETHYLAMINE BURN, THE COMBUSTION PRODUCTS ARE SEVERLY IRRITATING TO THE SKIN, EYES,NOSE, AND RESPIRATORY SYSTEM.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. MESA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING INDOOR FIRES, AND SHOULD BE AVAILABLE WHEN FIGHTING OUTDOOR FIRES.
SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

**THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT EXPRESS THEMSELVES IF EXPOSURE IS ELIMINATED. THIS PRODUCT WILL NOT PRESENT AN A C T U A L HEALTH RISK IN THE WORKPLACE IF IT IS HANDLED IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE PRACTICES AND IN ACCORD WITH THIS MSDS.
AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

TRIETHYLAMINE (SEE SECTION 2) COULD POSSIBLY CAUSE THE FOLLOWING EFFECTS OF OVEREXPOSURE:
- SWALLOWING: BURNS OF MOUTH, THROAT,STOMACH. SEVERE ABDOMINAL PAIN.
- PROLONGED AND REPEATED SKIN CONTACT MAY RESULT IN ABSORPTION OF HARMFUL AMOUNTS. BRIEF SKIN CONTACT IS IRRITATING. PROLONGED CONTACT, AS FROM CLOTHING WET WITH CHEMICAL, CAUSES BURNS.
- EYE CONTACT WITH LIQUID TRIETHYLAMINE CAUSES SEVERE INJURY. VAPORS ARE IRRITATING AND MAY CAUSE LACRIMATION, CONJUNCTIVITIS, AND CORNEAL EDEMA.

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

IF THE PERCENTAGE OF TRIETHYLAMINE CONTAINED IN THIS PRODUCT IS SMALL (SEE SECTION 2), THE LIKELIHOOD OF THE ABOVE EFFECTS OCCURING IS LESSENED.

MAY CAUSE SEVERE EYE IRRITATION.

POSSIBILITY OF LIVER AND/OR KIDNEY DAMAGE FROM OVEREXPOSURE.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

NOTE TO PHYSICIAN:

THE MAIN HAZARDS WITH TRIETHYLAMINE (SEE SECTION 2 FOR % IN THIS PRODUCT) ARE DUE TO ITS CORROSIVE PROPERTIES. THERE IS NO SPECIFIC ANTIDOTE. TREATMENT SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION.

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.

STRONG MINERAL ACIDS.

OXIDIZER (LIQUID OXYGEN, OZONE, PEROXIDE); CHLORINE, HYPO-CHLORITES, KETONES, ALDEHYDES (ACROLIN), EPOXIDES, ESTERS, ALKYHYDES (CARBON TETRACHLORIDE, TRICHLORETHYLENE, ETC).

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

OXIDES OF NITROGEN (THERMAL DECOMP).

HAZARDOUS POLYMERIZATION

SECTION 6 - REACTIVITY DATA - CONTINUED -

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.
TOXIC TO FISH; AVOID DISCHARGE TO NATURAL WATERS.
CONTAINS TRIETHYLAMINE WHICH IS A FLAMMABLE LIQUID (SEE NOTE IN SECTION 4). APPROPRIATE PRECAUTIONS MUST BE TAKEN WHEN HANDLING SPILLS. WHAT IS APPROPRIATE WILL DEPEND PARTLY ON THE PERCENTAGE OF TRIETHYLAMINE IN THIS PRODUCT, AS SHOWN IN SECTION 2.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT THE SUPPLIER IF MORE INFORMATION IS NEEDED.

CONTAINS FLAMMABLE OR COMBUSTIBLE SOLVENTS. INCINERATION OR SOLVENT RECOVERY MAY BE CONSIDERED AS POSSIBLE WASTE HANDLING METHODS. DISPOSE ONLY IN ACCORDANCE WITH FEDERAL, STATE, & LOCAL REGULATIONS. IF FLASH POINT LISTED IN SECTION 4 IS 140 DEGREES OR LESS, THIS PRODUCT IF DISCARDED DIRECTLY, WOULD BE A HAZARDOUS WASTE BASED UPON THE CHARACTERISTIC OF IGNITABILITY, AND PERHAPS DUE TO THE PRESENCE OF CERTAIN SOLVENTS LISTED UNDER EPA WASTE #'S F003 AND F005.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

IMPERMEABLE GLOVES REQUIRED.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EYE WASH BE AVAILABLE WHEREVER THIS PRODUCT IS HANDLED OR USED.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING AND GOOD INDUSTRIAL HYGIENE PROCEDURES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION.

USE WITH PRECAUTIONS APPROPRIATE TO HANDLING COMBUSTIBLE LIQUIDS. ELIMINATE ALL POSSIBLE SOURCES OF IGNITION. THE LEVEL OF PRECAUTIONS REQUIRED WILL DEPEND UPON THE DEGREE OF FIRE HAZARD

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

AS INDICATED IN SECTION 4, AS WELL AS THE QUANTITY OF SOLVENTS CONTAINED IN THIS PRODUCT AS INDICATED IN SECTION 2.
WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.
AVOID BREATHING MISTS.

DUE TO THE PRESENCE OF TRIETHYLAMINE, THE FOLLOWING PRECAUTIONS SHOULD BE CONSIDERED WHEN HANDLING THIS PRODUCT:

- DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.
- KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES.
- AVOID BREATHING VAPORS, KEEP CONTAINER CLOSED.
- WASH THOROUGHLY AFTER HANDLING.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.
TRIETHYLAMINE (SEE SECTION 2) IS HIGHLY TOXIC TO FISH, SO IT SHOULD NOT BE ALLOWED TO DRAIN INTO NATUAL WATER WAYS.
ALSO, LABORATORY STUDIES INDICATE THAT IT WILL NOT BE DEGRADED RAPIDLY IN A BIOLOGICAL WASTEWATER TRATMENT SYSTEM.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

MATERIAL SAFETY DATA SHEET

RYKON Grease #2

REACTIVITY 0
FLAMMABILITY 1
PERSONAL PROTECTION B
0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

MSDS No. 01578000
ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RYKON® PREMIUM GREASE NO. 2

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Hydrotreated heavy paraffinic distillate	64742-54-7	60-100
Polyurea thickener		10-30

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product has been evaluated and does not require any hazard warning on the label under OSHA criteria.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: Prolonged or repeated contact may produce some skin irritation.

INHALATION: No significant health hazards identified.

INGESTION: No significant health hazards identified.

HMIS CODE: (Health:0) (Flammability:1) (Reactivity:0)

NFPA CODE: (Health:0) (Flammability:1) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Get medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

Issued: May 26, 1995

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: Not applicable.

UEL: Not determined.

LEL: Not determined.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABILITY CLASSIFICATION: Not Flammable.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None identified.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Contain and remove by mechanical means.

7.0 HANDLING AND STORAGE

HANDLING: No special requirements.

STORAGE: No special requirements.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Wear protective gloves if prolonged or repeated contact is likely.

INHALATION: None required; however, use of adequate ventilation is good industrial practice.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Hydrotreated heavy paraffinic distillate	64742-54-7	OSHA PEL: 5 mg/m^3 (oil mist) (1989)(1971) ACGIH TLV-TWA: 5 mg/m^3 (oil mist) ACGIH TLV-STEL: 10 mg/m^3 (oil mist)
Polyurea thickener		No exposure limit established

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Smooth grease. Red.
pH:	Not determined.
VAPOR PRESSURE:	Not determined.
VAPOR DENSITY:	Not determined.
BOILING POINT:	Not determined.
MELTING POINT:	Not determined.
SOLUBILITY IN WATER:	Negligible, below 0.1%.
SPECIFIC GRAVITY (WATER = 1):	Not determined.
VISCOSITY:	95.6-124.3cSt at 40°C ASTM D445
DROPPING POINT:	450°F(232°C) (minimum)
VISCOSITY INDEX:	85 Minimum.
PENETRATION:	265-295 dmm at 77°F

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: None identified.

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA:

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name : Not Regulated

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name : Not determined.

Air (ICAO/IATA)

Shipping Name : Not determined.

European Road/Rail (ADR/RID)

Shipping Name : Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name : Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR PART 302.4): This product is not reportable under 40 CFR Part 302.4.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR PART 370): This product is not regulated under SARA Title III Section 311/312.

SARA TITLE III SECTION 313 (40 CFR PART 372): This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Contains a component listed by OSHA. Contains a component listed by ACGIH.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

FOOD CONTACT STATUS

USDA: H2 Status: This product is acceptable to the USDA for use as a lubricant in official meat and poultry establishments provided there is no possibility of the lubricant or lubricated part contacting edible products.

16.0 OTHER INFORMATION

BY:

Donald M. Barker, Director
Product Stewardship & Toxicology

Issued: May 26, 1995
Supersedes: August 25, 1989

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET

MSDS No. 01449000
ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RYKON® PREMIUM GREASE NO. 2 EP

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Hydrotreated heavy paraffinic distillate	64742-54-7	60-100
Organic polyurea thickener		10-30

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product has been evaluated and does not require any hazard warning on the label under OSHA criteria.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: Prolonged or repeated contact may produce some skin irritation.

INHALATION: No significant health hazards identified.

INGESTION: No significant health hazards identified.

HMIS CODE: (Health:0) (Flammability:1) (Reactivity:0)

NFPA CODE: (Health:0) (Flammability:1) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Get medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

Issued: July 13, 1994

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: Not applicable.

UEL: Not determined.

LEL: Not determined.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABILITY CLASSIFICATION: Not Flammable.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None identified.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Contain and remove by mechanical means.

7.0 HANDLING AND STORAGE

HANDLING: No special requirements.

STORAGE: No special requirements.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Wear protective gloves if prolonged or repeated contact is likely.

INHALATION: None required; however, use of adequate ventilation is good industrial practice.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Hydrotreated heavy paraffinic distillate	64742-54-7	OSHA PEL: 5 mg/m^3 (oil mist) (1989)(1971) ACGIH TLV-TWA: 5 mg/m^3 (oil mist) ACGIH TLV-STEL: 10 mg/m^3 (oil mist)
Organic polyurea thickener		No exposure limit established

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Smooth grease. Green.
pH:	Not determined.
VAPOR PRESSURE:	Not determined.
VAPOR DENSITY:	Not determined.
BOILING POINT:	Not determined.
MELTING POINT:	Not determined.
SOLUBILITY IN WATER:	Negligible, below 0.1%.
SPECIFIC GRAVITY (WATER = 1):	Not determined.
DROPPING POINT:	500°F(260°C) (typical)
PENETRATION:	265-295 dmm at 77°F

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: None identified.

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: This product had a primary eye irritation score (PEIS) of 1.0/110.0 (rabbit)

SKIN IRRITATION: This product had a primary skin irritation score (PDIS) of 0.4/8.0 (rabbit)

DERMAL LD50: greater than 2000 mg/kg (rabbit)

ORAL LD50: greater than 10000 mg/kg (rat)

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA:

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name : Not Regulated

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name : Not determined.

Air (ICAO/IATA)

Shipping Name : Not determined.

European Road/Rail (ADR/RID)

Shipping Name : Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name : Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR PART 302.4): This product is not reportable under 40 CFR Part 302.4.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR PART 370): This product is not regulated under SARA Title III Section 311/312.

SARA TITLE III SECTION 313 (40 CFR PART 372): This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Contains a component listed by OSHA. Contains a component listed by ACGIH.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

FOOD CONTACT STATUS

USDA: H2 Status: This product is acceptable to the USDA for use as a lubricant in official meat and poultry establishments provided there is no possibility of the lubricant or lubricated part contacting edible products.

16.0 OTHER INFORMATION

BY:

Donald M. Barker, Director
Product Stewardship & Toxicology

Issued: July 13, 1994
Supersedes: February 13, 1989

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET

MSDS No. 01458000
ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RYKON® PREMIUM MOLY GREASE NO. 2

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Hydrotreated heavy paraffinic distillate	64742-54-7	60-100
Sodium nitrite	7632-00-0	0.5-1.5
Polyurea thickener		10-30

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product has been evaluated and does not require any hazard warning on the label under OSHA criteria.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: Prolonged or repeated contact may produce some skin irritation.

INHALATION: No significant health hazards identified.

INGESTION: No significant health hazards identified. See "Toxicological Information" section (Section 11.0).

HMIS CODE: (Health:0) (Flammability:1) (Reactivity:0)

NFPA CODE: (Health:0) (Flammability:1) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area.

INGESTION: If swallowed, drink plenty of water, induce vomiting. Get medical attention.

Issued: January 19, 1995

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: Not applicable.

UEL: Not determined.

LEL: Not determined.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABILITY CLASSIFICATION: Not Flammable.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None identified.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove mechanically or contain on an absorbent material such as dry sand or earth.

7.0 HANDLING AND STORAGE

HANDLING: No special requirements.

STORAGE: No special requirements.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Wear protective gloves if prolonged or repeated contact is likely.

INHALATION: None required; however, use of adequate ventilation is good industrial practice.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Hydrotreated heavy paraffinic distillate	64742-54-7	OSHA PEL: 5 mg/m^3 (oil mist) (1989)(1971) ACGIH TLV-TWA: 5 mg/m^3 (oil mist) ACGIH TLV-STEL: 10 mg/m^3 (oil mist)
Sodium nitrite	7632-00-0	No exposure limit established
Polyurea thickener		No exposure limit established

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Smooth grease. Black.
pH:	Not determined.
VAPOR PRESSURE:	Not determined.
VAPOR DENSITY:	Not determined.
BOILING POINT:	Not determined.
MELTING POINT:	460°F(238°C)
SOLUBILITY IN WATER:	Negligible, below 0.1%.
SPECIFIC GRAVITY (WATER=1):	Not determined.
VISCOSITY:	78SUS at 210°F (99°C)
DROPPING POINT:	450°F(232°C) (minimum)
PENETRATION:	265-295 dmm at 77°F

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: None identified.

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA:

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

This product contains a small amount of sodium nitrite. The sodium nitrite in this product is not judged to present a significant risk to human health when good hygiene is observed.

Ingestion of large amounts of nitrites may produce nausea, vomiting, cyanosis (due to methemoglobin formation), collapse and coma.

It is also irritating to the eyes. Although this particular product has not been tested, another grease containing a similar amount of sodium nitrite was found to be relatively nontoxic (oral LD50 greater than 10 g/kg in rats) and non-irritating (maximum primary eye irritation score - 4.7/110 in rabbits).

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration or permitted landfill unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name : Not Regulated

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)
Shipping Name : Not determined.

Air (ICAO/IATA)
Shipping Name : Not determined.

European Road/Rail (ADR/RID)
Shipping Name : Not determined.

Canadian Transportation of Dangerous Goods
Shipping Name : Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR PART 302.4): This product is exempt from the CERCLA reporting requirements under 40 CFR Part 302.4. However, if spilled into waters of the United States, it may be reportable under 33 CFR Part 153 if it produces a sheen.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR PART 370): This product is not regulated under SARA Title III Section 311/312.

SARA TITLE III SECTION 313 (40 CFR PART 372): This product contains the following substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
Sodium nitrite 7632-00-0	1

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Contains a hazardous component. See the Toxicological Information section for health hazards that the OSHA Standard attributes to this product.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

BY:

Donald M. Barker, Director
Product Stewardship & Toxicology

Issued: January 19, 1995
Supersedes: July 15, 1994

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

ATERIAL SAFETY DATA SHEET

CHEMICAL NAME
BODY PART Grease No. 1483
REACTIVITY 0
FLAMMABILITY 1
PERSONAL PROTECTION B
MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

MSDS No. 06296000
ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RYKO-SAFE PREMIUM GREASE NO. 1483

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Hydrotreated heavy paraffinic distillate	64742-54-7	60-100
Polyurea thickener		3-7

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Warning! Can cause allergic skin reactions. Prolonged or repeated contact may produce some skin irritation.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: Can cause allergic skin reactions. Prolonged or repeated contact may produce some skin irritation.

INHALATION: No significant health hazards identified.

INGESTION: No significant health hazards identified.

HMIS CODE: (Health:0) (Flammability:1) (Reactivity:0)

NFPA CODE: (Health:0) (Flammability:1) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Get medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

Issued: September 24, 1993

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: Not applicable.

UEL: Not determined.

LEL: Not determined.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABILITY CLASSIFICATION: Not Flammable.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None identified.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Contain and remove by mechanical means.

7.0 HANDLING AND STORAGE

HANDLING: Do not get on skin or clothing.

STORAGE: No special requirements.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Do not get on skin or clothing. Wear protective clothing and gloves.

INHALATION: None required; however, use of adequate ventilation is good industrial practice.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Hydrotreated heavy paraffinic distillate	64742-54-7	OSHA PEL: 5 mg/m^3 (oil mist) (1989)(1971) ACGIH TLV-TWA: 5 mg/m^3 (oil mist) ACGIH TLV-STEL: 10 mg/m^3 (oil mist)
Polyurea thickener		No exposure limit established

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Smooth grease. Blue.
pH:	Not determined.
VAPOR PRESSURE:	Not determined.
VAPOR DENSITY:	Not determined.
BOILING POINT:	Not determined.
MELTING POINT:	Not determined.
SOLUBILITY IN WATER:	Negligible, below 0.1%.
SPECIFIC GRAVITY (WATER = 1):	Not determined.
VISCOSITY:	67-110cSt at 40°C ASTM D445
VISCOSITY INDEX:	85 Minimum.
PENETRATION:	445-475 dmm at 77°F

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: None identified.

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: This product had a primary eye irritation score (PEIS) of 0.7/110.0 (rabbit)

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: greater than 2000 mg/kg (rabbit)

ORAL LD50: greater than 5000 mg/kg (rat)

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA:

This product produced dermal sensitization (allergic skin reactions) in guinea pigs.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

No significant aquatic toxicity is expected from proper use and disposal of this product. A test of the water soluble fraction showed that the 96 hour LC50 Pimephales promelas (fathead minnows) exceeded the highest level tested, nominally 1,000 mg/L. A test of enzyme inhibition in the Daphnia magna (water flea) of the same water soluble fractions showed that the EC50 also exceeded 1,000 mg/L (Daphnia magna IQ Toxicity Test).

This product is expected to biodegrade. In a 60-day test, both soil and sewage sludge microorganisms were able to degrade this product. Oxygen consumption (respiration) and decreased grease concentration showed that the product was being used by the microorganisms. About 70% of the product was estimated to be completely degraded in this test, suggesting a half-life of less than 60 days.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name : Not Regulated

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)
Shipping Name : Not determined.

Air (ICAO/IATA)
Shipping Name : Not determined.

European Road/Rail (ADR/RID)
Shipping Name : Not determined.

Canadian Transportation of Dangerous Goods
Shipping Name : Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR PART 302.4): This product is not reportable under 40 CFR Part 302.4.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR PART 370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

SARA TITLE III SECTION 313 (40 CFR PART 372): This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Sensitizer.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

BY:

Donald M. Barker, Director
Product Stewardship & Toxicology

Issued: September 24, 1993
Supersedes: April 28, 1993

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

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AMOCO

MATERIAL SAFETY DATA SHEET

RYKOTAC EP Grease

REACTIVITY 0

FLAMMABILITY 1 PERSONAL PROTECTION B

0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

MSDS No. 08243000
ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RYKOTAC® EP GREASE

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735
EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Hydrotreated heavy paraffinic distillate	64742-54-7	40-70
Organic polyurea thickener		10-30

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product has been evaluated and does not require any hazard warning on the label under OSHA criteria.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: No significant health hazards identified.

SKIN CONTACT: No significant health hazards identified.

INHALATION: No significant health hazards identified.

INGESTION: No significant health hazards identified.

HMIS CODE: (Health:0) (Flammability:1) (Reactivity:0)

NFPA CODE: (Health:0) (Flammability:1) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water.

SKIN: Wash exposed skin with soap and water. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Get medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

Issued: May 26, 1995

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: Not applicable.

UEL: Not determined.

LEL: Not determined.

AUTOIGNITION TEMPERATURE: Not determined.

FLAMMABILITY CLASSIFICATION: Not Flammable.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None identified.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Contain and remove by mechanical means.

7.0 HANDLING AND STORAGE

HANDLING: No special requirements.

STORAGE: No special requirements.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: None required; however, use of eye protection is good industrial practice.

SKIN: Wear protective gloves if prolonged or repeated contact is likely.

INHALATION: None required; however, use of adequate ventilation is good industrial practice.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Hydrotreated heavy paraffinic distillate	64742-54-7	OSHA PEL: 5 mg/m^3 (oil mist) (1989)(1971) ACGIH TLV-TWA: 5 mg/m^3 (oil mist) ACGIH TLV-STEL: 10 mg/m^3 (oil mist)
Organic polyurea thickener		No exposure limit established

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Tacky grease. Red.
pH:	Not determined.
VAPOR PRESSURE:	Not determined.
VAPOR DENSITY:	Not determined.
BOILING POINT:	Not determined.
MELTING POINT:	Not determined.
SOLUBILITY IN WATER:	Negligible, below 0.1%.
SPECIFIC GRAVITY (WATER = 1):	Not determined.
DROPPING POINT:	500°F(260°C) (minimum)
PENETRATION:	265-295 dmm at 77°F

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: None identified.

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA:

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

Issued: May 26, 1995

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name : Not Regulated

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name : Not determined.

Air (ICAO/IATA)

Shipping Name : Not determined.

European Road/Rail (ADR/RID)

Shipping Name : Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name : Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR PART 302.4): This product is not reportable under 40 CFR Part 302.4.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR PART 370): This product is not regulated under SARA Title III Section 311/312.

SARA TITLE III SECTION 313 (40 CFR PART 372): This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Contains a component listed by OSHA. Contains a component listed by ACGIH.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

FOOD CONTACT STATUS

USDA: H2 Status: This product is acceptable to the USDA for use as a lubricant in official meat and poultry establishments provided there is no possibility of the lubricant or lubricated part contacting edible products.

16.0 OTHER INFORMATION

BY:

Donald M. Barker, Director
Product Stewardship & Toxicology

Issued: May 26, 1995
Supersedes: July 10, 1990

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEETS

EMERGENCY PHONE NUMBERS

IN PLANT 1st: Janice Barnes ext 5709 or 866-2284
~~2nd: Madeleine Barnette ext 5706 or 201-5944~~

PHYSICIAN: _____

PARAMEDICS: _____

FIRE DEPT: 173-911

POLICE: _____

FAST ACTION SAVES LIVES!

CU-L500 Printed by LABELMASTER, Div. of AMERICAN LABELMARK CO., CHICAGO, IL 60646

RECEIVING

Sa-Sn

MSDS

19-240 617

Clariant

MATERIAL SAFETY DATA SHEET
SANDODERM BLACK R LIQ

Substance key: KS1332
Version : 1 - 3 / USA

Revision Date: 04/30/2004
Date of printing :05/26/2006

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name: SANDODERM BLACK R LIQ
Material number: 101749
Chemical family: azo dyestuff/chromium complex in aqueous dispersion
Primary product use: leather dye

Section 02 - Composition information on hazardous ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
Chromium (as an integral part of the dye or pigment molecule)	7440-47-3	< 1.5 %
Chromium (III) Compound		< 25 %

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	no
Skin contact:	yes
Eye contact:	yes
Ingestion:	no
Skin absorption:	no

Health effects of exposure:

Chromium (as an integral part of the dye or pigment molecule) (7440-47-3)
Chromium and certain compounds of chromium have been reported to cause damage to the lungs that can result in cumulative damage. Evidence for the carcinogenicity to humans is inadequate for chromium metal and trivalent chromium compounds per IARC and NTP. Dermatitis has been reported from repeated, prolonged contact with chromium compounds. Sensitization may occur on repeated contact. Any known effects for this product are listed below.

Known effects on other illnesses: No known effects on other illnesses for this product.
Listed carcinogen: IARC: No

NTP: No
OSHA: No
Other: No

HMIS:

Health: 1* Flammability: 1 Reactivity: 0 Personal protection: B

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs.

After ingestion:
If ingested, seek medical assistance immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint: no flash point up to the boiling point

Hazardous combustion products:
carbon oxides
chromium oxides
nitrogen oxides
sulfur oxides

Extinguishing media: all

Special fire fighting procedure:
Prevent run off to sewers and bodies of water from fire fighting involving this product as product contains Clean Water Act priority pollutants and may be considered a RCRA hazardous waste.

Unusual fire and explosion hazards: None known.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Contain spill. Contains complexed chromium. Avoid runoff to sewers and bodies of water. Wear proper protective equipment. Absorb on suitable absorbant materials. Clean-up by scrubbing with soap and water, collect cleaning wastes, or remove contaminated soils. Place in proper containers.

Section 07 - Handling and storage

Advice on safe handling:

Avoid getting on skin or in eyes when handling product.
Keep from freezing.

Further info on storage conditions:

Keep containers closed.

Section 08 - Exposure controls / personal protection

Occupational exposure limits:

Component	CAS number:	Regulatory list	Type of value	Value 1	Value 2
CHROMIUM, METAL, AND INSOLUBLE SALTS	7440-47-3	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		1 mg/m3
CHROMIUM, METAL AND CR III COMPOUNDS, AS CR	7440-47-3	US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):		0.5 mg/m3
CHROMIUM, METAL AND CR III COMPOUNDS, AS /CR/		US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):		0.5 mg/m3
CHROMIUM, METAL, AND INSOLUBLE SALTS		US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		1 mg/m3
CHROMIUM, SOL. CHROMIC, CHROMOUS SALTS (AS CR)CHROMIUM, SOL. CHROMIC, CHROMOUS SALTS (AS CR)		US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		0.5 mg/m3
CHROMIUM, METAL AND CR III COMPOUNDS, AS CR		US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):		0.5 mg/m3
CHROMIUM, METAL, AND INSOLUBLE SALTS		US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		1 mg/m3

Respiratory protection: None required in normal use of product.

Hand protection: Butyl Rubber, PVC Or Neoprene.

Eye protection: Safety glasses or chemical splash goggles.

Other protective equipment: Clothing suitable to prevent skin contact.

Advice on system design: Local ventilation recommended - mechanical ventilation may be used.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form: liquid

Color:	black
Odor:	none
pH:	10 - 10.5 (20 °C)
Solubility in water:	(20 °C) miscible
Density:	1.1 g/cm3 (20 °C)
Melting point :	21 °F
Boiling point :	> 212 °F
Viscosity / (dynamic):	app. 98 mPa.s (20 °C) Method: Brookfield

Section 10 - Stability and reactivity

Chemical stability:	Stable.
Hazardous Polymerization:	Will not occur. Conditions to avoid: None known.
Conditions to avoid:	Strong oxidizing agents.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 2,000 mg/kg (rat) Method: 1999/45/EC
Skin irritation:	Non-irritating (rabbit) The product has not been tested. The information is derived from the properties of the individual components.
Eye irritation:	Non-irritating (rabbit) The product has not been tested. The information is derived from the properties of the individual components.
Sensitization:	non-sensitizing (Guinea pig) The product has not been tested. The information is derived from the properties of the individual components.

Section 12 - Ecological information

Product information:

Biodegradation:	< 10 % (28 d, DOC) Little or no biodegradation Method: test result of the active component according to OECD 301E

Fish toxicity:	LC50 > 100 mg/l (96 h, rainbow trout (salmo gairdneri, oncorhynchus mykiss)) Method: estimated from the components
Daphnia toxicity:	EC50 > 100 mg/l (24 h, daphnia magna (water flea)) Method: test result of the active component according to OECD 202
Bacteria toxicity:	IC50 > 100 mg/l (activated sludge) Method: test result of the active component according to OECD 209

Section 13 - Disposal considerations

Waste disposal information:

This product contains chromium predominantly in the trivalent state. Wastes containing chromium may be D007 RCRA hazardous wastes per 40 CFR 261.24.

Composition:

C ,
Cr ,
H ,
N ,
O ,
S ,

RCRA hazardous waste:

See Waste Disposal Information in Section 13.

Section 14 - Transport information

DOT	not restricted
IATA	not restricted
IMDG	not restricted

Section 15 - Regulatory information

TSCA Status:

All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	yes
Delayed/chronic:	yes

SARA 313 information:

This product contains toxic chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right- To-Know Act of 1986 and 40 CFR 372. Any such toxic chemical(s) are shown below. This information must be included in all MSDS's that are copied and distributed for this material.

Component	CAS-no. (Trade secret no.)	Concentration
Chromium (as an integral part of the dye or pigment molecule)	7440-47-3	< 1.5 %
Chromium (III) Compound		< 25 %

Clean Water Act:

Contains priority pollutant chromium at concentrations greater than 0.1%.

Volatile organic compounds VOC:

Content VOC (weight-%): 0.00 %

CERCLA information:

Component	CAS-no. (Trade secret no.)	Percentage	RQ
CHROMIUM	7440-47-3	< 1.5 %	5,000 LBS
CHROMIUM COMPOUNDS		< 25 %	

FDA:

This product has not been evaluated for FDA regulatory requirements.

Section 16 - Other information

Other precautions:

EPA issued a Significant New Use Rule (SNUR) in 40 CFR 721.9575 under Section 5(a)(2) of TSCA applicable to Clariant, as well as customers, restricting the source and use of this material to non-domestic manufacture and non-powder form only. All SNUR substances are subject to TSCA Export Notification provisions.
Keep from freezing.

Label information:

ATTENTION!

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE. HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Wear proper protective equipment. Keep container closed when not in use.

Eye contact: immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs. Skin contact: wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. Wash contaminated clothing before reuse. Ingestion: do not induce vomiting. Seek immediate medical assistance. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if respiratory irritation continues.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SANDODERM BROWN R POWDER
123515 VERSION: 01 REVISED DATE: 02/19/2008

Clariant

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SANDODERM BROWN R POWDER
PRODUCT CODE: 123515
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: MELIODERM HF BROWN R POWDER
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<40	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	<67	25MG CR/M3 IDLH

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

KNOWN EFFECTS ON OTHER ILLNESSES:
NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:
NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:
REMOVE SUBJECT TO FRESH AIR. SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.

FIRST AID FOR INGESTION:
IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:
NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR PROPER PROTECTIVE EQUIPMENT. PRODUCT CONTAINS HEAVY METALS. SPILLS SHOULD BE SWEPT OR SHOVELED UP AND COLLECTED FOR DISPOSAL. CLEAN UP BY REMOVAL OF CONTAMINATED SOIL OR BY FLUSHING WITH A LIMITED QUANTITY OF WATER IF APPROPRIATE. PLACE MATERIAL OR CONTAMINATED SOILS IN A SUITABLE DISPOSAL CONTAINER.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:

BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

SAFETY GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BROWN POWDER, MILD ODOR
ODOR THRESHOLD: NO DATA AVAILABLE
PH (1 % IN WATER): 5.5 - 7.5
SOLUBILITY IN WATER: 100 G/L
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAIABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 0
VOC(EPA METHOD 24/24A): 0
OCTANOL/WATER PARTITION COEFFICIENT:

OTHER PHYSICAL AND CHEMICAL PROPERTIES:
DENSITY: ~ 1 KG/DM3 @ 20`C

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION (CONT.)

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: TEXTILE DYEING OR PRINTING, PIGMENTED, OR REDUCERS OR EXTENDERS, TEXTILE DYEING OR PRINTING PASTE.

SECTION 14 - TRANSPORT INFORMATION (CONT.)

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: ALL COMPONENTS OF THIS PRODUCT ARE NOT REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 0
LOSS ON DRYING (%): 0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CRCMPD	<67	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

SECTION 15 - REGULATORY INFORMATION (CONT.)

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

EPA ISSUED A "SIGNIFICANT NEW USE RULE" (SNUR) IN 40 CFR 721.2095 UNDER SECTION 5(A)(2) OF TSCA APPLICABLE TO CLARIANT AS WELL AS CUSTOMERS RESTRICTING THE SOURCE AND USE OF THIS MATERIAL TO NON-DOMESTIC MANUFACTURE AND THE LIQUID FORM ONLY.
ALL SNUR'S ARE SUBJECT TO TSCA EXPORT NOTIFICATION PROVISIONS.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT. KEEP CONTAINER CLOSED WHEN NOT IN USE.

SECTION 16 - OTHER INFORMATION (CONT.)

AVOID CONTACT WITH PRODUCT. WEAR PROPER PROTECTIVE EQUIPMENT. WASH THOROUGHLY AFTER HANDLING PRODUCT.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

19-240652

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SANDODERM NAVY RB POWDER
123477 VERSION: 01 REVISED DATE: 02/19/2008

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION E

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SANDODERM NAVY RB POWDER
PRODUCT CODE: 123477
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: MELIODERM HF NAVY RB POWDER
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	< 5	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	< 50	25MG CR/M3 IDLH

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:
SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT:
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

SANDODERM NAVY RB: BASED ON POSITIVE RESULTS IN ANIMAL TESTING (GUINEA PIG), SANDODERM RB POWDER MAY CAUSE SKIN SENSITIZATION.

KNOWN EFFECTS ON OTHER ILLNESSES:
NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:
NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:
REMOVE SUBJECT TO FRESH AIR. SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.

FIRST AID FOR INGESTION:
IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:
NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

WEAR PROPER PROTECTIVE EQUIPMENT. PRODUCT CONTAINS HEAVY METALS. SPILLS SHOULD BE SWEPT OR SHOVELED UP AND COLLECTED FOR DISPOSAL. CLEAN UP BY REMOVAL OF CONTAMINATED SOIL OR BY FLUSHING WITH A LIMITED QUANTITY OF WATER IF APPROPRIATE. PLACE MATERIAL OR CONTAMINATED SOILS IN A SUITABLE DISPOSAL CONTAINER.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:

BUTYL RUBBER, PVC OR NEOPRENE

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

EYE PROTECTION:
SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: DARK BLUE POWDER, LITTLE TO NO ODOR
ODOR THRESHOLD: NO DATA AVAILABLE
PH (1 % IN WATER): 7-9
SOLUBILITY IN WATER: 75 G/L @ 68F
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT ('F): NOT AVAILABLE
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT: LOG P O/W < -5.92

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

SECTION 11 - TOXICOLOGICAL INFORMATION (CONT.)

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: TEXTILE DYEING OR PRINTING, PIGMENTED, OR REDUCERS OR EXTENDERS, TEXTILE DYEING OR PRINTING PASTE.

SECTION 14 - TRANSPORT INFORMATION (CONT.)

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: ALL COMPONENTS OF THIS PRODUCT ARE NOT REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: N
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CRCMPD	< 50	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

SECTION 15 - REGULATORY INFORMATION (CONT.)

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

EPA HAS GIVEN ORAL NOTIFICATION THAT THIS PRODUCT WILL BE SUBJECT TO A SIGNIFICANT NEW USE RULE (SNUR) UNDER SECTION 5(A)(2) OF THE TOXIC SUBSTANCES CONTROL ACT. THE SNUR WILL REQUIRE SUBMISSION OF A NOTICE TO EPA 90 DAYS BEFORE MANUFACTURING, PROCESSING, OR USE AS A POWDER.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
SKIN CONTACT MAY CAUSE SKIN SENSITIZATION.

WARNING!
THIS PRODUCT IS NOT ON THE TSCA INVENTORY. OTHER USE WILL SUBJECT USER TO PENALTIES UNDER THE TOXIC SUBSTANCES CONTROL ACT.

CAUTION!
INHALATION OF DUST MAY IRRITATE LUNGS AND CAUSE DELAYED LUNG DAMAGE.

CAUTION!
IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

SECTION 16 - OTHER INFORMATION (CONT.)

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT. KEEP CONTAINER CLOSED WHEN NOT IN USE.

DO NOT USE FOR PURPOSES OTHER THAN RESEARCH AND DEVELOPMENT.

AVOID BREATHING DUST. WEAR NIOSH APPROVED RESPIRATORY PROTECTION.

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

FIRST AID

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES, HOLDING EYELIDS OPEN. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

INGESTION: SEEK PROMPT MEDICAL ATTENTION

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN, SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

SECTION 16 - OTHER INFORMATION (CONT.)

04-000085

19-240 618 exp.

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SANDODERM ORANGE G LIQUID
123475 VERSION: 01 REVISED DATE: 11/01/1995

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------
HEALTH 1
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION B

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SANDODERM ORANGE G LIQUID
PRODUCT CODE: 123475
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: C.I. ACID ORANGE 170
CHEMICAL FAMILY: COBALT METALLIZED AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
COBALT (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-48-4	<2	0.1 MG/M3 OSHA 0.02 MG/M3 ACGIH
COBALT COMPOUND	COCMPD	<35	

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION:
INGESTION:

EFFECTS OF EXPOSURE:

COBALT AND COMPOUNDS OF COBALT: NO CHRONIC EFFECTS ARE KNOWN NOR HAVE BEEN REPORTED FOR THIS COMPOUND UNLESS THE COMPOUND IS SPECIFICALLY LISTED ELSEWHERE IN THIS SECTION.
SKIN AND EYE LESIONS SIMILAR TO ALLERGIC DERMATITIS HAVE BEEN REPORTED FOR COBALT METAL AND DUST. HEMATOLOGIC, DIGESTIVE, AND PULMONARY CHANGES DUE TO EXPOSURE TO COBALT CONTAINING DUST HAVE ALSO BEEN REPORTED. COBALT AND CERTAIN, MOSTLY INORGANIC COMPOUNDS OF OF COBALT HAVE BEEN REPORTED TO BE CARCINOGENIC IN ANIMAL STUDIES--

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

HUMAN EVIDENCE IS INADEQUATE. NO SIMILAR EFFECTS HAVE BEEN REPORTED FOR THIS ORGANIC COBALT BASED PRODUCT.

COBALT COMPOUND: NOTE EFFECTS LISTED ABOVE.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN COBALT.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
NONE KNOWN

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
SMALL SPILLS MAY BE FLUSHED TO THE SEWER OR SWEPT UP. LARGER SPILLS SHOULD BE COLLECTED BY SHOVELLING INTO APPROPRIATE WASTE COLLECTION CONTAINERS. CLEAN UP BY FLUSHING WITH WATER IF DESIRED OR REMOVAL OF CONTAMINATED SOIL. UTILIZE RECOMMENDED CLOTHING AND EQUIPMENT.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NONE REQUIRED IN NORMAL USE OF PRODUCT.

PROTECTIVE GLOVES:
BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:

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SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: ORANGE LIQUID, MILD ODOR
ODOR THRESHOLD: NO DATA AVAILABLE
PH (% IN WATER): ABOUT 11
SOLUBILITY IN WATER: SOLUBLE
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT ('F): > 212
MELTING POINT ('F): < 26
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): >2000 MG/KG BODY WEIGHT

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SECTION 11 - TOXICOLOGICAL INFORMATION (CONT.)

DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
SMALL QUANTITIES MAY BE TREATED IN AEROBIC WASTEWATER TREATMENT SYSTEMS.
LARGER QUANTITIES MAY BE INCINERATED OR LANDFILLED IN APPROVED SYSTEMS.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: TEXTILE DYEING OR PRINTING, PIGMENTED, OR REDUCERS OR EXTENDERS, TEXTILE DYEING OR PRINTING PASTE. NMFC 154800

DOT REGULATED BULK ONLY: NO

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT DETERMINED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT DETERMINED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: N

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
COBALT COMPOUND	COCMPD	<35	NO RQ

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

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SECTION 15 - REGULATORY INFORMATION (CONT.)

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED

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SECTION 16 - OTHER INFORMATION (CONT.)

HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

M A T E R I A L S A F E T Y D A T A S H E E T

CLARIANT CORPORATION
Formerly Known as
Sandoz Chemicals
4000 MONROE ROAD
CHARLOTTE, N.C. 28205
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Call CHEMTREC - Day or Night
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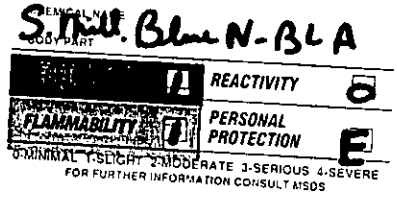
SANDOLAN MILLING BLUE N-BLA POWDER 150 02
111575 REVISED DATE: 11/03/95

Clariant

Page: 1 NOV 0 8 199

CLARIANT 24 Hour No.: (704) 827-9651
For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
ATTN: AL CLARK
BRIDGETTE KNOTTS
123 N MAIN ST
ROCKFORD MI 493410000



H M I S

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	B

A. P R O D U C T I D E N T I F I C A T I O N

TRADE NAME: SANDOLAN MILLING BLUE N-BLA POWDER 150
CAS NUMBER: 4474-24-2
SYNONYMS: C.I. ACID BLUE 80; C.I. 61585
CHEMICAL FAMILY: ANTHRAQUINONE DYE
FORMULA: C32H30N2O8S2.2NA
PRIMARY PRODUCT USE: DYE FOR VARIOUS END USES.

B. H A Z A R D O U S C O M P O N E N T S

COMPONENT	CAS NO.	%	PEL/TLV
PROPYLENE GLYCOL	57-55-6	1.25	NOT ESTABLISHED
LD50(ORAL)(RAT) - 20000 MG/KG			

C. P H Y S I C A L P R O P E R T I E S

BOILING POINT ('F): NOT AVAILABLE
SPECIFIC GRAVITY: 1.18
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE (MM HG): NOT AVAILABLE
LOSS ON DRY: NOT AVAILABLE
VOC (EPA METHOD 24/24A): NOT AVAILABLE
VAPOR DENSITY (AIR = 1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
SOLUBILITY IN WATER: 60 G/L @ 90C
PH (1 % IN WATER): 7.5-8.5
COEFFICIENT OF WATER/OIL DISTRIBUTION: NO DATA AVAILABLE
ODOR THRESHOLD: NO DATA AVAILABLE
APPEARANCE AND ODOR: DARK BLUE GRANULES, MILD ODOR

D. F I R E & E X P L O S I O N D A T A

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS: LEL UNKNOWN UEL UNKNOWN AUTO IGNITION TEMPERATURE ('F): UNKNOWN
EXTINGUISHING MEDIA: WATER X ALCOHOL FOAM X CO2 X DRY CHEMICAL X WATER FOG SPRAY
NO EXTINGUISHING MEDIA

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SPECIAL FIRE FIGHTING PROCEDURES:
NONE KNOWN
UNUSUAL FIRE AND EXPLOSION HAZARDS:
ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

E. REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID:
NONE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID:
NONE KNOWN
INCOMPATIBILITY:
STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN AND SULFUR.

F. PERSONAL PROTECTIVE EQUIPMENT INFORMATION

RESPIRATORY PROTECTION:
NONE REQUIRED UNDER NORMAL USE. USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR NUISANCE DUST.

PROTECTIVE GLOVES:
BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:
SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

G. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: NONE ON PRODUCT

CLARIANT CORPORATION
Formerly Known as
Sandoz Chemicals
4000 MONROE ROAD
CHARLOTTE, N.C. 28205
For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

CLARIANT 24 Hour No.: (704) 827-9651
For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

LD50 (ORAL-RAT): >5000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING EYE IRRITATION-RABBIT: NON-IRRITATING

EXPECTED ROUTE OF ENTRY: SKIN CONTACT SKIN ABSORPTION EYE CONTACT
INHALATION INGESTION

EFFECTS OF EXPOSURE:
PROPYLENE GLYCOL: MAY BE HARMFUL BY INHALATION, INGESTION OR SKIN ABSORPTION. A SKIN AND EYE IRRITANT. HAS BEEN REPORTED TO CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION WHEN ADMINISTERED ORALLY. MOST STANDARD MUTAGENICITY TESTS WITH PROPYLENE GLYCOL HAVE INDICATED THAT IT IS NOT MUTAGENIC (AMES TEST NEGATIVE). IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION, BUT NOT DEFINITIVE FINDINGS OF HAZARDS.

KNOWN EFFECTS ON OTHER ILLNESSES:
NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN: NONE X OSHA NTP IARC OTHER

H. EMERGENCY AND FIRST AID PROCEDURES

SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

INHALATION:
REMOVE SUBJECT TO FRESH AIR. SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.

INGESTION:
IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:
NONE KNOWN

I. SPILL AND DISPOSAL INFORMATION

CLARIANT CORPORATION
Formerly Known as
Sandoz Chemicals
4000 MONROE ROAD
CHARLOTTE, N.C. 28205
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1-800-424-9300

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For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
SMALL SPILLS MAY BE FLUSHED TO THE SEWER OR SWEPT UP. LARGER SPILLS SHOULD BE COLLECTED BY SHOVELLING INTO APPROPRIATE WASTE COLLECTION CONTAINERS. CLEAN UP BY FLUSHING WITH WATER IF DESIRED OR REMOVAL OF CONTAMINATED SOIL. UTILIZE RECOMMENDED CLOTHING AND EQUIPMENT.

WASTE DISPOSAL INFORMATION:
SMALL QUANTITIES MAY BE TREATED IN AEROBIC WASTEWATER TREATMENT SYSTEMS. LARGER QUANTITIES MAY BE INCINERATED OR LANDFILLED IN APPROVED SYSTEMS.

RCRA HAZARDOUS WASTE: NO
RCRA #: NONE

CERCLA (FOR COMPONENTS LISTED IN SECTION B): NO
LOWEST RQ: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL INFORMATION

J. OTHER REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA: REACTIVE HAZARD: NO X YES PRESSURE HAZARD: NO X YES FIRE HAZARD: NO X YES
IMMEDIATE/ACUTE: NO X YES DELAYED/CHRONIC: NO X YES
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: NO X YES

TOXIC CHEMICAL:
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CWA: THIS PRODUCT CONTAINS THE FOLLOWING PRIORITY POLLUTANTS AND THEIR CONCENTRATION:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

FDA/USDA: THIS PRODUCT IS REGISTERED WITH THE FDA/USDA NO X YES FOR USE PER SECTIONS:
NONE

CEPA PRIORITY CHEMICAL:
PRODUCT NOT YET EVALUATED

DOT: REGULATED YES NO X RQ NONE UN/NA NO. NONE PACK GRP:

SHIPPING NAME:
TEXTILE DYEING OR PRINTING, PIGMENTED, OR

CLARIANT CORPORATION
Formerly Known as
Sandoz Chemicals
4000 MONROE ROAD
CHARLOTTE, N.C. 28205
For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

SANDOLAN MILLING BLUE N-BLA POWDER 150 02
111575 REVISED DATE: 11/03/95

CLARIANT 24 Hour No.: (704) 827-9651
For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

REDUCERS OR EXTENDERS, TEXTILE DYEING OR
PRINTING PASTE. NMFC 154800

HAZARD CLASSIFICATION: 99
NOT D.O.T. REGULATED

*

K. SPECIAL PRECAUTIONS

*

HANDLING AND STORAGE INFORMATION:
KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

OTHER PRECAUTIONS:
NONE KNOWN

*

L. STATE REGULATORY INFORMATION

*

PENNSYLVANIA: AS NOTED PER SECTION B.
MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION B OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

*

M. LABEL INFORMATION

*

LABEL HAZARDS:
CAUTION!
ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

LABEL PRECAUTIONS:

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

****

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID ANY UNNECESSARY CONTACT WITH THIS PRODUCT.

CLARIANT CORPORATION
Formerly Known as
Sandoz Chemicals
4000 MONROE ROAD
CHARLOTTE, N.C. 28205
For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

SANDOLAN MILLING BLUE N-BLA POWDER 150 02
111575 REVISED DATE: 11/03/95

CLARIANT 24 Hour No.: (704) 827-9651
For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION IS BELIEVED TO BE TRUE AND ACCURATE. NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEROF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION
FORMERLY KNOWN AS SANDOZ CHEMICALS

19-120615

Clariant

MATERIAL SAFETY DATA SHEET
SANDOTAN SG P

Substance key: KS13443
Version : 1 - 2 / USA

Revision Date: 01/24/2005
Date of printing :06/03/2005

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**SANDOTAN SG P**
Material number:	104104
Primary product use:	Leather tanning and retanning
Chemical family:	polyaryl sulfonate, anionic

Section 02 - Composition information on hazardous ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
Formaldehyde	50-00-0	< 0.2 %

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	yes
Skin contact:	yes
Eye contact:	yes
Ingestion:	yes
Skin absorption:	no

Health effects of exposure:

Formaldehyde (50-00-0)
Mutagenic activity detected in rats-inhalation, mouse-oral and peritoneal, and in numerous in-vitro studies. Poisonous if swallowed. Causes severe irritation and inflammation of mouth,throat and stomach. Severe stomach pains follow with possible loss of consciousness, blindness, stupor, nausea and vomiting leading to severe illness, possibly death. Slightly toxic by ingestion to animals. Highly irritating to nasal passages. Can cause inflammation of lining of nose, throat and lungs. Can cause pneumonia and abnormal accumulation of fluid in the lungs. Moderately toxic via inhalation to animals. Can cause moderate injury to skin, reddening and swelling. Sensitizer (allergic reaction possible). Liquid causes drying, cracking and scaling. Repeated or prolonged contact causes hardening (tanning). Moderately toxic to animals by absorption. Eye contact can cause chemical burn with irreversible damage. Vapor causes irritation, tearing and burning sensation. Carcinogenic to animals, (nasal cancer, lifetime inhalation study, rats). Considered an IARC 1 carcinogen - known to be carcinogenic to

humans. Showed no evidence of reproductive effects in animal studies (mice, rats. Dogs). No evidence of effects on liver, kidneys, nervous system or blood in 180-day studies of rats, monkeys or hamsters.

Known effects on other illnesses: No known effects on other illnesses for this product.

Listed carcinogen:
IARC: Yes
NTP: Yes
OSHA: Yes
Other: Yes

HMIS:

Health: 1* Flammability: 1 Reactivity: 0 Personal protection: F

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs.

After ingestion:
If ingested, seek medical assistance immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint: not applicable

Hazardous combustion products:
carbon oxides
nitrogen oxides
sulfur oxides

Extinguishing media: all

Special fire fighting procedure:
Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.

Unusual fire and explosion hazards: Organic dusts have potential to be explosive with static spark or flame initiation. Maintain good housekeeping for control of dust.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Wear suitable protective equipment. Collect for disposal. Avoid discharge into sewers, on ground or into any body of water.

Section 07 - Handling and storage

Advice on safe handling:
Avoid getting on skin or in eyes when handling product.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

Occupational exposure limits:

Component	CAS number:	Regulatory list	Type of value	Value 1	Value 2
FORMALDEHYDE	50-00-0	US ACGIH Threshold Limit Values Data	Ceiling Limit Value:	0.3 ppm	
FORMALDEHYDE	50-00-0	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):	0.75 ppm	
FORMALDEHYDE	50-00-0	US OSHA Table Z-1-A Data	Short Term Exposure Limit (STEL):	2 ppm	

Respiratory protection: None required under normal use. Use NIOSH approved respiratory protection where exposure levels exceed regulatory limits for particulate matter.

Hand protection: Butyl Rubber, PVC Or Neoprene.

Eye protection: Safety glasses or chemical splash goggles.

Other protective equipment: Clothing suitable to prevent skin contact.

Advice on system design: Local ventilation recommended - mechanical ventilation may be used.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form: powder

Color: white

Odor: yes

pH: 5 - 6 (20 °C, 20 g/l)

Solubility in water: app. 400 g/l (20 °C)
soluble

Melting point :	not applicable
Bulk density:	534 kg/m3

Section 10 - Stability and reactivity

Chemical stability:	Stable.
Hazardous Polymerization:	Will not occur. Conditions to avoid: None known.
Conditions to avoid:	None known.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 5,000 mg/kg (rat) Method: OECD 401 * 1987 acute tox.oral
Skin irritation:	Non-irritating (rabbit) Method: OECD 404 * 1981 dermal irritation / corrosion
Eye irritation:	Non-irritating (rabbit) Method: OECD 405 * 1981 eye irritation / corrosion

Section 12 - Ecological information

Product information:

Biodegradation:	35 % (28 d, DOC) Method: OECD 301E * 1981 Mod. OECD screening test (ready)
Daphnia toxicity:	EC0 > 100 mg/l (24 h, daphnia magna (water flea)) Method: OECD 202.I
	EC50 > 1,000 mg/l (24 h, daphnia magna (water flea)) Method: OECD 202.I
Bacteria toxicity:	IC50 > 100 mg/l (activated sludge) Method: ETAD method 103

Section 13 - Disposal considerations

Waste disposal information:

Small quantities may be treated in aerobic wastewater treatment systems. Larger quantities may be incinerated or landfilled after solidification in permitted systems.

Composition:
C ,
H ,
N ,
Na ,
O ,
S ,

RCRA hazardous waste:
No -- Not as sold.
RCRA number: NONE

Section 14 - Transport information

DOT	not restricted
IATA	not restricted
IMDG	not restricted

Section 15 - Regulatory information

TSCA Status:
All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	yes
Delayed/chronic:	yes

SARA 302 information:

Component	CAS-no. (Trade secret no.)	Concentration
Formaldehyde	50-00-0	< 0.2 %

SARA 313 information:
This product contains toxic chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right- To-Know Act of 1986 and 40 CFR 372. Any such toxic chemical(s) are shown below. This information must be included in all MSDS's that are copied and distributed for this material.

Component	CAS-no. (Trade secret no.)	Concentration
Formaldehyde	50-00-0	< 0.2 %

Clean Water Act:
Contains no known priority pollutants at concentrations greater than 0.1%.

Volatile organic compounds VOC:
Remarks: Not Available

CERCLA information:

Component	CAS-no. (Trade secret no.)	Percentage	RQ
FORMALDEHYDEMETHYLENE OXIDE	50-00-0	< 0.2 %	100 LBS

FDA:

This product has not been evaluated for FDA regulatory requirements.

Section 16 - Other information

Other precautions:

Handle with care. Organic dusts have the potential to be explosive with static spark or flame initiation.

Label information:

CAUTION!

IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN. May present possible cancer hazard due to presence of formaldehyde in low concentrations.

Maintain good housekeeping for dust control. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Wear proper protective equipment. Keep container closed when not in use. Use with ventilation and/or respiratory protection to keep exposure to a minimum. Wash thoroughly after handling.

Eye contact: immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs. Skin contact: wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. Wash contaminated clothing before reuse. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if respiratory irritation continues. Ingestion: do not induce vomiting. Seek immediate medical assistance.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.

MATERIAL SAFETY DATA SHEET

19-453

SANDOZCHEMICALS
4000 MONROE ROAD
CHARLOTTE NC 28205

SANDOZOL BLACK RT POWDER 01
180140 **REVISED DATE:** 03/02/90

N/H

EMERGENCY TELEPHONE: (704) 827-9651
CHEMTREC: (800) 424-9300
FOR MSDS INFORMATION: (704) 547-5600

WOLVERINE WORLD WIDE INC
TANNING DIV
BRIDGETTE
123 N MAIN ST
ROCKFORD MI 493410000

H M I S

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	B

A. PRODUCT IDENTIFICATION

TRADE NAME: SANDOZOL BLACK RT POWDER
CAS NUMBER: 1326-86-9
SYNONYMS: C.I. SOLUBILIZED SULFUR BLACK 2
CHEMICAL FAMILY: SOLUBILIZED SULFUR DYE
FORMULA: SEE C.I. 53196
PRIMARY PRODUCT USE: DATA NOT YET AVAILABLE

B. HAZARDOUS COMPONENTS

COMPONENT	CAS NO.	%	PEL/TLV

NONE UNDER 29 CFR 1910.1200
NONE UNDER TITLE III OF SARA
NONE UNDER CANADIAN HAZARDOUS PRODUCTS ACT (WHMIS)

C. PHYSICAL PROPERTIES

BOILING POINT ('F):	NOT AVAILABLE	SPECIFIC GRAVITY:	NOT AVAILABLE
MELTING POINT ('F):	NOT AVAILABLE	FREEZING POINT ('F):	NOT AVAILABLE
VAPOR PRESSURE (MM HG):	NOT AVAILABLE	PERCENT VOLATILE (BY WEIGHT):	NOT AVAILABLE
VAPOR DENSITY (AIR = 1):	NOT AVAILABLE	EVAPORATION RATE:	NOT AVAILABLE
SOLUBILITY IN WATER:	SOLUBLE	PH (5 % IN WATER):	9.0 - 10.0

COEFFICIENT OF WATER/OIL DISTRIBUTION: NO DATA AVAILABLE
ODOR THRESHOLD: NO DATA AVAILABLE
APPEARANCE AND ODOR: BLACK POWDER, MILD ODOR

D. FIRE & EXPLOSION DATA

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS: LEL UNKNOWN UEL UNKNOWN AUTO IGNITION TEMPERATURE ('F): UNKNOWN
EXTINGUISHING MEDIA: WATER X ALCOHOL FOAM X CO2 X DRY CHEMICAL X WATER FOG SPRAY
NO EXTINGUISHING MEDIA
SPECIAL FIRE FIGHTING PROCEDURES:
NONE KNOWN
UNUSUAL FIRE AND EXPLOSION HAZARDS:
ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

E. REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID:
NONE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID:
NONE KNOWN
INCOMPATABILITY:
STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN AND SULFUR.

F. PERSONAL PROTECTIVE EQUIPMENT INFORMATION

EMERGENCY TELEPHONE: (704) 827-9651
CHEMTREC: (800) 424-9300
FOR MSDS INFORMATION: (704) 547-5600

RESPIRATORY PROTECTION:
NONE REQUIRED IN NORMAL USE, IF DUSTY CONDITIONS ARE PRESENT USE A NIOSH APPROVED RESPIRATOR OR DUST MASK.

PROTECTIVE GLOVES:
BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:
SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

OTHER PROTECTIVE EQUIPMENT:
NONE KNOWN

G. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: NONE ON PRODUCT
LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED EYE IRRITATION-RABBIT: NOT TESTED

EXPECTED ROUTE OF ENTRY: SKIN CONTACT SKIN ABSORPTION EYE CONTACT
INHALATION INGESTION

EFFECTS OF EXPOSURE:
NO TOXICOLOGICAL TEST DATA IS AVAILABLE AND NO INFORMATION WAS FOUND IN THE AVAILABLE LITERATURE FOR ANY EFFECTS OF EXPOSURE. NO HEALTH EVALUATION IS THUS POSSIBLE. HANDLE WITH CARE AND AVOID UNNECESSARY EXPOSURES.

KNOWN EFFECTS ON OTHER ILLNESSES:
NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN: NONE X OSHA NTP IARC OTHER

H. EMERGENCY AND FIRST AID PROCEDURES

SKIN:
WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

EYES:
FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

INHALATION:
REMOVE SUBJECT TO FRESH AIR. SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.

INGESTION:
IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:
NONE KNOWN

I. SPILL AND DISPOSAL INFORMATION

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
SMALL SPILLS MAY BE FLUSHED TO THE SEWER OR SWEPT UP. LARGER SPILLS SHOULD BE COLLECTED BY SHOVELLING INTO APPROPRIATE WASTE COLLECTION CONTAINERS. CLEAN UP BY FLUSHING WITH WATER IF DESIRED OR REMOVAL OF CONTAMINATED SOIL. UTILIZE RECOMMENDED CLOTHING AND EQUIPMENT.

WASTE DISPOSAL INFORMATION:
SMALL QUANTITIES MAY BE TREATED IN AEROBIC WASTEWATER TREATMENT SYSTEMS.

EMERGENCY TELEPHONE: (704) 827-9651
CHEMTREC: (800) 424-9300
FOR MSDS INFORMATION: (704) 547-5600

LARGER QUANTITIES MAY BE INCINERATED OR LANDFILLED IN APPROVED SYSTEMS.

RCRA HAZARDOUS WASTE: NO X YES RCRA# NONE CERCLA: NO X YES RQ NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL INFORMATION

J. OTHER REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA: REACTIVE HAZARD: NO X YES PRESSURE HAZARD: NO X YES FIRE HAZARD: NO X YES
IMMEDIATE/ACUTE: NO X YES DELAYED/CHRONIC: NO X YES
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: NO X YES

TOXIC CHEMICAL:
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

CWA: THIS PRODUCT CONTAINS THE FOLLOWING PRIORITY POLLUTANTS AND THEIR CONCENTRATION:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

FDA/USDA: THIS PRODUCT IS REGISTERED WITH THE FDA/USDA NO X YES FOR USE PER SECTIONS:
NONE

CEPA PRIORITY CHEMICAL:
PRODUCT NOT YET EVALUATED

DOT: REGULATED YES NO X RQ NONE UN/NA NO. NONE

SHIPPING NAME:
TEXTILE DYEING OR PRINTING, PIGMENTED, OR REDUCERS OR EXTENDERS, TEXTILE DYEING OR PRINTING PASTE. NMFC 154800.

HAZARD CLASSIFICATION:
NOT D.O.T. REGULATED

K. SPECIAL PRECAUTIONS

HANDLING AND STORAGE INFORMATION:
KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

OTHER PRECAUTIONS:
NONE KNOWN

L. STATE REGULATORY INFORMATION

PENNSYLVANIA: NON-HAZARDOUS COMPONENTS BEING WITHHELD AS TRADE SECRET INFORMATION.
MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION B OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

M. LABEL INFORMATION

LABEL HAZARDS:
CAUTION!
ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

LABEL PRECAUTIONS:

SANDOZCHEMICALS
4000 MONROE ROAD
CHARLOTTE NC 28205

SANDOZOL BLACK RT POWDER 01
180140 **REVISED DATE:** 03/02/90

EMERGENCY TELEPHONE: (704) 827-9651
CHEMTREC: (800) 424-9300
FOR MSDS INFORMATION: (704) 547-5600

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

****

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID ANY UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION IS BELIEVED TO BE TRUE AND ACCURATE. NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEROF, IS MADE. SANDOZ CHEMICALS ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

SANDOZ CHEMICALS CORPORATION

19-240675

Clariant

MATERIAL SAFETY DATA SHEET
SANDOZOL BLACK RTS P

Substance key: 000000133897
Version : 1 - / USA

Revision Date: 03/19/2004
Date of printing :10/26/2004

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Textile, Leather & Paper Chemicals PS, Telephone: ++49(0)711-9032-170 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**SANDOZOL BLACK RTS P**
Material number:	170751
Chemical family:	sulfur dyestuff -preparation
Primary product use:	Colourant for leather

Section 02 - Composition information on hazardous ingredients

Hazardous Ingredients:

None under 29 CFR 1910.1200
None under Title III of SARA

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	yes
Skin contact:	yes
Eye contact:	yes
Ingestion:	no
Skin absorption:	no

Health effects of exposure:

Any available toxicological data is shown in Section 11. No other information was found in the public literature for any effects of exposure and no health evaluation is thus possible. Therefore, handle with care and avoid unnecessary exposures.

Known effects on other illnesses:	No known effects on other illnesses for this product.
Listed carcinogen:	IARC: No NTP: No OSHA: No Other: No

HMIS:

Health: 1 Flammability: 1 Reactivity: 0 Personal protection: B

Section 04 - First aid measures

After inhalation:
Remove subject to fresh air. Seek medical aid if lung irritation persists or if breathing becomes difficult..

After contact with skin:
Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs.

After ingestion:
If ingested, seek medical assistance immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint:	Not applicable
Self ignition:	not determined
Extinguishing media:	extinguishing measures to suit surroundings

Special fire fighting procedure:
None known

Unusual fire and explosion hazards:	Organic dusts have potential to be explosive with static spark or flame initiation. Maintain good housekeeping for control of dust.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Small spills may be flushed to the sewer or swept up. Larger spills should be collected by shovelling into appropriate waste collection containers. Clean-up by flushing with water if desired or removal of contaminated soil. Utilize recommended clothing and equipment.

Section 07 - Handling and storage

Advice on safe handling:
Avoid getting on skin or in eyes when handling product.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

Respiratory protection:	None required under normal use. Use NIOSH approved respiratory protection where exposure levels exceed regulatory limits for particulate matter.
Hand protection:	Butyl Rubber, PVC Or Neoprene.
Eye protection:	Safety glasses or chemical splash goggles.
Other protective equipment:	Clothing suitable to prevent skin contact.
Advice on system design:	Local ventilation recommended - mechanical ventilation may be used.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form:	Powder
Color:	black
Odor:	weak
pH:	not determined
Solubility in water:	> 200 g/l
Melting point :	not determined
Bulk density:	not determined

Section 10 - Stability and reactivity

Thermal decomposition:	No decomposition if used as prescribed.
Chemical stability:	Stable.
Hazardous Polymerization:	Will not occur. Conditions to avoid: None known.
Conditions to avoid:	Strong oxidizing agents.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 2,000 mg/kg (rat)
Skin irritation:	Non-irritating
Eye irritation:	Non-irritating

Other relevant toxicity information:

The product has not been tested. The information is derived from the properties of the individual components.

Section 12 - Ecological information

Remarks:
No data available.

Section 13 - Disposal considerations

Waste disposal information:
Small quantities may be treated in aerobic wastewater treatment systems. Larger quantities may be incinerated or landfilled in approved systems.

RCRA hazardous waste:
No -- Not as sold.

Section 14 - Transport information

DOT	not restricted
IATA	not restricted
IMDG	not restricted

Section 15 - Regulatory information

TSCA Status:
All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	no
Delayed/chronic:	no

SARA 313 information:
This product does not contain any toxic chemical listed under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986.

Clean Water Act:
Contains no known priority pollutants at concentrations greater than 0.1%.

Volatile organic compounds VOC:
Remarks: Not Available

FDA:
This product has not been evaluated for FDA regulatory requirements.

Section 16 - Other information

Other precautions:

Handle with care. Organic dusts have the potential to be explosive with static spark or flame initiation.

Label information:

CAUTION!

IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

Avoid breathing dust. Avoid contact with eyes, skin and clothing. Wear proper protective equipment. Keep container closed when not in use. Use with ventilation and/or respiratory protection to keep exposure to a minimum. Wash thoroughly after handling. Maintain good housekeeping for dust control.

Eye contact: immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs. Skin contact: wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. Wash contaminated clothing before reuse. Ingestion: do not induce vomiting. Seek immediate medical assistance. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and seek medical attention.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.

Chemical #19-120559

HODGSON
Process Chemicals Inc., Leather

Material Safety Data Sheet

Scotchgard Protector FX-3573

SECTION 1- Chemical Product and Company Identification

Product/Chemical Name: Scotchgard Protector FX-3573
Common Name: Fluorochemical ester

Chemical Formula: N/A MIXTURE
CAS Number: N/A MIXTURE

MANUFACTURER:

HODGSON PROCESS CHEMICALS, INC.
7760 S. 6TH ST.
OAK CREEK, WI 53154
Phone: 414-764-3200 Fax: 414-764-3408

Technical Contact Person: Volker Lorenz

HAZARD RATINGS

HEALTH:	**2**
FLAMMABILITY:	**1**
REACTIVITY:	**0**

EMERGENCY PHONE #: CHEMTREC @ 800-424-9300

SECTION 2-Composition / Information on Ingredients

Material	CAS Number	Content	Hazard
Ethylene Glycol,	107-21-1	8 %	PEL: 50 ppm
Ethyl Acetate	141-78-6	< /= 1 %	PEL: 400 ppm

N.E. = Not Established

WWW_104(e)_017994

SECTION 3 - Hazards Identification

Potential Health Effects

OVEREXPOSURE EFFECTS

Inhalation:

Temporary irritation of nose and throat may occur

Eye:

Temporary irritation or redness may occur.

Skin:

Temporary irritation of the skin may occur in some individuals.

Ingestion:

This product is not intended to be ingested or eaten under normal conditions of use. If ingested it may cause nausea and systemic poisoning.

ACUTE EFFECTS:

Product may cause skin, eye, and nose or throat irritation in some individuals.

CHRONIC EFFECTS:

Prolonged or repeated overexposure above TWA may cause kidney effects. Symptoms of which include reduced urine volume, blood in urine and back pain.

SECTION 4 - First Aid Measures

Eye and Skin Contact:

Remove contaminated clothing. Wash exposed skin with soap and cold water. Flush eyes with cool water for 15 minutes, seek medical attention if irritation persists.

Inhalation:

Remove to fresh air. If symptoms persist contact a physician.

Ingestion:

This product is not intended to be ingested or eaten. If product is ingested, do not induce vomiting. Drink plenty of water. Contact a physician immediately.

SECTION 5 - Fire-Fighting Measures

Flammable Properties

Flash Point: > 212 °F
Method: TCC
Flammable Limits: Not applicable

Explosive Limits

LEL: Not applicable
UEL: Not applicable
Flammable Classification: Not determined

Unusual Fire/Explosion Hazards:

Toxic vapors, gases or particulates may be products of thermal decomposition, including carbon monoxide, carbon dioxide, and hydrogen fluoride. Normal fire-fighting procedures should be followed to avoid inhalation of smoke and gases.

SECTION 6 - Accidental Release Measures

Containment Procedures:

Dam, mop, absorb onto sawdust, and place in suitable container. Do not allow material to contaminate sewers, or other water sources.

Disposal:

Dispose of spilled material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 7 - Handling and Storage

Storage Handling:

Use protective equipment as described in section 8 of this material safety data sheet when handling uncontained material.

Storage to Avoid:

Do not freeze.

HODGSON
Process Chemicals Inc., Leather

Scotchgard Protector FX-3573

SECTION 8 - Exposure Controls / Personal Protection

Eye:
Safety glasses with sideshields, chemical goggles, or face mask recommended.

Skin:
Any chemical impervious glove may be used to protect skin.

Respiratory:
Respiratory protection is not required if mechanical or dilution ventilation is sufficient to keep exposure levels below the applicable limits, if any, outlined in Section 2.

Ventilation:
Local exhaust ventilation should be provided to keep exposure levels to below the applicable exposure limits.

Other:
An apron or coveralls impervious to chemicals may be used to protect clothing. Wash exposed skin after contact.

SECTION 9 - Physical and Chemical Properties

Boiling Point (°F / °C) :	212 ° F	**Density :**	Not applicable
Evaporation Rate :	Not applicable	**pH :**	Not applicable
Specific Gravity : (Water=1)	1.1	**% Volatiles :** (by Weight)	69 %
Vapor Pressure :	18 mm Hg	**Flash Point :**	>212 ° F
Solubility :	Dispersible	**Viscosity :**	Not applicable

Appearance and Odor :
Tawny white emulsion.

SECTION 10 - Stability and Reactivity

Product is stable. Hazardous polymerization will not occur.

Incompatible Materials :

None known

Hazardous Decomposition Products :

Toxic vapors, gases, or particulates may be products of thermal decomposition, including carbon monoxide, carbon dioxide, and hydrogen fluoride.

SECTION 11 - Toxicological Information

ACUTE EFFECTS:

No testing conducted.

CHRONIC EFFECTS:

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

SECTION 12 - Ecological Information

Ecotoxicity:

Product has not been tested for ecotoxicity.

SECTION 13 - Disposal Considerations

Disposal Summary:

Dispose of waste material in approved landfill or incinerate in compliance with federal, state, and local regulations. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the Environmental Protection Agency (EPA).

SECTION 14 - Transport Information

U.S. Department of Transportation:

Hazard Class: Non Regulated

Shipping Name:

Harmonized Tariff Code:

HODGSON
Process Chemicals Inc., Leather

Scotchgard Protector FX-3573

SECTION 15 – REGULATORY INFORMATION

Federal Regulations :

This product has not been classified as a carcinogen by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP). Ethyl Acetate (cas 141-78-6) is listed by the Occupational Safety and Health Administration (OSHA) as a possible carcinogen.

State Regulations :

New Jersey Hazardous Substance List:
- Ethylene Glycol (cas 107-21-1) 8 %

Pennsylvania Hazardous Substance List:
- Ethylene Glycol (cas 107-21-1) 8 %
- Ethyl Acetate (cas 141-78-6) < / = 1 %

Massachusetts Hazardous Substance List:
- Ethylene Glycol (cas 107-21-1) 8 %
- Ethyl Acetate (cas 141-78-6) < / = 1 %

Other Regulatory Information:

Component	CAS #	%	SARA 313	SARA 302 TPQ (lbs)	CERCLA	CERCLA RQ (lbs)
Ethylene Glycol	107-21-1	8 %	Listed	n/a	Yes	5,000 lbs
Ethyl Acetate	141-78-6	< / = 1 %	n/a	n/a	Yes	5,000 lbs

International Regulations :

TSCA : Components of this product are found in the Toxic Substance Control Act (TSCA) inventory.

SECTION 16 - Other Information

THE INFORMATION SUPPLIED HEREIN RELATES TO THE PRODUCT NAMED AND IS BASED UPON INFORMATION HODGSON PROCESS CHEMICALS, INC. CONSIDERS TO BE ACCURATE. NO WARRANTY, EXPRESS OR IMPLIED, IS INTENDED. THIS INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION AND INTERPRETATION.

MSDS Revision Summary:

Date	Reason
03/17/98	Updated form.

Prepared by: Sharon Mathis

WWW_104(e)_017999

Rec'd 2-18-00

3M General Offices

3M Center
St. Paul, MN 55144-1000
1-800-364-3577 or (651) 737-6501 (24 hours)

01-98
2627

MATERIAL SAFETY
DATA SHEET

3M

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DIVISION: SAFETY & SECURITY SYSTEMS DIVISION
TRADE NAME:
3M SCOTCHLITE(TM) 8011 SILVER REFLECTIVE INK,PART A

ISSUED: JANUARY 7, 2000
SUPERSEDES: AUGUST 10, 1999
DOCUMENT: 08-2115-7

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT		
WATER	7732-18-5	70.0	-	80.0
ACRYLIC POLYMERS	Unknown	20.0	-	30.0
AMMONIUM HYDROXIDE	1336-21-6		<	1.0
AMMONIUM NITRATE	6484-52-2		<	0.2
FORMALDEHYDE	50-00-0		<	0.05

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR PART 372:
AMMONIUM HYDROXIDE
AMMONIUM NITRATE
FORMALDEHYDE

2. PHYSICAL DATA

BOILING POINT: > 212 F
VAPOR PRESSURE: ca. 17.5 mm
VAPOR DENSITY: ca. 0.60 Air = 1
EVAPORATION RATE: ca. 1.8 Butyl Acetate = 1
SOLUBILITY IN WATER: complete
SP. GRAVITY: ca. 1.05 Water = 1 ASTM
PERCENT VOLATILE: 65.0-70.0 % by wt
pH: 7.0-8.0
VISCOSITY: 360-480 ps
MELTING POINT: N/A
APPEARANCE AND ODOR: Thick white paste

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: > 250 F
FLAMMABLE LIMITS - LEL: N/A
FLAMMABLE LIMITS - UEL: N/A
AUTOIGNITION TEMPERATURE: N/A
EXTINGUISHING MEDIA:
Not applicable

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

SPECIAL FIRE FIGHTING PROCEDURES:
Not applicable
UNUSUAL FIRE AND EXPLOSION HAZARDS:
No unusual fire or explosion hazards are anticipated.
NFPA HAZARD CODES: HEALTH: 1 **FIRE:** 0 **REACTIVITY:** 0
UNUSUAL REACTION HAZARD: none
OSHA FIRE HAZARD CLASS: Not applicable

4. REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY - MATERIALS TO AVOID:
None known.
HAZARDOUS POLYMERIZATION: Will Not Occur
HAZARDOUS DECOMPOSITION PRODUCTS:
Not determined

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Ventilate area. Collect spilled material. Clean up residue with water. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material. Disposal alternative: Dispose of waste product in a facility permitted to accept chemical waste.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: N/D.
VOC Less H2O & Exempt Solvents: N/D.

Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if the release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: No **PRESSURE:** No **REACTIVITY:** No **ACUTE:** No **CHRONIC:** No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get

6. SUGGESTED FIRST AID (continued)

medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
Drink two glasses of water. Call a physician.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid prolonged or repeated skin contact.

VENTILATION PROTECTION:
Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Keep container closed when not in use.

FIRE AND EXPLOSION AVOIDANCE:
Not applicable.

OTHER PRECAUTIONARY INFORMATION:
HMIS HAZARD RATINGS: HEALTH: 0 FLAMMABILITY: 0 REACTIVITY: 0
PERSONAL PROTECTION: B (See precautions, section 7.)

EXPOSURE LIMITS

INGREDIENTS	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER	NONE	NONE	NONE	NONE	
ACRYLIC POLYMERS	NONE	NONE	NONE	NONE	
AMMONIUM HYDROXIDE	NONE	NONE	NONE	NONE	
AMMONIUM NITRATE	NONE	NONE	NONE	NONE	
FORMALDEHYDE	0.3	ppm	CEIL	ACGIH	
FORMALDEHYDE	1	ppm	TWA	OSHA	
	OSHA STANDARD 1910.1048				
FORMALDEHYDE	2	ppm	STEL	OSHA	
	OSHA STANDARD 1910.1048				

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

EXPOSURE LIMITS

INGREDIENTS	VALUE	UNIT	TYPE	AUTH	SKIN*
FORMALDEHYDE	0.5	ppm	TWA	OSHA	
	OSHA ACTION LEVEL				

*** SKIN NOTATION:** Listed substances indicated with "Y" under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- AIHA: American Industrial Hygine Assoc. Workplace Environmental Exposure Level (
- OSHA: Occupational Safety and Health Administration
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Health effects from inhalation are not expected unless product is heated.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

CANCER:
WARNING: Contains a chemical which can cause cancer. (50-00-0) (NTP anticipated human carcinogen, ACGIH suspected human carcinogen A2, IARC probable human carcinogen 2A, OSHA listed carcinogen, Calif. Proposition 65)

SECTION CHANGE DATES

INGREDIENTS **SECTION CHANGED SINCE** AUGUST 10, 1999 **ISSUE**

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements.

PRODUCT #:
58102004 58102032
58102012 58102050
58102014
58102016

IDENTITY
SELECT-UNTYE - THREAD SEALANT

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

MSDS #: WH0002

Manufacturer's Name: Whitlam Manufacturing

Emergency Telephone Number: 330-334-2524

Address (Number, Street, City, State, and ZIP Code): 200 West Walnut Street

PO Box 380

Wadsworth, OH 44282

Telephone Number for Information: 330-334-2524

Date Prepared: Date entered 11-20-01

Signature of Preparer (optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s)		OSHA PEL	ACGIH T	al)
Isopropanol	CAS#: 67-63-0	400 ppm	400 ppm	
Butyl Cellosolve	CAS#: 111-76-2	50 ppm	25 ppm	

Section III - Physical/Chemical Characteristics

Boiling Point	180 deg F	Specific Gravity (H2O = 1)	1.41
Vapor Pressure (mm Hg)	0.88	Melting Point	NA
Vapor Density (AIR = 1)	>1	Evaporation rate (Butyl Acetate = 1)	0.6

Solubility in Water: Slight

Appearance and Odor: White Paste - Mild odor

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
82 deg F	921 deg F	1.1	10.6

Extinguishing Media: Carbon dioxide, dry chemical, water

Special Firefighting Procedures
NONE

Unusual Fire and Explosion Hazards
contact with strong oxidizers may cause fires or explosions.

Carbon monoxide may be released.

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	XXX	

Incompatibility (Materials to Avoid)
Liquid oxygen systems, liquid sodium, gaseous fluorine, strong oxidizers

Hazardous Decomposition or Byproducts
NA

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	XXX	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	YES

Health Hazards (Acute and Chronic)
NONE

Carcinogenicity	NTP?	IARC Monographs?	OSHA Regulated?
	NO	NO	NO

Signs and Symptoms of Exposure
INHALATION: possible dizziness if used in confined area.

SKIN: may cause mild irritation to sensitive skin.

Medical Conditions
Generally Aggravated by Exposure

Emergency and First Aid Procedure
EYES: flush with water. SKIN: wash with soap and water.

INHALATION: remove to fresh air. INGESTION: consult a physician

Section VII - Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled
Normal good housekeeping procedures

Waste Disposal Method
Disposal to be done in accordance with local, state, and federal regulations.

Precautions to be Taken in Handling and Storage
Store away from heat or open flames.

Close containers after use.

Other Precautions
Wear protective gloves to prevent possible skin absorbtion and dermatitis.

Keep out of the reach of children

Section VIII - Control Measures

Respiratory Protection (Specify Type)
Avoid breathing fumes. If used in a confined area a respirator may be necessary.

Ventilation	Local Exhaust	Special
	Normal ventilation is adequate.	
	Mechanical (General)	Other

Protective Gloves
May be necessary for sensitive skin.

Other Protective Clothing or Equipment
Keep out of eyes. Wear protective goggles where necessary.

Work/Hygenic Practices

TFL USA/CANADA INC. 8301 New Trails Drive The Woodlands, TX 77381 Effective Date: 1/28/2008	Contact: Customer Service (8 am to 5 pm) Phone: 1-800-256-5487 24-Hour Emergency Phone (Chemtrec): 1-800-424-9300 SELLA DERM BLUE M2	TFL

1. PRODUCT IDENTIFICATION

Trade Name: **SELLA DERM BLUE M2**
Description: Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

A unique product composed of proprietary constituents

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	2
Reactivity:	1
Personal Protection:	C

Emergency Overview: Contact with eyes is painful and irritating. Inhalations of mists can irritate nasal passages. Treat as an eye and mild skin irritant.

Route(s) of Entry: Inhalation, eye contact and skin contact.

Eye: Moderately irritating to the eyes.

Skin Contact: May cause irritation with prolonged and repeated contact.

Inhalation: May cause irritation. Additional effects may include coughing.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: Call a physician immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: 100 F < FP <200 F

General Hazards: No unusual hazards
Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water
Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear. Containers can build up pressure if exposed to heat (fire). Cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:

Ventilate area. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. Use personal protective equipment as described in Section 8. Large amounts of spill on floors may be slippery. Care should be exercised to avoid falls.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only. Spilled material is slippery.

Special Handling: Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Mix well before use.

Special Storage: Store in a cool, dry place. Keep container closed when not in use. Keep from freezing. Periods of exposure to high temperatures should be avoided. Avoid contamination with water

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional personal protective equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with with the OSHA PPE Standard (29 CFR 1910.132) be conducted before using this product.

Eye Protection: Wear chemical safety goggles.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANZI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.

Engineering Controls: Use adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Blue
Odor:	Solvent
pH	NE
Solubility in Water:	Completely Miscible
Specific Gravity:	1.00
Boiling Point:	NE
Evaporation Rate:	NE
Density:	8.35 Lbs/Gal
Vapor Density:	NE
% Volatile(s):	NE

NE= Not Evaluated

10. STABILITY AND REACTIVITY

Stability:	This product is normally stable but may become unstable at high temperatures or pressures.
Incompatibility:	Strong Acids
Hazardous Decomposition Product:	Will not occur under normal conditions.
Hazardous Polymerization:	Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information: No information available.

12. ECOLOGICAL INFORMATION

Ecological Information: Prevent discharge or release into lakes, ponds or other waterways.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused. Not classified as hazardous waste.

14. TRANSPORT INFORMATION

Proper Shipping Name	1-Methoxy-2-Propanol	
Hazard Class	3	
UN Number	UN 3092	
Packing Group	III	
Substance	None	None
RQ	NA Lbs	NA Lbs

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: All components are listed in TSCA inventory.

SARA 302/313: The product contains the following SARA 302/313 listed components:

CAS #	Name
None	

Right-To-Know: This product contains components that are required to be listed under the following states' right-to-know laws.

	CAS #	Name
New Jersey	107-98-2	2-PROPANOL, 1-METHOXY-
Pennsylvania	107-98-2	2-PROPANOL, 1-METHOXY-
Massachusetts	107-98-2	PROPYLENE GLYCOL METHYL ETHER
California-Prop 65	None	

16. OTHER INFORMATION

Approved By: Dan Pierce
Approval Date: 1/28/2008

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST BLACK BR LIQ
Product Code: 101500
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
20306-75-6 Common Name: Concentration	N-methyl-acetoacetamide N-methyl-acetoacetamide 4.00 % by wt					N	N	N
Confidential Common Name: Concentration	Proprietary azo metal complex dye Proprietary azo metal complex dye > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	D

Route(s) of Entry: Dermal and inhalation

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

WWW_104(e)_018010

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

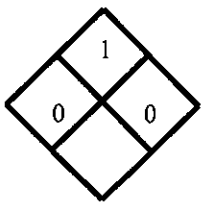
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill. Avoid personal contact. Take up with absorbent material into approved closable container(s). Flush contaminated area with water. Wear protective equipment specified (Section 8).

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear splash-proof chemical goggles.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Use NIOSH approved respirator where there is likelihood of inhalation of the product mist.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Black
Odor:	Odorless
Solubility in Water:	Miscible
Boiling Point:	~ 100 ° C (~212. ° F)
pH:	5 - 6.5 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0.0 g/g

Chemical Oxygen Demand (COD): 0.450 g/g

Activated Sludge Respiration Inhibition Test: IC50 > 400 mg/l (3 hr)

Aquatic Toxcicity: (Zebra Fish) LC50 = 17 mg/l (96h)

Ecological Information: TOC: 14.9% biological elimination: 60-70%, doc analysis, OECD 302b metal content: 1.7% Chromium

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): Contains Chromium.

16. OTHER INFORMATION

MSDS No:	480
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/06/97
Supersedes Date:	11/06/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Customer Service
8am to 5pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec): 1-800-424-9300

19-240605

Effective Date: 6/08/01

Material Safety Data Sheet

MSDS No: 669

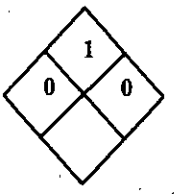
SECTION 1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST Black HS-02

Product Code: 106661

Material Code: 106661

Chemical Family: Azo Dye Preparation



NFPA RATING

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PROTECTIVE EQUIPMENT	E

HMIS RATING

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients in this product.

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: Low hazard for usual industrial handling.

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: LD50 > 2,000 mg/kg (Rat, oral)

SECTION 4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink.

Inhalation: Remove to fresh air. Get medical attention.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: Not applicable

Fire Fighting Extinguishing Media: Carbon dioxide, foam, dry chemical, water spray

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

SECTION 7. HANDLING AND STORAGE

Signal Word: NOTICE!

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

WWW_104(e)_018015

Appearance:	Powder
Color:	Black
Odor:	Odorless
Solubility in Water:	~ 40 g/l at 20°C (68 °F)
pH:	7 - 8 @ 10 g/l

Volatile(s): Not evaluated

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: The toxicological properties of this product have not been fully investigated.

SECTION 12. ECOLOGICAL INFORMATION

Biodegradability: >70%, biodegradable OECD 301A

Activated Sludge Respiration Inhibition Test: Not evaluated

Aquatic Toxcicity: (Zebra Fish) LC50 = >100 mg/l @ 96 hr

Ecological Information: None

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

SECTION 14. TRANSPORT INFORMATION

Department of Transportation: Not regulated

SECTION 15. REGULATORY INFORMATION

Occupational Safety and Health Act (OSHA): This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Section 8(b) - Inventory Status: Chemical components comply with TSCA regulations.

Additional Federal Information: None

SECTION 16. OTHER INFORMATION

MSDS No:	669
Approved By:	Jim Biles
Approval Date:	6/08/01
Supersedes Date:	8/03/99

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018017

19-240626

TFL
TOGETHER FOR LEATHER

TFL LEDERTECHNIK GMBH & CO. KG

Postfach 2209, D-79576 Weil am Rhein

SAFETY DATA SHEET (91/155/EC)

Product-Ident-No. 5830
30 KG 5829
Date 22.09.2000
Replaces date: 01.02.2000

TRADE NAME

SELLA FAST BLUE BB

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Chemical description	Mixture of triaryl methan and anthraquinone dyes
Product responsibility	TFL LEDERTECHNIK GMBH & CO.KG, D-79576 WEIL-AM-RHEIN
Responsible department	Qualität + Produktesicherheit, Fax 0033 38989 5660
Supplier	TFL USA/CANADA Inc. - NC 27410, Greensboro - FAX +1336 297 2717
Emergency telephone	++41 61 696 5151 **Fax** ++41 61 696 5550

2. COMPOSITION / INFORMATION ON INGREDIENTS

Information on ingredients	%	CAS-No.	Symbol	R-Phrases
not applicable				

3. HAZARDS IDENTIFICATION

No hazard classification according to EU Guidelines

4. FIRST-AID MEASURES

Inhalation	See section 16 of MSDS
Skin contact	Remove contaminated clothing. Wash affected skin with soap and plenty of water.
Eye contact	Rinse immediately with plenty of water for at least 10 minutes.
Ingestion	Wash out mouth with water. Drink plenty of water.
Advice for the doctor	Symptomatic treatment

5. FIRE-FIGHTING MEASURES

Fire extinguishing agents	Waterspray, foam, powder, carbon dioxide.
Restrictions	No restrictions.
Fire/explosion hazard	None
Main combustion gas	Carbon, nitrogen and sulfur oxides
Personal protection	Self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal protection	Respiratory protection.
Environmental precautions	No special precautions
Spillage procedure	Damp down. Avoid dust. Scoop into marked containers for disposal as chemical waste. Flush residues away with water.
Additional information	

– Not applicable

Post-it® Fax Note 7671	Date 10/12	# of pages ▶
To Sue Binker	From Elaine	
Co./Dept. WWW Inc	Co. TFL	
Phone #	Phone #	
Fax # 616-866-0992	Fax #	

7. HANDLING AND STORAGE

Occupational hygiene	Avoid ingestion, inhalation, skin and eye contact. Handle in accordance with good industrial hygiene practice and any legal requirements.
Fire precautions	
Storage facilities	Store in a cool, dry area with adequate ventilation
Segregation	No special precautions.
Storage conditions	Keep containers closed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with occupational exposure limits	None
Personal protection	Respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Form	Powder
	Colour	Blue
	Odour	

RELEVANT SAFETY DATA

Melting point	--	°C					
Boiling point	--	°C					
Flash point	–	°C					
Thermal decomposition	> 200	°C					
Ignition temperature	460	°C					
Auto-ignition							
Oxidising properties	None						
Explosion limits	Lower	–	Upper		–		
Vapour pressure	--		mbar	at			
Density				at			
Solubility in water	40		g/l	at	60	°C	
pH	4-6				10	g/l	
Partition coefficient			log Pow				
Viscosity	--		mPa.s	at		°C	

10. STABILITY AND REACTIVITY

Conditions to avoid	None
Materials to avoid	None
Hazardous decomposition products	None under normal storage conditions
Additional information	

11. TOXICOLOGICAL INFORMATION

Acute toxicity	(LD50)	3440	mg/kg	Rat(oral)
Primary irritation	(Skin)	Non-irritant	EC 83	Rabbit
	(Eye)	Non-irritant	EC 83	Rabbit
Adverse effects in man		See 16 in MSDS		
Additional information				

12. ECOLOGICAL INFORMATION

Bioelimination

Summary

ECOTOXICOLOGICAL DATA

Bacterial toxicity	BST IC50	> 300	mg/l	
Fish toxicity	LC0	> 1000	mg/l	
	LC50	> 1000	mg/l	96 h Zebra fish

Summary: Not toxic or harmful to aquatic organisms

Behaviour in treatment plants: No inhibition. No nitrification inhibition known

ADDITIONAL ECOLOGY DATA

BOD5	0	mgO2/g	COD	260	mgO2/g	TOC 9.5 %
Phosphorus content			< 0.1	%	as phosphate	
Organohalogen content			--	%		
Metal content			--		Metal content under the ETAD recommended limits	
Tested material			Standardised product			

13. DISPOSAL CONSIDERATIONS

Product	Incineration, landfill. Observe local regulations.
Waste Key No.	070399
Waste classification (91/689/EC)	
Contaminated packaging	Contaminated, empty containers must be disposed of as chemical waste.

SELLA FAST BLUE BB

Product-Ident-No. 5830
30 KG 5829
Date 22.09.2000

14. TRANSPORT INFORMATION

KEEP AWAY FROM FOODSTUFFS

UN Number ADR/RID	FREE	ADR/RID Class	FREE	
Correct technical name ADR/RID				
UN Number IMO	FREE	IMDG Class	FREE	Packing Group
Correct technical name IMO				
UN Number ICAO	FREE	ICAO Class	FREE	Packing Group
Correct technical name ICAO				

15. REGULATORY INFORMATION

CLASSIFICATION AND LABELLING 83/467 EC

Symbol and classification – Not classified as hazardous

R-Phrases

S-Phrases

Contains

16. OTHER INFORMATION

This product contains a reactive dye.

Cases of respiratory sensitisation have been observed with reactive dyes.

Care should be taken to avoid inhalation.

Should an individual become sensitized a physician should be consulted and all contact with reactive dyes must cease immediately.

17. INFORMATION ON INTENDED USE

Leather dye

The products of TFL LEDERTECHNIK GMBH & CO.KG are technical grade and unless otherwise stated or agreed are recommended only for industrial use in applications involving the pretreatment dyeing retanning fatliquoring or finishing of leather.Other intended uses including their use in consumer products governed by specific legislation or standards should be referred to the manufacturer. The data contained in the SDS apply only to TFL LEDERTECHNIG GMBH & CO.KG products sold under the stated trade names. Technical information in support will be provided by TFL LEDERTECHNIK GMBH & CO.KG at the request of competent authorities.

19 - 240 513

TFL USA/CANADA INC. 4214 Beechwood Drive Greensboro, NC 27410 Effective Date: 10/3/2005	Contact: Customer Service (8 am to 5 pm) Phone: 1-800-256-5487 24-Hour Emergency Phone (Chemtrec): 1-800-424-9300 SELLA FAST BROWN H	TFL

1. PRODUCT IDENTIFICATION

Trade Name: **SELLA FAST BROWN H**
Description: Azo Dye Preparation

2. COMPOSITION / INFORMATION ON INGREDIENTS

A unique product composed of proprietary constituents

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	E

Emergency Overview:	May cause mild eye and skin irritation.
Route(s) of Entry:	Inhalation, eye contact and skin contact.
Eye:	Direct liquid contact may cause slight irritation.
Skin Contact:	Prolonged contact can cause mild skin irritation.
Inhalation:	Inhalation of concentrated vapors from heating the product may cause irritation of the respiratory tract and can cause dizziness and nausea.

4. FIRST AID MEASURES

Eyes:	Flush eyes with water for at least 15 minutes. Get medical attention.
Skin:	Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.
Ingestion:	Call a physician immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.
Inhalation:	Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash Point:	>200 F
General Hazards:	No unusual hazards
Fire Fighting Extinguishing Media:	Carbon dioxide, dry chemical, foam, water
Fire Fighting Instructions:	As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear. Containers can build up pressure if exposed to heat (fire). Cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:	Ventilate area. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. Use personal protective equipment as described in Section 8. Large amounts of spill on floors may be slippery. Care should be exercised to

7. HANDLING AND STORAGE

Precautions:	Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only. Spilled material is slippery.
Special Handling:	Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Mix well before use.
Special Storage:	Store in a cool, dry place. Keep container closed when not in use. Keep from freezing. Periods of exposure to high temperatures should be avoided. Avoid contamination with water

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment:	A safety shower and eye wash fountain should be readily available. To identify additional personal protective equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with with the OSHA PPE Standard (29 CFR 1910.132) be conducted before using this product.
Eye Protection:	Wear chemical safety goggles.
Skin Protection:	Use impermeable gloves to minimize skin contact.
Respiratory Protection:	A respiratory protection program that meets OSHA 1910.134 and ANZI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.
Engineering Controls:	Use adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Brown
Odor:	Odorless
pH	8.0-9.0
Solubility in Water:	100 g/l @ 20 C
Specific Gravity:	NE
Boiling Point:	NE
Evaporation Rate:	NE
Density:	NE
Vapor Density:	NE
Volatile(s):	NE

NE= Not Evaluated

10. STABILITY AND REACTIVITY

Stability:	This product is stable under normal storage conditions.
Incompatibility:	None
Hazardous Decomposition Product:	Will not occur under normal conditions.
Hazardous Polymerization:	Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information:	No information available.

12. ECOLOGICAL INFORMATION

Ecological Information: Prevent discharge or release into lakes, ponds or other waterways.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused. Not classified as hazardous waste.

14. TRANSPORT INFORMATION

Department of Transportation: Not Regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: All components are listed in TSCA inventory.

SARA 302/313: The product contains the following SARA 302/313 listed components:

CAS #	Name
None	

Right-To-Know: This product contains components that are required to be listed under the following states' right-to-know laws.

	CAS #	Name
New Jersey	None	
Pennsylvania	7757-82-6	SODIUM SULFATE, SOLUTION
Massachusetts	8012-95-1	OIL MIST (MINERAL)
	7757-82-6	SODIUM SULFATE, SOLUTION
California-Prop 65	None	

16. OTHER INFORMATION

Approved By: Dan Pierce
Approval Date: 10/3/2005

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST BROWN HC
Product Code: 102280
Chemical Family: Azo Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
497-19-8 Common Name: Concentration	SODIUM CARBONATE Sodium carbonate 1.00 % by wt	NE	NE	NE	NE	N	N	N
72275-95-7 Common Name: Concentration	Proprietary dye Proprietary dye 64.20 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: May cause eye irritation.

Eye: (Rabbits) Irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

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4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

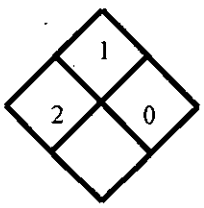
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: WARNING! Causes eye irritation. Avoid contact with eyes. Keep container closed. Wash thoroughly after handling. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Brown
Odor:	Odorless
Solubility in Water:	> 8 g/l at 60 ° C (140. ° F)
pH:	8 - 9.5 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0 mg 2/g

Chemical Oxygen Demand (COD): 765 mg 2/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Trout) LC50 = 6 mg/l (48h)

Ecological Information: TOC: 20%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	275
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	09/20/97
Supersedes Date:	09/20/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST BROWN OM
Product Code: 102340
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

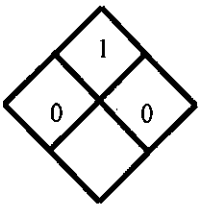
Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

WWW_104(e)_018029

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Brown

Odor:	Odorless
Solubility in Water:	> 50 g/l at 60 ° C (140. ° F)
Decomposition Temperature:	> 200 ° C (>392. ° F)
pH:	7 - 9 @ 10 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0 mg 02/g

Chemical Oxygen Demand (COD): 325 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Trout) LC50 = 6 mg/l (48 hr)

Ecological Information: Metal content: 3.6% iron biological elimination < 10%, doc analysis, OECD 303a(mod) TOC: 11.2%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	336
Approved By:	Eric Massey
Approved Date:	10/19/97
Supersedes Date:	10/19/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

19 - R.D

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410

Effective Date: 6/11/01

Contact: Customer Service
8am to 5pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec):
1-800-424-9300

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

19-240649 moved to production

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST GREY C-LL
Product Code: 102370
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

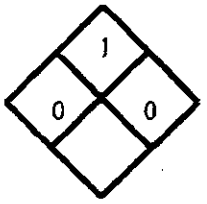
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Odor:	Odorless
Solubility in Water:	> 20 g/l at 60 ° C (140. ° F)

WWW_104(e)_018034

Decomposition Temperature: > 300 ° C (>572. ° F)
pH: 7.5 - 10 (10 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0 mg 02/g

Chemical Oxygen Demand (COD): 240 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Zebra Fish) LC50 about 133 mg/l (96h)

Ecological Information: Biological elimination < 10%, toc/doc analysis, OECD 303a(mod) metal content: 1.0% Chromium TOC: .9%

3. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

4. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	358
Approved By:	Jim Biles
Approved Date:	6/11/01
Supersedes Date:	5/19/98

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

4214/101 BEECHWOOD DRIVE • GREENSBORO, NC 27410-8107 • PHONE 336 297 2700 • FAX 336 297 2717

WWW_104(e)_018036

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Customer Service
8am to 5pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec): 1-800-424-9300

19 - 240 267

Effective Date: 6/11/01

Material Safety Data Sheet

MSDS No: 362

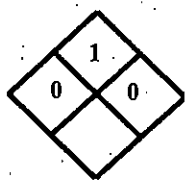
1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST ORANGE 2GC 200

Product Code: 102410

Material Code: 102410

Chemical Family: Azo Metal Complex Dye



NFPA RATING

Health	0
Flammability	1
Reactivity	0
Protective Equipment	E

HMIS RATING

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
Proprietary Concentration	Chromium complex dye 34.40 % by wt	NE	NE	NE	NE	NE	No	No	No
Confidential Concentration	Paraffin oil 6.00 % by wt	NE	NE	NE	NE	NE	No	Yes	Yes

NE = Not Established

3. HAZARDS IDENTIFICATION

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Orange
Odor:	Odorless
Solubility in Water:	> 70 g/l at 60°C (140 °F)
Decomposition Temperature:	> 250°C (> 482 °F)
pH:	7.5 - 10.5 (10 g/l) water

WWW_104(e)_018038

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0.0 g/g

Chemical Oxygen Demand (COD): 0.40 g/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Zebra Fish) LC50 > 1,000 mg/l (96h)

Ecological Information: TOC: 14.9% metal content: 2.1% Chromium

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Department of Transportation: Not regulated

15. REGULATORY INFORMATION

US Federal Regulations:

Clean Water Act - Priority Pollutants (PP): None known

WWW_104(e)_018039

Occupational Safety and Health Act (OSHA): The paraffin oil component contains 15 polynuclear aromatic hydrocarbons (PAHS) listed as carcinogens by NTP.

Resource Conservation and Recovery Act (RCRA): Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

SARA Title III: Section 304 - CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

SARA Title III: Section 311/312 - Hazard Communcation Standard (HCS): Immediate (Acute) health hazard; Delayed (Chronic) health hazard

TSCA Section 8(b) - Inventory Status: All components are listed in TSCA inventory.

Additional Federal Information: None

16. OTHER INFORMATION

MSDS No:	362
Approved By:	Jim Biles
Approved Date:	6/11/01
Supersedes Date:	4/24/00

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018040

19.240 268 — Used to be Sella Fast Red C 200 b

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410

TOGETHER FOR LEATHER

Contact: Customer Service
8am to 5 pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec): 1-800-424-9300

Effective Date: 02/08/02 **Material Safety Data Sheet** **MSDS No. 576**

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST RED CN
Product Code: 102421
Chemical Family: Azo Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	Safety glasses with side shields, chemical apron, impervious gloves, dust mask F

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) not an irritant

Skin Contact: (Rabbits) not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

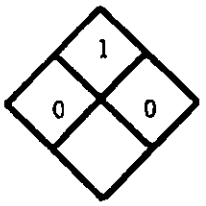
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Respónse Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eyewash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Red
Odor:	Odorless
Solubility in Water:	> 10 g/l at 60 ° C (140. ° F)
pH:	7 - 8 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 60 mg 02/g

Chemical Oxygen Demand (COD): 1,215 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxicity: (Zebra Fish) LC50 = 46 mg/l (96 hour)

Ecological Information: TOC: 42.5%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	576
Approved By:	Jim Biles
Title:	Regulatory Affairs
Approved Date:	02/08/02
Supersedes Date:	04/13/98

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST RED C 200
Product Code: 102420
Chemical Family: Azo Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

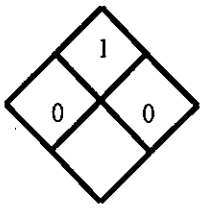
Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

WWW_104(e)_018045

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Red

Odor:	Odorless
Solubility in Water:	> 10 g/l at 60 ° C (140. ° F)
pH:	7 - 8 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 60 mg 02/g

Chemical Oxygen Demand (COD): 1,215 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Zebra Fish) LC50 = 46 mg/l (96 hour)

Ecological Information: TOC: 42.5%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	415
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/05/97
Supersedes Date:	11/05/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018048

19-240629

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 07/28/98

TFL TOGETHER FOR LEATHER

New

Material Safety Data Sheet

To: Sue Bonter
4 pages
4/20/01

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FAST RED RB
Product Code: 101600
Chemical Family: Azo Dye

2. HAZARDOUS COMPONENTS / INGREDIENT INFORMATION

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Trade Secret Common Name: Concentration:	Proprietary dye Leather dye > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: Not evaluated

Skin Contact: Not evaluated

Skin Absorption: Not evaluated

Ingestion: Not evaluated

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

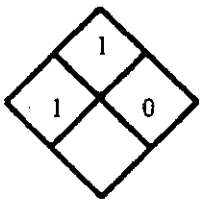
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: NOTICE! The chemical, physical and toxicological properties of this product have not been fully investigated. Exercise due care and avoid contact with eyes, skin or clothing. Avoid breathing dust, vapor or mist. Do not swallow. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Odor:	Odorless
Solubility in Water:	~3 % at 150 ° F (65.56 ° C)

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): Not evaluated

Chemical Oxygen Demand (COD): Not evaluated

Activated Sludge Respiration Inhibition Test: Not evaluated

Ecological Information: None

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	406
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/05/97
Supersedes Date:	11/05/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

DEC 02 2002

SAFETY DATA SHEET according to EC directive 93/112/EC

219-RED

SELLA FAST RED RTN

Version *1*
Revision Date 18.10.2002

Print Date 18.10.2002

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Trade name : SELLA FAST RED RTN

Company : TFL Ledertechnik GmbH
Am Schwarzenbach 2
79576 WEIL AM RHEIN

Product information : TFL France SA, BP 310, FR-68333 HUNINGUE Cedex
Tel: +33 (0)3 8989 5642 Fax: +33 (0)3 8989 5660

Emergency telephone number : Johnson Controls IFM AG, CH - 4002 BASEL
Tel: +41(0)61 696 5151 Fax: +41(0)61 468 4584

ORFILA (France) Tel: +33(0)1 45 42 59 59

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Azo dye preparation

3. HAZARDS IDENTIFICATION

Risk advice to man and the environment

Not a hazardous substance or preparation according to EC-directives 67/548/EWG or 88/379/EWG.

4. FIRST AID MEASURES

Inhalation : Move to fresh air.
If you feel unwell, seek medical advice (show the label where possible).

Skin contact : Take off all contaminated clothing immediately.
Wash off with soap and plenty of water.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

Ingestion : Do not induce vomiting without medical advice.

Notes to physician

Treatment : Symptomatic treatment.

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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media which must not be used for safety reasons	:	none
Specific hazards during fire fighting	:	Risk of dust explosion.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	In the event of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	goggles gloves protective suit
Environmental precautions	:	Try to prevent the material from entering drains or water courses.
Methods for cleaning up	:	Avoid dust formation. Take up mechanically and collect in suitable container for disposal.

7. HANDLING AND STORAGE

Handling

Safe handling advice	:	Smoking, eating and drinking should be prohibited in the application area.

Storage

Requirements for storage areas and containers	:	Keep containers tightly closed in a dry, cool and well-ventilated place.
Further information	:	none
Advice on common storage	:	No special restrictions on storage with other products.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Remarks : none

Personal protective equipment

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

Protective measures : In case of insufficient ventilation wear suitable respiratory equipment.
Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : powder

Colour : red

Odour : none

Safety data

Melting point/range : not applicable

Boiling point/range : not applicable

Water solubility : Note: completely soluble

10. STABILITY AND REACTIVITY

Conditions to avoid :
Note: none

Hazardous decomposition products : sulphur oxides

Hazardous reactions : Exothermic reaction with oxidising agents
reducing agents
Note: No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Skin irritation : rabbit
Result: irritant effects

Eye irritation : rabbit
Result: irritant effects

Further information : Information given is based on data obtained from the main

component.
Health injuries are not known or expected under normal use.
Dyes may cause a skin coloration

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Further information on ecology

Additional ecological information : There is no data available for this product.

13. DISPOSAL CONSIDERATIONS

Product : Can be incinerated, when in compliance with the Environment Protection Act 1990 (Process Guidance Note IPR5/1)

Contaminated packaging : Empty containers should be taken for local recycling or waste disposal.

14. TRANSPORT INFORMATION

The data in this chapter are independent of the packaging

Not dangerous goods in the meaning of RID/ADR, ADNR, IMDG-Code, ICAO/IATA-DGR

15. REGULATORY INFORMATION

labelling according to EEC Directive

Symbol(s): : Not applicable.

National legislation

Water contaminating class : WGK 1 slightly water endangering

16. OTHER INFORMATION

Further Information

Use: Chemical for Leather

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the

specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

WWW_104(e)_018057

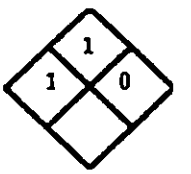
TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Dick Hriniak
8am to 5pm Phone: (336) 297-2702
24-Hour Health/Environmental Emergency Phone: 1-800-424-9300

TFL
TOGETHER FOR LEATHER

Effective Date: 9/21/99 **Material Safety Data Sheet** MSDS No: 746

1. PRODUCT IDENTIFICATION



NFPA RATING

Health	1
Flammability	1
Reactivity	0
Protective Equipment	E

HMIS RATING

Trade Name: SELLAFLOR® BROWN P

Product Code: 300177

Material Code: 300177

MSDS Category: Commercial Product

Chemical Family: Mixture of Azo Dyes

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
Trade Secret Concentration	Proprietary dye < 17.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Trade Secret Concentration	Salt of naphthalenesulfonic acid polymer < 35.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Confidential Concentration	Proprietary azo dye < 20.00 % by wt	NE	NE	NE	NE	NE	No	No	No

NE = Not Established

3. HAZARDS IDENTIFICATION

Route(s) of Entry: Inhalation and dermal.

Potential Health Effects: None known

Carcinogenicity (NTP): Not listed.

Carcinogenicity (IARC): Not listed.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

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Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: > 163° C (> 325 ° F)

General Hazards: No unusual hazards.

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire Fighting Equipment: Use self contained breathing apparatus

Fire and Explosion Hazards: No unusual hazards.

Hazardous Combustion Products: Burning may produce oxides of carbon, nitrogen or sulfur.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Soak up with inert absorbent material. Shovel into closable container for disposal. Wear protective equipment specified in Section VIII.

7. HANDLING AND STORAGE

Signal Word: NOTICE!

Special Handling: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Yellow-brown
Odor:	Odorless
Odor Threshold:	Not evaluated
Solubility in Water:	> 40% wt at 25 C
Decomposition Temperature:	250°C (482 °F)

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pH: 8 - 9 (1 g/l) Water
Coefficient of water/oil: Not evaluated

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: May liberate formaldehyde at high temperatures.

11. TOXICOLOGICAL INFORMATION

Eye Irritation: (Rabbits) not an irritant*

Skin Irritation: (Rabbits) not an irritant*

Inhalation Toxicity: Not evaluated

Sensitization: Not evaluated

Acute Oral Effects: (Rats) LD50 > 2,000 mg/kg

Acute Dermal Toxicity: Not evaluated

Toxicology Information: *Note: The toxicology tests were conducted on the major components.

12. ECOLOGICAL INFORMATION

Ecotoxicity: (Trout) LC50 > 100 mg/l (96 HR)

Biological Oxygen Demand (BOD5): Not evaluated

Chemical Oxygen Demand (COD): Not evaluated

Activated Sludge Respiration Inhibition Test: IC50 > 300 mg/l

Ecological Information: None

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state (provincial) and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

WWW_104(e)_018060

Department of Transportation: Not regulated

15. REGULATORY INFORMATION

US Federal Regulations:

Clean Water Act - Priority Pollutants (PP): None known

Occupational Safety and Health Act (OSHA): This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

Resource Conservation and Recovery Act (RCRA): Not a hazardous waste under RCRA (40 CFR 261.21).

SARA Title III: Section 304 - CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4)

TSCA Section 8(b) - Inventory Status: All components are listed in TSCA inventory.

International Regulations:

Canadian Inventory Status: Not all components are listed on the Canadian DSL.

Canadian WHMIS: Not a controlled product

State Regulations:

California Proposition 65: Formaldehyde (gas) is listed by the State of California (Proposition 65) as a substance known to cause cancer. This product contains < 0.02% formaldehyde.

16. OTHER INFORMATION

MSDS No:	746
Approved By:	Eric Massey
Title:	MSDS Administrator
Approved Date:	09/21/99
Supersedes Date:	09/20/99

Other Information: Key to Abbreviations Used:

NA	Not Applicable
NE	Not Established
NJTSR No.	New Jersey Trade Secret Registry Number
®	Registered Trademark owned by or licensed to TFL USA/Canada, Inc, TFL Ledertechnik AG, TFL Ledertechnik GmbH & Co. KG or TFL Italia SpA

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This supersedes any previous information.

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WWW_104(e)_018062

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLAFLOR® GREEN BN
Product Code: 102470
Chemical Family: Mixture of Azo and Azo Metal Complex Dyes

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

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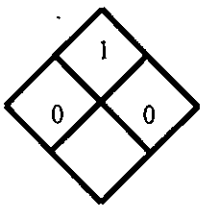
5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Green

Odor:	Odorless
Solubility in Water:	> 55 g/l at 60 ° C (140. ° F)
Decomposition Temperature:	> 100 ° C (>212. ° F)
pH:	4 - 6.5 (10 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Reaction with reducing agents may form aniline.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0 mg 02/g

Chemical Oxygen Demand (COD): 475 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Zebra Fish) LC50 > 1,000 mg/l (48h)

Ecological Information: Metal content: 1.2% Chromium TOC: 16.5%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	298
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	09/20/97
Supersedes Date:	09/20/97

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This supersedes any previous information.

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLAFLOR® GREY RLN
Product Code: 101650
Chemical Family: Mixture of Azo Metal Complex Dyes

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Trade Secret Concentration	Proprietary chromium complex dye > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Contains an ingredient that may cause respiratory irritation which could lead to coughing and difficulty in breathing.

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 = 4,250 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

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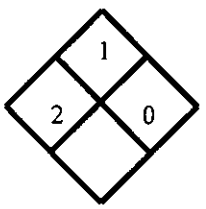
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: WARNING! Causes respiratory tract irritation. Avoid breathing dust, vapor, mist or gas. Keep container closed. Use with adequate ventilation. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Odor:	Odorless
Solubility in Water:	> 30 g/l at 60 ° C (140. ° F)
pH:	7.5 - 8.5 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): Not evaluated

Chemical Oxygen Demand (COD): Not evaluated

Activated Sludge Respiration Inhibition Test: Not evaluated

Aquatic Toxcicity: (Zebra Fish) LC50 = 550 mg/l (48h)

Ecological Information: Total elemental Chromium content - 2.2%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	475
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/06/97
Supersedes Date:	11/06/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018070

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Dick Hriniak
8am to 5pm Phone: (336) 297-2702
24-Hour Health/Environmental Emergency Phone: 1-800-424-9300

TOGETHER FOR LEATHER

Effective Date: 9/21/99 **Material Safety Data Sheet** MSDS No: 748

1. PRODUCT IDENTIFICATION

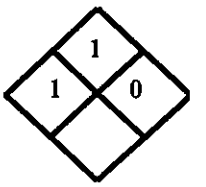
Trade Name: SELLAFLOR® HAVANA P

Product Code: 106551

Material Code: 106551

MSDS Category: Commercial Product

Chemical Family: Mixture of Azo Dyes



NFPA RATING

Health	1
Flammability	1
Reactivity	0
Protective Equipment	E

HMIS RATING

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
Trade Secret Concentration	Proprietary dye 7.00 - 9.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Trade Secret Concentration	Proprietary Acid dye < 18.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Confidential Concentration	Proprietary dye < 9.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Trade Secret Concentration	Salt of naphthalenesulfonic acid polymer < 35.00 % by wt	NE	NE	NE	NE	NE	No	No	No

NE = Not Established

3. HAZARDS IDENTIFICATION

Emergency Overview: Dust inhalation could cause temporary irritation of the nose and throat. Prolonged skin contact may cause mild temporary irritation with some individuals. Eye contact may lead to temporary irritation and redness.

Route(s) of Entry: Inhalation and dermal.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention if irritation persists.

Skin: Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

General Hazards: No unusual hazards.

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire Fighting Equipment: Use self contained breathing apparatus

Fire and Explosion Hazards: No unusual hazards.

Hazardous Combustion Products: Burning may produce oxides of carbon, nitrogen or sulfur.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into closable container for disposal. Avoid creating excessive dust. Avoid breathing dust. Wear protective equipment specified in Section VIII.

Water Spill: Prevent entry into drains and surface water.

7. HANDLING AND STORAGE

Signal Word: NOTICE!

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Yellow-brown
Odor:	Odorless
Solubility in Water:	> 40% wt at 20 C
Decomposition Temperature:	260°C (500 °F)
pH:	8 - 9 (1 g/l) Water

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: May liberate formaldehyde at high temperatures.

11. TOXICOLOGICAL INFORMATION

Eye Irritation: (Rabbits) not an irritant*

Skin Irritation: (Rabbits) not an irritant*

Inhalation Toxicity: Not evaluated

Sensitization: Not evaluated

Acute Oral Effects: (Rats) LD50 > 2,000 mg/kg

Acute Dermal Toxicity: Not evaluated

Toxicology Information: *Note: The toxicology tests were conducted on the major components.

12. ECOLOGICAL INFORMATION

Ecotoxicity: (Trout) LC50 > 100 mg/l (96 HR)

Biological Oxygen Demand (BOD5): Not evaluated

Chemical Oxygen Demand (COD): Not evaluated

Activated Sludge Respiration Inhibition Test: IC50 > 300 mg/l

Ecological Information: No information for determination of unusual environmental fate or toxicity is available at this time.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state (provincial) and federal regulations.

WWW_104(e)_018073

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Department of Transportation: Not regulated

15. REGULATORY INFORMATION

US Federal Regulations:

Clean Water Act - Priority Pollutants (PP): None known

Occupational Safety and Health Act (OSHA): This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

Resource Conservation and Recovery Act (RCRA): Not a hazardous waste under RCRA (40 CFR 261.21).

SARA Title III: Section 304 - CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4)

TSCA Section 8(b) - Inventory Status: All components are listed in TSCA inventory.

International Regulations:

Canadian Inventory Status: Not all components are listed on the Canadian DSL.

Canadian WHMIS: Not a controlled product

State Regulations:

California Proposition 65: Formaldehyde (gas) is listed by the State of California (Proposition 65) as a substance known to cause cancer. This product contains < 0.02% formaldehyde.

16. OTHER INFORMATION

MSDS No: 748
Approved By:
Title:

Other Information: Key to Abbreviations Used:

NA	Not Applicable
NE	Not Established
NJTSR No.	New Jersey Trade Secret Registry Number
®	Registered Trademark owned by or licensed to TFL USA/Canada, Inc, TFL Ledertechnik AG, TFL Ledertechnik GmbH & Co. KG or TFL Italia SpA

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018075

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLA® FLUID Black M-R
Product Code: 101500
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
20306-75-6 Common Name: Concentration	N-methyl-acetoacetamide N-methyl-acetoacetamide 4.00 % by wt					N	N	N
Confidential Common Name: Concentration	Proprietary azo metal complex dye Proprietary azo metal complex dye 33.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	D

Route(s) of Entry: Dermal and inhalation

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

WWW_104(e)_018076

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

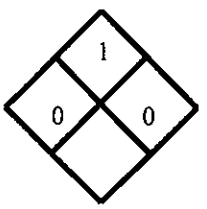
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill. Avoid personal contact. Take up with absorbent material into approved closable container(s). Flush contaminated area with water. Wear protective equipment specified (Section 8).

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear splash-proof chemical goggles.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Use NIOSH approved respirator where there is likelihood of inhalation of the product mist.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Black
Odor:	Odorless
Solubility in Water:	Miscible
Boiling Point:	~ 100 ° C (~212. ° F)
pH:	5 - 6.5 @ 1 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0.0 g/g

Chemical Oxygen Demand (COD): 0.450 g/g

Activated Sludge Respiration Inhibition Test: IC50 > 400 mg/l (3 hr)

Aquatic Toxcicity: (Zebra Fish) LC50 = 17 mg/l (96h)

Ecological Information: TOC: 14.9% biological elimination: 60-70%, doc analysis, OECD 302b metal content: 1.7% Chromium

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): Contains Chromium.

16. OTHER INFORMATION

MSDS No:	553
Approved By:	Eric Massey
Title:	Regulatory Affairs

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018079

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® BLUE H
Product Code: 102530
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Trade Secret Concentration	Proprietary chromium complex dye > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

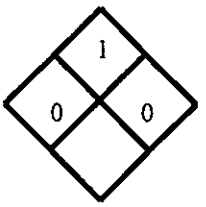
WWW_104(e)_018080

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Blue
Odor:	Odorless
Solubility in Water:	> 100 g/l at 20 ° C (68. ° F)
Decomposition Temperature:	> 200 ° C (>392. ° F)
pH:	6 - 8.5 (10 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 350 mg 02/g

Chemical Oxygen Demand (COD): 970 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 100 mg/l (3 hr)

Aquatic Toxcicity: (Zebra Fish) LC50 = 190 mg/l (96h)

Ecological Information: Metal content: 0.9% Chromium TOC: 36.2%

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium). Under certain conditions Chromium containing wastes may be excluded from hazardous waste classification under 40 CFR 261.4

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	473
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/06/97
Supersedes Date:	11/06/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018083

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Dick Hriniak
8am to 5pm Phone: (336) 297-2702
24-Hour Health/Environmental Emergency Phone: 1-800-424-9300

TOGETHER FOR LEATHER

Effective Date: 5/15/00 **Material Safety Data Sheet** MSDS No: 451

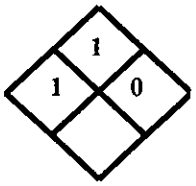
1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® BROWN H LIQ

Product Code: 102760

Material Code: 102760

Chemical Family: Mixture of Metal Complex Dyes



NFPA RATING

Health	1
Flammability	1
Reactivity	0
Protective Equipment	C

HMIS RATING

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
105-60-2 Concentration	E-Caprolactam 10.20 % by wt	NE	NE	NE	NE	NE	No	No	No
57-55-6 Concentration	1,2-Propanediol 5.00 % by wt	NE	NE	NE	NE	NE	No	No	No
Proprietary Concentration	Cobalt Complex Dye 7.80 % by wt	NE	NE	NE	NE	NE	No	No	No
Trade Secret Concentration	Proprietary chromium complex dye > 1.00 % by wt	NE	NE	NE	NE	NE	No	No	No

NE = Not Established

3. HAZARDS IDENTIFICATION

Emergency Overview: May cause eye, skin and respiratory tract irritation, especially with repeated or prolonged contact.

Route(s) of Entry: Dermal and inhalation

Acute Exposure: Contains caprolactam, which is an eye, skin, and respiratory tract irritant and is harmful if swallowed or absorbed through the skin. Caprolactam produced nervous system disturbances (including tremors and convulsions) and cardiovascular effects (an initial increase, then a decrease in blood pressure; increased respiratory rate) in laboratory animals. Overexposure to caprolactam in humans has been associated with dermatitis, nausea, vomiting, and seizures.

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 2,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: > 163° C (> 325 ° F)

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill. Avoid personal contact. Take up with absorbent material into approved closable container(s). Flush contaminated area with water. Wear protective equipment specified (Section 8).

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Not normally required - aqueous solution

WWW_104(e)_018085

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Brown
Odor:	Odorless
Solubility in Water:	Miscible
Boiling Point:	> 100° C (> 212 ° F) Ca.
pH:	5 - 7 (10 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: The toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 260 mg 2/g

Chemical Oxygen Demand (COD): 660 mg 2/g

Activated Sludge Respiration Inhibition Test: IC50 > 400 mg/l (3h)

Aquatic Toxcicity: (Zebra Fish) LC50 = 47 mg/l (96h)

Ecological Information: Metal content: 0.7% Chromium TOC: 21.6% biological elimination: 80-90%, doc analysis, OECD 302b

Adopt sound work practices so that the product is not released into the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Department of Transportation: Not regulated

15. REGULATORY INFORMATION

US Federal Regulations:

Resource Conservation and Recovery Act (RCRA): Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium). Under certain conditions Chromium containing wastes may be excluded from hazardous waste classification under 40 CFR 261.4

SARA Title III: Section 304 - CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4). Regulated under CERCLA by inclusion of E-Caprolactam under section 112(b) of the Clean Air Act. Reportable quantity = 1 lb

SARA Title III: Section 311/312 - Hazard Communcation Standard (HCS): Immediate (acute) health hazard.

TSCA Section 8(b) - Inventory Status: All components are listed in TSCA inventory.

Additional Federal Information: None

16. OTHER INFORMATION

MSDS No:	451
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/06/97
Supersedes Date:	11/30/99

Other Information: Key to Abbreviations Used:

NA	Not Applicable
NE	Not Established
NJTSR No.	New Jersey Trade Secret Registry Number
®	Registered Trademark owned by or licensed to TFL USA/Canada, Inc, TFL Ledertechnik AG, TFL Ledertechnik GmbH & Co. KG or TFL Italia SpA

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018087

WWW_104(e)_018088

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® RED B
Product Code: 102550
Chemical Family: Azo Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: LD50 > 4,000 mg/kg (Rat)

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

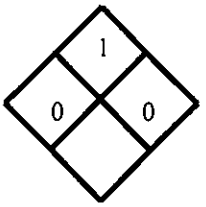
Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

WWW_104(e)_018089

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Red

Odor: Odorless
pH: 6 - 7.5

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: The toxicological tests were carried out on a component.

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 130 mg 02/g

Chemical Oxygen Demand (COD): 1,185 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 300 mg/l

Aquatic Toxcicity: (Trout) LC50: 400 mg/l (48h)

Ecological Information: Toc: 38.5% biological elimination: 60-70%, TOC analysis, OECD 303a (mod) the ecological data was carried out on a component.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: None

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	241
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	09/19/97
Supersedes Date:	09/19/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018092

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Dick Hriniak
8am to 5pm Phone: (336) 297-2702
24-Hour Health/Environmental Emergency Phone: 1-800-424-9300

TOGETHER FOR LEATHER

Effective Date: 4/24/00 **Material Safety Data Sheet** MSDS No: 381

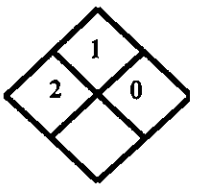
1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® RED H

Product Code: 101710

Material Code: 101710

Chemical Family: Azo Metal Complex Dye



NFPA RATING

Health	2
Flammability	1
Reactivity	0
Protective Equipment	E

HMIS RATING

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
Confidential	Proprietary chromium complex dye	NE	NE	NE	NE	NE	No	No	No

NE = Not Established

3. HAZARDS IDENTIFICATION

Route(s) of Entry: Inhalation and dermal

Acute Exposure: May cause eye irritation.

Eye: (Rabbits) Irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 2,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: WARNING! Causes eye irritation. Avoid contact with eyes. Keep container closed. Wash thoroughly after handling. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Solubility in Water:	> 70 g/l at 20°C (68 °F)
Decomposition Temperature:	> 200°C (> 392 °F)
pH:	5 - 8 (10 g/l) water

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 245 mg 02/g

Chemical Oxygen Demand (COD): 930 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 100 mg/l (3 hr).

Aquatic Toxcicity: (Zebra Fish) LC50 = 145 mg/l (96h)

Ecological Information: TOC: 34.4% metal content: 2.2% Chromium

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Department of Transportation: Not regulated

15. REGULATORY INFORMATION

US Federal Regulations:

Occupational Safety and Health Act (OSHA): This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

WWW_104(e)_018095

Resource Conservation and Recovery Act (RCRA): Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium). Under certain conditions Chromium containing wastes may be excluded from hazardous waste classification under 40 CFR 261.4

SARA Title III: Section 304 - CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

SARA Title III: Section 311/312 - Hazard Communcation Standard (HCS): Immediate (acute) health hazard.

TSCA Section 8(b) - Inventory Status: All components are listed in TSCA inventory.

Additional Federal Information: None

16. OTHER INFORMATION

MSDS No:	381
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/05/97
Supersedes Date:	07/31/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

WWW_104(e)_018096

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® RED H LIQ
Product Code: 101720
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
57-55-6 Common Name: Concentration	1,2-Propanediol Propylene glycol 2.90 % by wt	NE	NE	NE	NE	N	N	N
Trade Secret Common Name: Concentration	Proprietary chromium complex dye Leather Dye 22.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	1
Reactivity:	0
Personal Protection:	C

Route(s) of Entry: Dermal and inhalation

Acute Exposure: May cause eye irritation.

Eye: (Rabbits) Irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: LD50 > 2,000 mg/kg (Rat)

WWW_104(e)_018097

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

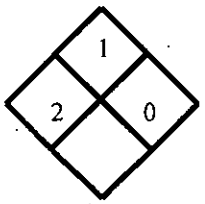
Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill. Avoid personal contact. Take up with absorbent material into approved closable container(s). Flush contaminated area with water. Wear protective equipment specified (Section 8).

7. HANDLING AND STORAGE

Precautions: WARNING! Causes eye irritation. Avoid contact with eyes. Keep container closed. Wash thoroughly after handling. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: Not normally required - aqueous solution

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Red
Odor:	Odorless
Solubility in Water:	Miscible
Boiling Point:	~ 100 ° C (~212. ° F)
pH:	6.5 - 7.5 @ 10 g/l water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: The acute oral toxicity and skin irritation test results are for the active ingredient.

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 30 mg 02/g

Chemical Oxygen Demand (COD): 295 mg 02/g

Activated Sludge Respiration Inhibition Test: IC50 > 400 mg/l (3h)

Aquatic Toxcicity: (Zebra Fish) LC50 = 200 mg/l (96h)

Ecological Information: Metal content: 1.0% Chromium TOC: 9.3% biological elimination: 30-40%, doc analysis, OECD 302b

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium). Under certain conditions Chromium containing wastes may be excluded from hazardous waste classification under 40 CFR 261.4

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	332
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/02/97
Supersedes Date:	11/02/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: SELLASET® YELLOW H
Product Code: 102580
Chemical Family: Azo Metal Complex Dye

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Trade Secret Common Name: Concentration	Proprietary cobalt complex dye Leather dye > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: May cause eye irritation.

Eye: (Rabbits) Irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

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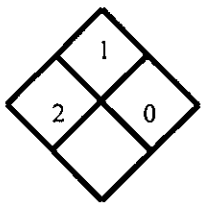
Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: None required.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: WARNING! Causes eye irritation. Avoid contact with eyes. Keep container closed. Wash thoroughly after handling. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Powder
Color:	Yellow
Odor:	Odorless
Solubility in Water:	> 100 g/l at 20 ° C (68. ° F)
pH:	5 - 6.5 (1 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 270 mg 02/g

Chemical Oxygen Demand (COD): 910 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition > 100 mg/l (3h)

Aquatic Toxcicity: (Zebra Fish) LC50 = 480 mg/l (96h)

Ecological Information: TOC: 33.6% biological elimination < 10%, doc analysis, OECD 301a metal content 1.9% cobalt

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Not a hazardous substance under CERCLA (40 CFR 302.4).

RCRA: Not a hazardous waste under RCRA (40 CFR 261).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): None known

16. OTHER INFORMATION

MSDS No:	460
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	11/06/97
Supersedes Date:	11/06/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

USA/CANADA INC.
4214 Beechwood Drive
Greensboro, NC 27410
(336) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 02/03/99

TFL TOGETHER FOR LEATHER

Material Safety Data Sheet

19-120624

1. PRODUCT IDENTIFICATION

Trade Name: Sellasol® KM Liq.
Product Code: 300022
Chemical Family: Condensation Product Of Aromatic Sulfonic Acids
Intended Use : Leather Auxilliary

2. HAZARDOUS COMPONENTS / INGREDIENT INFORMATION

CAS#	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS		
		ACGIH		OSHA		IARC	NTP	OSHA
		TWA	STEL	STEL	PEL			
Confidential Concentration:	Proprietary Mixture > 1.00 % by wt	NE	NE	NE	NE	N	N	N

NE = Not Established N = No

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	C

Emergency Overview: May cause eye and skin irritation, especially with prolonged contact.

Route(s) of Entry: Inhalation if heated to form vapors or mists, eye contact and skin contact.

Eye: May cause irritation upon contact.

Skin Contact: Prolonged contact with skin may cause irritation. Irritation may be evidenced by reddening and swelling of affected area with possible itching, burning or other discomfort.

Ingestion: Ingestion may cause severe gastric disturbance.

Inhalation: Inhalation of heated, concetrated vapors may cause irritation of the respiratory system with accompanying dizziness and nausea.

4. FIRST AID MEASURES

Eyes: Flush with water for 15 minutes. If irritation, or continued discoloration or discomfort develops see a physician.

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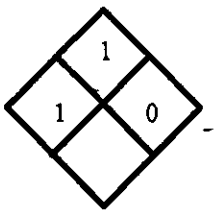
Skin: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Call a physician if symptoms occur. Wash clothing before reuse.

Ingestion: Treat symptoms and seek medical attention for any adverse effects.

Inhalation: Adverse effects are not expected with normal process exposures. If irritation develops, remove to fresh air. If irritation persists, seek medical attention.

5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Flash Point: > 212 °F (100. °C)

Fire Fighting Extinguishing Media: Carbon dioxide, alcohol resistant foam, dry chemical, water spray.

Fire Fighting Equipment: Use self contained breathing apparatus

Fire and Explosion Hazards: Excessive heat may liberate irritating oxides of sulfur.

Hazardous Combustion Products: Burning may produce carbon monoxide, carbon dioxide, oxides of sulfur and various hydrocarbons.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill. Avoid personal contact. Take up with absorbent material into approved closable container(s). Flush contaminated area with water. Wear protective equipment specified (Section 8). Spilled material may become very slippery!

7. HANDLING AND STORAGE

Precautions: May cause skin and eye irritation. Avoid contact with skin and eyes. Avoid inhalation of vapors or mists. Do not ingest. Wash thoroughly after handling. For industrial use only.

Special Handling: Handle as a potential eye and skin irritant.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: To identify additional personal protective equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with with the OSHA PPE Standard (29 CFR 1910.132) be conducted before using this product.

Eye Protection: Safety glasses required. Goggles recommended if potential exists for direct exposure to splashes.

Skin Protection: Use impervious gloves, rubber or vinyl apron and protective neoprene or rubber boots.

Respiratory Protection: None normally required. Use a NIOSH approved respirator where there is likelihood of excessive inhalation of the product mist.

Engineering Controls: Work in well ventilated areas. Do not breath dust, mists or vapors.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown liquid
Color:	Yellow
Odor:	Odorless
Solubility in Water:	Miscible
Specific Gravity:	1.15
Evaporation Rate:	$\leq$ 1 (butyl acetate = 1)
pH:	6.2 - 7.2 As Is

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Strong acids.

Hazardous Decomposition Products: Burning may produce oxides of carbon, and sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Eye Irritation: May cause eye irritation.

Skin Irritation: May cause skin irritation.

Toxicology Information:
No other data has been made available.

12. ECOLOGICAL INFORMATION

Ecological Information: Prevent discharge or release into lakes, ponds or other waterways.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

WWW_104(e)_018107

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

To: Sue Bonter

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

OSHA Status: This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

TSCA Inventory Status: All components are listed in TSCA inventory.

SARA Title III: Section 311/312 - Hazardous Chemical(s): Immediate (acute) health hazard.

SARA Title III: Section 313 - Toxic Chemical(s): This product does not contain a toxic chemical for routine annual 'Toxic Chemical Release Reporting' under Sec. 313 (40 CFR 372).

16. OTHER INFORMATION

MSDS No:	672
Approved By:	Eric Massey
Title:	Regulatory Affairs

Other Information: Key to Abbreviations Used:

NA	Not Applicable
NE	Not Established
NJTSR No.	New Jersey Trade Secret Registry Number
®	Registered Trademark owned by or licensed to TFL USA/Canada, Inc, TFL Ledertechnik AG, TFL Ledertechnik GmbH & Co. KG or TFL Italia SpA

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information onatianed herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

Sample 07-000136

TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410

Contact: Customer Service
8am to 5pm Phone: 1-800-256-5487
24-Hour Emergency Phone (Chemtrec) : 1-800-424-9300

Effective Date: 5/30/01 **Material Safety Data Sheet** MSDS No: 513

1. PRODUCT IDENTIFICATION

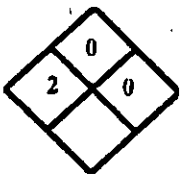
Trade Name: SELLATAN® CR

Product Code: 106920

Material Code: 106920

MSDS Category: Sample

Made In: U.S.A.



NFPA RATING

Health	2
Flammability	0
Reactivity	0
Protective Equipment	D

HMIS RATING

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
		ACGIH		OSHA		MFR.	IARC	NTP	OSHA
		TWA	STEL	PEL	STEL				
Trade Secret Concentration	Proprietary Polymer > 1.00 % by wt	NE	NE	NE	NE	NE	No	No	No

NE = Not Established

3. HAZARDS IDENTIFICATION

Emergency Overview: Mildly Corrosive! Contact with eyes will cause severe burning. Repeated contact with the skin may result in burns to the skin.

Route(s) of Entry: Inhalation, eye contact and skin contact.

Potential Health Effects: Causes eye burns. Repeated skin contact may lead to dermatitis, and burns in severe cases. Inhalation of vapors can cause irritation of the respiratory tract and lightheadedness and/or dizziness.

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Call a physician if symptoms occur. Wash clothing before reuse.

"Sara"

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink and get immediate medical attention.

Inhalation: Remove to fresh air. Call a physician if irritation of nasal/respiratory tract develops.

5. FIRE FIGHTING MEASURES

General Hazards: Non-combustible. Heating above 200°C (392°F), or in fire conditions, may cause toxic decomposition products. These products may cause severe eye, nose, throat, and lung irritation.

Fire Fighting Extinguishing Media: Not applicable, aqueous solution.

Other Flammable Properties: Can release hydrogen and SO2 at high temperatures.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Contain spill and neutralize with soda ash or mild alkali. Soak up with inert absorbent material. Shovel into closable container for disposal. Wear protective equipment specified in Section 8. Avoid eye and skin contact. Can be diluted with water.

Large Spill: Contain spill with earthen dikes or with sand.

7. HANDLING AND STORAGE

Signal Word: WARNING! Corrosive

Precautions: Corrosive - causes eye burns. Do not get in eyes. Wear chemical goggles. Avoid breathing dust, vapor or mist. Keep container closed. For industrial use only.

Special Handling: Avoid contact with eyes and conditions which may produce mists or aerosols. Do not inhale mists or vapors. Wear NIOSH approved respirator where there is a likelihood of product mist. Wash thoroughly after handling. Keep container closed. Treat as an acid.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area. Wear a faceshield, rubber gloves, and apron when handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Dark Amber
Solubility in Water:	Complete
Specific Gravity:	1.292 - 1.308
pH:	2.48 As Is

Other Properties: Total Solids: 43.7%

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

TFL USA/CANADA INC. 4214 Beechwood Drive Greensboro, NC 27410 Effective Date: 10/4/2005	Contact: Customer Service (8 am to 5 pm) Phone: 1-800-256-5487 24-Hour Emergency Phone (Chemtrec): 1-800-424-9300 SELLATAN FL LIQ.	TFL

1. PRODUCT IDENTIFICATION

Trade Name: **SELLATAN FL LIQ.**
Description: Cresol Resin Solution

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Chemical Identity	%
64-18-6	FORMIC ACID	Proprietary
50-00-0	FORMALDEHYDE	Proprietary

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	2
Flammability:	1
Reactivity:	0
Personal Protection:	C

Emergency Overview: Contact with eyes is painful and irritating. Inhalations of mists can irritate nasal passages. Treat as an eye and mild skin irritant.

Route(s) of Entry: Inhalation, eye contact and skin contact.

Eye: Moderately irritating to the eyes.

Skin Contact: May cause irritation with prolonged and repeated contact.

Inhalation: May cause irritation. Additional effects may include coughing.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: Call a physician immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: >200 F
General Hazards: No unusual hazards
Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water
Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear. Containers can build up pressure if exposed to heat (fire). Cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Ventilate area. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. Use personal protective equipment as described in Section 8. Large amounts of spill on floors may be slippery. Care should be exercised to

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only. Spilled material is slippery.

Special Handling: Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Mix well before use.

Special Storage: Store in a cool, dry place. Keep container closed when not in use. Keep from freezing. Periods of exposure to high temperatures should be avoided. Avoid contamination with water

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional personal protective equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with with the OSHA PPE Standard (29 CFR 1910.132) be conducted before using this product.

Eye Protection: Wear chemical safety goggles.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANZI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.

Engineering Controls: Use adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Brown
Odor:	Faint
pH	3.5-4.0
Solubility in Water:	NE
Specific Gravity:	NE
Boiling Point:	~ 100° C (~ 212 ° F)
Evaporation Rate:	NE
Density:	NE
Vapor Density:	NE
Volatile(s):	NE

NE= Not Evaluated

10. STABILITY AND REACTIVITY

Stability:	This product is stable under normal storage conditions.
Incompatibility:	None
Hazardous Decomposition Product:	Will not occur under normal conditions.
Hazardous Polymerization:	Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information: No information available.

12. ECOLOGICAL INFORMATION

Ecological Information: Prevent discharge or release into lakes, ponds or other waterways.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused. Not classified as hazardous waste.

14. TRANSPORT INFORMATION

Department of Transportation: Not Regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: All components are listed in TSCA inventory.

SARA 302/313: The product contains the following SARA 302/313 listed components:

CAS #	Name
64-18-6	FORMIC ACID
50-00-0	FORMALDEHYDE

Right-To-Know: This product contains components that are required to be listed under the following states' right-to-know laws.

	CAS #	Name
New Jersey	631-61-8	ACETIC ACID, AMMONIUM SALT
	64-18-6	FORMIC ACID
Pennsylvania	64-18-6	FORMIC ACID
	631-61-8	ACETIC ACID, AMMONIUM SALT
Massachusetts	631-61-8	AMMONIUM ACETATE
	64-18-6	FORMIC ACID
California-Prop 65	50-00-0	FORMALDEHYDE (GAS)

16. OTHER INFORMATION

Approved By: Dan Pierce
Approval Date: 10/4/2005

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This supersedes any previous information.

19-120323

TFL USA/CANADA INC. 4214 Beechwood Drive Greensboro, NC 27410 Effective Date: 10/5/2005	Contact: Customer Service (8 am to 5 pm) Phone: 1-800-256-5487 24-Hour Emergency Phone (Chemtrec): 1-800-424-9300 SELLATAN RL LIQ.	TFL

1. PRODUCT IDENTIFICATION

Trade Name: **SELLATAN RL LIQ.**
Description: Formaldehyde Condensation Product

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Chemical Identity	%
64-18-6	FORMIC ACID	Proprietary

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protection:	C

Emergency Overview: May cause mild eye and skin irritation.

Route(s) of Entry: Inhalation, eye contact and skin contact.

Eye: Direct liquid contact may cause slight irritation.

Skin Contact: Prolonged contact can cause mild skin irritation.

Inhalation: Inhalation of concentrated vapors from heating the product may cause irritation of the respiratory tract and can cause dizziness and nausea.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs, get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: Call a physician immediately. Only induce vomiting if directed by a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give CPR. If breathing is difficult, give oxygen. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash Point: >200 F
General Hazards: No unusual hazards
Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water
Fire Fighting Instructions: As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear. Containers can build up pressure if exposed to heat (fire). Cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Ventilate area. Absorb spill with inert material and place in a chemical waste container. Obey relevant local, state and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil. Use personal protective equipment as described in Section 8. Large amounts of spill on floors may be slippery. Care should be exercised to

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only. Spilled material is slippery.

Special Handling: Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Mix well before use.

Special Storage: Store in a cool, dry place. Keep container closed when not in use. Keep from freezing. Periods of exposure to high temperatures should be avoided. Avoid contamination with water

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: A safety shower and eye wash fountain should be readily available. To identify additional personal protective equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with with the OSHA PPE Standard (29 CFR 1910.132) be conducted before using this product.

Eye Protection: Wear chemical safety goggles.

Skin Protection: Use impermeable gloves to minimize skin contact.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANZI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.

Engineering Controls: Use adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Color:	Beige
Odor:	Formic acid odor
pH	3.5-4.5
Solubility in Water:	Miscible
Specific Gravity:	NE
Boiling Point:	> 100° C (> 212 °F) Ca.
Evaporation Rate:	NE
Density:	Ø 10.43
Vapor Density:	Ø 1.2 g/ml at 20°C (68 °F)
Volatile(s):	NE

NE= Not Evaluated

10. STABILITY AND REACTIVITY

Stability:	This product is stable under normal storage conditions.
Incompatibility:	None
Hazardous Decomposition Product:	Will not occur under normal conditions.
Hazardous Polymerization:	Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Toxicology Information: No information available.

12. ECOLOGICAL INFORMATION

Ecological Information: Prevent discharge or release into lakes, ponds or other waterways.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Waste must be disposed of in accordance with federal and local state regulations.

Disposal Information: Emptied container may contain product residue and should not be reused. Not classified as hazardous waste.

14. TRANSPORT INFORMATION

Department of Transportation: Not Regulated

15. REGULATORY INFORMATION

OSHA Status: This document has been prepared in accordance with the MSDS requirements of the OSHA Hazard Communication Standard.

TSCA Inventory Status: All components are listed in TSCA inventory.

SARA 302/313: The product contains the following SARA 302/313 listed components:

CAS #	Name
64-18-6	FORMIC ACID

Right-To-Know: This product contains components that are required to be listed under the following states' right-to-know laws.

	CAS #	Name
New Jersey	64-18-6	FORMIC ACID
Pennsylvania	64-18-6	FORMIC ACID
Massachusetts	64-18-6	FORMIC ACID
California-Prop 65	None	

16. OTHER INFORMATION

Approved By: Dan Pierce
Approval Date: 10/5/2005

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This supersedes any previous information.

SAFETY DATA SHEET according to EC directive 91/155/EWG, 93/112/EG and 2001/58/EG

SELLATAN RL LIQUID

Version *2*
Revision Date 22.03.2005

Print Date 22.03.2005

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name : SELLATAN RL LIQUID

Further information : Use: Chemical for Leather

Company : TFL Ledertechnik GmbH
Am Schwarzenbach 2
DE-79576 WEIL AM RHEIN

Distributor : TFL USA/Canada, Inc.
4214 Beechwood Drive
Greensboro, NC 27410, USA Tel: 336 297 27 00

Product information : TFL Leather Technology Ltd, Schwarzwaldallee 231,
CH - 4016 BASEL
Tel: +41(0)61 697 90 18 Fax: +41(0)61 697 75 27

Emergency telephone number : Johnson Controls IFM AG, CH - 4002 BASEL
Tel:+41(0)61 696 51 51 Fax:+41(0)61 468 45 84

Local : Chemtrec. (24 Hs) Tel: 1-800-424-9300 / 703-27-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Condensation product of aromatic sulfones

Hazardous components

Chemical Name	CAS-No. EINECS-No.	Symbol(s)	R-phrase(s)	Concentration [%]
Phenolsulfonate polymer with formaldehyde, sulfonylphenol	71832-81-0		R52/53	30.00 - 50.00
Formic acid	64-18-6 200-579-1	C	R35	< 2.00
Carboxylic acids, di-, C4-6	68603-87-2 271-678-5	Xi	R41	< 2.00

Symbols and R-phrases in chapter 2 apply to the individual components; for classification of this preparation see chapter 15.

3. HAZARDS IDENTIFICATION

Risk advice to man and the environment

WWW_104(e)_018118

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
May cause skin and eye irritation in susceptible persons.

Based on EU-regulation and fulfilled the criterions of OSHA (Form 174/Material Safety Data Sheet)

4. FIRST AID MEASURES

Inhalation	:	Move to fresh air. If you feel unwell, seek medical advice (show the label where possible).
Skin contact	:	Take off contaminated clothing and shoes immediately. Wash off immediately with soap and plenty of water.
Eye contact	:	Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.
Ingestion	:	Rinse mouth. If swallowed, seek medical advice immediately and show this container or label.

Notes to physician

Treatment	:	Symptomatic treatment.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media which must not be used for safety reasons	:	none
Specific hazards during fire fighting	:	Exposure to decomposition products may be a hazard to health.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	Standard procedure for chemical fires. In case of fire hazardous decomposition products may be produced such as: carbon oxides, sulphur oxides Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	goggles gloves Respiratory protection Working clothes and safety shoes
Environmental precautions	:	Prevent further leakage or spillage. Local authorities should be advised if significant spillages cannot be contained.
Methods for cleaning up	:	Sweep up or vacuum up spillage and collect in suitable container for disposal.
Additional advice	:	If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

Handling

Safe handling advice	:	Smoking, eating and drinking should be prohibited in the application area.
Advice on protection against fire and explosion	:	No special protective measures against fire required.

Storage

Requirements for storage areas and containers	:	Keep tightly closed in a dry, cool and well-ventilated place.
Further information	:	Keep away from direct sunlight.
Advice on common storage	:	No special restrictions on storage with other products.
Storage class (VCI)	:	Non Combustible Liquids, Packaging possibly combustible
Storage temperature	:	10 - 30 °C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Control parameters	Update	Basis	Category
Formic acid	64-18-6	9.4 mg/m3	2000	ACGIH	Time Weighted Average (TWA):

Formic acid	64-18-6	19 mg/m3	2000	ACGIH	Short Term Exposure Limit (STEL):

Remarks : none

Personal protective equipment

Respiratory protection : Wear suitable respiratory equiment

Hand protection : Protective gloves complying with EN 374.

Eye protection : safety glasses with side-shields

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : liquid

Colour : brownish

Odour : acidic

Safety data

pH : 3.8 - 4.7

Melting point/range : Note: not applicable

Boiling point/range : ca.100 °C

Density : 1.200 g/cm3
at 20 °C

Water solubility : Note: completely miscible

Viscosity, dynamic : ca.100 mPa.s
at 15 °C

10. STABILITY AND REACTIVITY

Conditions to avoid :

Stable under recommended storage conditions.
To avoid thermal decomposition, do not overheat.

Hazardous decomposition products	:	No decomposition if stored and applied as directed. Thermal decomposition can lead to release of: carbon oxides, sulphur oxides
Hazardous reactions	:	No hazards to be specially mentioned.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50 rat Dose: > 5,000 mg/kg
Skin irritation	:	. Classification: No skin irritation Remarks:May cause skin irritation in susceptible persons.
Eye irritation	:	. Classification: No eye irritation Remarks: May cause eye irritation with susceptible persons.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Physico-chemical removability	:	Biodegradability < 10 % Method: OECD 303A (mod) Remarks: Not readily biodegradable. The product can be partly eliminated by adsorption on activated sludge.

Ecotoxicity effects

Toxicity to fish	:	semi-static test LC50 Species: Oncorhynchus mykiss (rainbow trout) Dose: 18.1 mg/l Exposure time: 96 h Test substance: active ingredient Method: OECD Test Guideline 203
Toxicity to bacteria	:	BST Species: Dose: 300 mg/l

Further information on ecology

Biochemical Oxygen Demand (BOD)	:	0 mg/g Remarks: Biochemical oxygen demand within 5 days
Chemical Oxygen Demand	:	905 mg/g

(COD) AOX	:	Remarks: Product does not contain organic halogens.
Additional ecological information	:	Total metal content under the ETAD limits Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product	:	Dispose of in accordance with local regulations. Where possible recycling is preferred to disposal or incineration.
Contaminated packaging	:	Empty containers should be taken for local recycling or waste disposal.

14. TRANSPORT INFORMATION

The data in this chapter are independent of the packaging

Not dangerous goods in the meaning of RID/ADR, ADNR, IMDG-Code, ICAO/IATA-DGR

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol(s)		Not applicable
R-phrase(s)	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S-phrase(s)	S60	This material and its container must be disposed of as hazardous waste
	S61	Avoid release to the environment. Refer to special instructions/safety data sheets

National legislation

Water contaminating class (Germany)	:	WGK 1 slightly water endangering

Other regulations	Total VOC content (42/2004/EC) = 1.2 %

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION
LANXESS Emergency Phone: (800) 410-3063
LANXESS Information Phone: (800) LANXESS

1. Product and Company Identification

Product Name: SETA FILLER
Material Number: 3837649

2. Hazards Identification

Emergency Overview

WARNING! Color: White **Form:** solid Powder **Odor:** Odorless.
Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.
May cause respiratory tract irritation. May cause skin irritation. Causes eye irritation.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Eye Contact, Ingestion, Inhalation

Medical Conditions Aggravated by Exposure: Eyes, Skin disorders, Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Acute Inhalation
For Component: Trade Secret Ingredient
May cause mechanical irritation.

For Component: Calcium Carbonate
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

Chronic Inhalation
For Component: Trade Secret Ingredient
Prolonged inhalation of excessive levels of dust may cause pneumoconiosis.

Acute Skin
For Component: Trade Secret Ingredient

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May cause mechanical irritation.

For Component: Calcium Carbonate
May cause irritation with symptoms of reddening and itching.

Acute Eye
For Component: Trade Secret Ingredient
May cause mechanical irritation.

For Component: Calcium Carbonate
Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

Acute Ingestion
For Component: Calcium Carbonate
Not expected to be harmful if swallowed.

General Effects of Exposure
Chronic Effects of Exposure
For Product: SETA FILLER
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components

Weight %	Components	CAS-No.
>=1%	Trade Secret Ingredient	CAS# is a trade secret
>=1%	Calcium Carbonate	471-34-1

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Get medical attention if irritation develops. Remove contaminated clothing and shoes. Wash clothing before reuse.

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

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Unsuitable Extinguishing Agents: carbon dioxide (CO2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Dust may form explosive mixtures with air. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

6. Accidental release measures

Spill and Leak Procedures
Cleanup personnel must use appropriate personal protective equipment. Remove all sources of ignition, including flames, heat, and sparks. Use explosion-proof equipment. Use grounded or non-sparking tools and equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Do not use compressed air for cleaning. Collect and place in appropriately marked sealable containers for disposal.

7. Handling and Storage

Handling/Storage Precautions
This product may form explosible dust/air mixtures. Avoid creating dust. Remove all sources of ignition, including flames, heat, and sparks. Ground and bond containers and equipment before transferring to avoid static sparks. Use non-sparking tools and equipment. Avoid breathing dust. Avoid contact with skin or clothing. Avoid contact with eyes. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Store in a cool dry place. Store in original or similar containers. Minimize dust generation and accumulation. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Calcium Carbonate (471-34-1)

US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 10 mg/m3 The value is for particulate matter containing no asbestos and <1% crystalline silica.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 5 mg/m3 (Respirable fraction.)

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 15 mg/m3 (Total dust.)

Industrial Hygiene/Ventilation Measures
General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

Respiratory Protection

Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m3 - respirable particles and 10 mg/m3 - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with P-100 filters.

Hand Protection
gloves

Eye Protection
safety glasses with side-shields.

Skin and body protection
Wear cloth work clothing including long pants and long-sleeved shirts.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and chemical properties

Form:	solid
Appearance:	Powder
Color:	White
Odor:	Odorless
pH:	5 - 6.5 1% in water
Boiling Point/Range:	Not Applicable
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	0.63
Solubility in Water:	Insoluble
Viscosity, Dynamic:	not applicable

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Conditions to avoid
Heat, flames and sparks.

11. Toxicological Information

Toxicity Data for Calcium Carbonate

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Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute Inhalation Toxicity
LC0: 0.0812 mg/l, 90 min (rat)

Skin Irritation
rabbit, Draize, Exposure Time: 24 hrs, Moderately irritating

Eye Irritation
rabbit, Draize, Exposure Time: 24 hrs, Severely irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative

Toxicity Data for Collagen
Developmental Toxicity/Teratogenicity
rabbit, Other method,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for SETA FILLER
Biological Oxygen Demand (BOD)
3 d, 58%

Ecological Data for Calcium Carbonate
Biodegradation
The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulation
Does not bioaccumulate.

Acute and Prolonged Toxicity to Fish
LC50: > 56,000 mg/l (Mosquitofish (Gambusia affinis), 96 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=1%	Trade Secret Ingredient	CAS# is a trade secret
>=1%	Calcium Carbonate	471-34-1
>=1%	Collagen	9007-34-5

California Prop. 65:

WWW_104(e)_018130

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	2
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	2
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	000000003739
Version Date:	02/09/2005
Report Version:	2.1

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SIGNAL GREEN PIGMENT
IDENTIFICATION NUMBER: 29017R
PRODUCT USE/CLASS : Pigment dispersion
27993R Yellow

DATE PRINTED: 06/09/00

SUPPLIER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

MANUFACTURER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

PREPARER: Lori Schneider, PHONE: 414-691-1930, PREPARE DATE: 05/06/98

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % EQUAL TO
	No Hazardous Materials are Contained in this Product		

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: No Information.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Can cause eye irritation, redness, tearing.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use. If product is sprayed, inhalation of solid airborne particles may irritate the respiratory tract and lungs.

EFFECTS OF OVEREXPOSURE - INGESTION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: No chronic effects expected in normal use.

(Continued on Page 2)

SECTION 3 - HAZARDS IDENTIFICATION

PRIMARY ROUTE(S) OF ENTRY: Unknown

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

FIRST AID - INHALATION: Remove from exposure, treat symptomatically. Get medical attention if symptoms persist.

FIRST AID - INGESTION: If swallowed, give water to dilute. Do not induce vomiting.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: N.A.

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE: N.D.

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Not applicable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Absorb small spills with inert material and place in chemical waste container. For a large spill: dike area of spill and pump to salvage container. Collect remainder on inert material and place in chemical waste container.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

(Continued on Page 3)

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

RESPIRATORY PROTECTION: Good general ventilation should be sufficient to control airborne levels. If material is sprayed, sufficient local exhaust must be used to remove solid airborne particles.

SKIN PROTECTION: Gloves should be worn to avoid prolonged skin contact.

EYE PROTECTION: Wear safety glasses with side shields or goggles.

OTHER PROTECTIVE EQUIPMENT: Where splashing is possible, an impermeable apron and boots should be worn.

HYGIENIC PRACTICES: Wash hands before eating. Avoid prolonged or repeated contact with skin.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: 212 - 212 F	VAPOR DENSITY	: Is lighter than air
ODOR	: Mild	ODOR THRESHOLD	: N.D.
APPEARANCE	: Green liquid	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	: Miscible		
FREEZE POINT	: N.D.	SPECIFIC GRAVITY	: 1.0935
VAPOR PRESSURE	: N.D.	pH @ 0.0 %	: N.D.
PHYSICAL STATE	: N.D.	VISCOSITY	: N.D.
WEIGHT % SOLIDS	: 45.36		

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Hazardous polymerization will not occur.

INCOMPATIBILITY: None.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

Toxic section 11B: No Information.

(Continued on Page 4)

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: No Information.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Not considered a hazardous waste by RCRA regulations. Liquids cannot be landfilled under current regulations.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Non-hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	WT/WT %
Ammonium hydroxide	1336-21-6	0.7 %

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 05/06/98

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.14 lbs/gal, 17 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

(Continued on Page 5)

DISCLAIMER

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.11.93 Reviewed on 29.10.93

1 Identification of substance

· Product details

· Trade name SILASTOL 380

· Article number: 563100

· Manufacturer/Supplier:
Schill & Seilacher GmbH & Co
Schönaicherstraße 205
D-71032 Böblingen

Tel.: 07031/282-0
Fax: 07031/282-160

· Informing department: Product safety department.
· Emergency information:
During normal opening times: environment protection department
at other times: factory fire brigade

2 Composition/Data on components:

· Chemical characterization
· Description: Organic phosphoric acid ester

· Dangerous components:

CAS NO.	Designation	%	Index	R-phrases
Void				

3 Hazards identification

· Hazard designation: void
· Information pertaining to particular dangers for man and environment
void
· Classification system
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

4 First aid measures

· General information No special measures required.
· After inhalation Supply fresh air; consult doctor in case of symptoms.
· After skin contact The product is not skin irritating.
· After eye contact
Rinse opened eye for several minutes under running water.
· After swallowing In case of persistent symptoms consult doctor.

5 Fire fighting measures

· Suitable extinguishing agents
CO_2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
· Protective equipment: No special measures required.

6 Accidental release measures

· Person-related safety precautions: Not required.
· Measures for environmental protection: No special measures required.
· Measures for cleaning/collecting:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.11.93 Reviewed on 29.10.93

Trade name SILASTOL 380

(Contd. of page 1)

· Additional information: No dangerous materials are released.

7 Handling and storage

· Handling
· Information for safe handling: No special measures required.
· Information about protection against explosions and fires:
No special measures required.

· Storage
· Requirements to be met by storerooms and containers:
No special requirements.
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions: None.

8 Exposure controls and personal protection

· Additional information about design of technical systems:
No further data; see item 7.

· Components with critical values that require monitoring at the workplace:

CAS No.	Designation of material	%	Type	Value	Unit

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· Additional information:
The lists that were valid during the compilation were used as basis.

· Personal protective equipment
· General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
· Breathing equipment: Not required.
· Protection of hands: Not required.
· Eye protection: Safety glasses

9 Physical and chemical properties:

· Form: Fluid
· Colour: Dark beige
· Smell: Weak, characteristic

	Value/Range	Unit	Method
· Change in condition			
· Melting point/Melting range:	Not determined		
· Boiling point/Boiling range:	Not determined		
· Flash point:	Not applicable		
· Self-inflammability:	Product is not selfigniting.		
· Danger of explosion:	Product is not explosive.		
· Steam pressure: at 20 ° C	48 mbar		
· Density at 20 ° C	1,02 g/cm3		
· Solubility in / Miscibility with Water:	Fully miscible		

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.11.93 Reviewed on 29.10.93

Trade name SILASTOL 380

(Contd. of page 2)

· pH-value: (100 g/l) at 20 ° C 6-7,5

10 Stability and reactivity

· Conditions to be avoided:
No decomposition if used according to specifications.
· Dangerous products of composition: None

11 Toxicological information

· Acute toxicity:
· Primary irritant effect:
· on the skin: No irritant effect.
· on the eye: No irritant effect.
· Sensitization: No sensitizing effect known.
· Additional toxicological information:
The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information:

· General notes:
Water hazard class 2 (Self-assessment): hazardous for water.

13 Disposal considerations

· Product:
· Recommendation
Must be specially treated under adherence to official regulations.

· Uncleaned packagings:
· Recommendation:
Disposal must be made according to official regulations.

14 Transport information

· Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)
· ADR/RID GGVS/E Class: -

· Maritime transport IMDG/GGVSea:
· IMDG/GGVSea Class: -

· Air transport ICAO-TI and IATA-DGR:
· ICAO/IATA Class: -

15 Regulatory information

· Designation according to EC guidelines:
The product is not subject to classification according to the calculation methods of the "General Classification Guideline for Preparations of the EC" as issued in the last version.

· Hazard-determining components of labelling: Caustic soda

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.11.93 Reviewed on 29.10.93

Trade name SILASTOL 380

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establich a legally valid contractual relationship.

- Department issuing data specification sheet:
  Environment protection department.
- Contact: Mr. Dr. Kazanwadel, Mrs. Schuler

17-120162

Schill+Seilacher

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.08.2001 Reviewed on 11.08.2001

1 Identification of substance

· **Product details**

· **Trade name** Silastol R 687

· **Article number:** 194500

· **Manufacturer/Supplier:**
Schill + Seilacher Aktiengesellsch
Schönaicher Str. 205
D-71032 Böblingen

struktol®

Distributed By:
Struktol Company of America
201 E. Steels Corners Road
P.O. Box 1649 • Stow, Ohio 44224-0649
(330) 928-5188 • (800) 327-8649
www.struktol.com
Quality Additives for Performance

Tel.: +49 7031 282-0
Fax: +49 7031 282-160

· **Informing department:** Product safety department.
· **Emergency information:**
During normal opening times: environment protection department
at other times: factory fire brigade

2 Composition/Data on components:

· **Description:** Fatty alcohol polyglycol ether

· **Dangerous components:**

61827-42-7	Ethoxylated fatty alcohol	☒ Xn; R 22-41	50-100%

· **additional information** This product only contains substances listed in TSCA inventory.

3 Hazards identification

· **Hazard designation:**

Xn Harmful

· **Information pertaining to particular dangers for man and environment**
R 22 Harmful if swallowed.
R 41 Risk of serious damage to eyes.

4 First aid measures

· **After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
· **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
· **After swallowing**
Rinse out mouth and then drink plenty of water.
Administer medicinal carbon
Do not induce vomiting; instantly call for medical help.

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(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.08.2001 Reviewed on 11.08.2001

Trade name Silastol R 687

(Contd. of page 1)

5 Fire fighting measures

· **Suitable extinguishing agents**
CO2, extinguishing powder or water jet. Fight larger fires with water jet.
· **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

· **Person-related safety precautions:** Wear protective clothing.
· **Measures for environmental protection:**
Do not allow product to reach sewage system or water bodies.
· **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.

7 Handling and storage

· **Handling**
· **Information for safe handling:** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Storage**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Protect from frost.
· **Storage class**
· **Class according to regulation on inflammable liquids:** Void

8 Exposure controls and personal protection

· **Components with critical values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists that were valid during the compilation were used as basis.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures should be adhered to in handling the chemicals.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
· **Protection of hands:** Protective gloves.
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **Form:**	Fluid
· **Colour:**	Light yellow
· **Smell:**	Characteristic
· **Change in condition**	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
· **Flash point:**	> 100°C

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.08.2001 Reviewed on 11.08.2001

Trade name Silastol R 687

(Contd. of page 2)

· Danger of explosion:	Product is not explosive.
· Density at 20°C	ca. 0.98 g/cm³
· Solubility in / Miscibility with Water:	Soluble
· pH-value (100 g/l) at 20°C:	5 - 8

10 Stability and reactivity

· Conditions to be avoided: No decomposition if used according to specifications.
· Dangerous reactions No dangerous reactions known
· Dangerous products of decomposition:
None
-

11 Toxicological information

· Acute toxicity:

· LD/LC50 values that are relevant for classification:		
68439-46-3 Fatty alcohol polyglycol ether		
Oral	LD50	>2000 mg/kg (rat)

· Primary irritant effect:
· on the skin: No irritant effect.
· on the eye: Strong irritant with the danger of severe eye injury.
· Sensitization: No sensitizing effect known.

12 Ecological information:

· General notes: Do not allow product to reach ground water, water bodies or sewage system.

13 Disposal considerations

· Product:
· Recommendation
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Must be specially treated under adherence to official regulations.

· Uncleaned packagings:
· Recommendation: Disposal must be made according to official regulations.

14 Transport information

· Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)
· ADR/RID-GGVS/E Class: -

· Maritime transport IMDG/GGVSea:
· IMDG/GGVSea Class: -
· Marine pollutant: No

(Contd. on page 4)

Material Safety Data Sheet
According to 91/155 EC

Printing date 11.08.2001 Reviewed on 11.08.2001

Trade name Silastol R 687

(Contd. of page 3)

· Air transport ICAO-TI and IATA-DGR:
· ICAO/IATA Class: -

15 Regulatory information

· Designation according to EC guidelines:
The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· Code letter and hazard designation of product:

Xn Harmful

· Hazard-determining components of labelling:
Ethoxylated fatty alcohol

· Risk phrases:
22 Harmful if swallowed.
41 Risk of serious damage to eyes.

· Safety phrases:
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
39 Wear eye/face protection.

· National regulations

· Classification according to VbF: Void

· Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing data specification sheet: Environment protection department.
· Contact: Dr. Krämer, Hr.Pfrang

GB

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Lab

44-

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Silicone Oil
Catalog Number: 126936

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00833
Chemical Name: Silicone Oil
CAS No.: 63148-62-9
Chemical Formula: Proprietary
Chemical Family: Silicones
Hazard: May cause eye irritation.
Date of MSDS Preparation:
Day: 29
Month: January
Year: 2001

2. COMPOSITION / INFORMATION ON INGREDIENTS

Silicone Oil
CAS No.: 63148-62-9
TSCA CAS Number: 63148-62-9
Percent Range: 100.0
Percent Range Units: weight / weight
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause eye irritation.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: None
MAY CAUSE EYE IRRITATION

HMIS:
Health: 1
Flammability: 1
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.

2 non sacra

NFPA:
Health: 1
Flammability: 1
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: May cause irritation
Skin Contact: No effects are anticipated
Skin Absorption: No effects anticipated
Target Organs: Not applicable
Ingestion: No Effects Anticipated
Target Organs: Not applicable
Inhalation: No effects anticipated
Target Organs: Not applicable
Medical Conditions Aggravated: None reported
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
O.S.H.A. Listed: No

IARC Listed: No

NTP Listed: No

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water.
Ingestion (First Aid): Do not induce vomiting. Call physician immediately.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Combustion generates toxic fumes.
Flash Point: >204°C; >400°F
Method: Open cup
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: Toxic fumes of: silicon dioxide carbon monoxide, carbon dioxide.
Fire / Explosion Hazards: May react violently with: strong oxidizers
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Absorb spilled liquid with non-reactive sorbent material. Dispose of material in an E.P.A. approved hazardous waste facility.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: Not applicable

7. HANDLING / STORAGE

Handling: Avoid contact with eyes Maintain general industrial hygiene practices when using this product.
Storage: Keep away from: oxidizers
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves
Inhalation Protection: adequate ventilation
Precautionary Measures: Keep away from: oxidizers
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Molecular Weight: Not available
Odor: None
pH: Not applicable
Vapor Pressure: <5mm at 25°C
Vapor Density (air = 1): > 1
Boiling Point: >140°C/0.002mm
Melting Point: Not applicable
Specific Gravity (water = 1): 0.98
Evaporation Rate (water = 1): < 1 (Ether = 1)
Volatile Organic Compounds Content: Not determined
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: less than 0.1%
Acid: Not determined
Other: Not determined
Metal Corrosivity:

Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Not applicable
Reactivity / Incompatibility: Incompatible with: oxidizers
Hazardous Decomposition: Toxic fumes of: silicon dioxide carbon monoxide carbon dioxide
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: Subcutaneous mouse; TDLo: 120 g/kg; TUMORIGENIC; skin and appendages (Tumors)
Reproductive Effects Data: None reported
Ingredient Toxicological Data: --
Not applicable

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable
Special Instructions (Disposal): Incinerate material at an E.P.A. approved hazardous waste facility.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated
--
DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated

--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Not applicable
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: TSCA Listed: Yes
TSCA CAS Number: 63148-62-9

16. OTHER INFORMATION

Intended Use: Lubricant
References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. In-house information. Technical Judgment. Vendor Information.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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Lab

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Date Printed 7/14/01
MSDS No: M00494

Material Safety Data Sheet

44-

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sodium Hydroxide Standard Solution 1.00 N
Catalog Number: 104542

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00494
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: Causes burns.
Date of MSDS Preparation:
Day: 14
Month: 07
Year: 2001

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Hydroxide
CAS No.: 1310-73-2
TSCA CAS Number: 1310-73-2
Percent Range: 1.0 - 5.0
Percent Range Units: weight / volume
LD50: Oral rat LDLo = 500 mg/kg.
LC50: None reported
TLV: 2 mg/m^3
PEL: 2 mg/m^3
Hazard: Causes severe burns. Toxic.

Demineralized Water
CAS No.: 7732-18-5
TSCA CAS Number: 7732-18-5
Percent Range: >95.0
Percent Range Units: volume / volume
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: No effects anticipated.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: None
CAUSES BURNS

Z no date

HMIS:
Health: 3
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 3
Flammability: 0
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: Causes eye burns.
Skin Contact: Causes burns.
Skin Absorption: None reported
Target Organs: None reported
Ingestion: May cause: burns of the mouth and esophagus vomiting rapid pulse and respirations shock collapse
Target Organs: None reported
Inhalation: May cause: irritation of nose and throat
Target Organs: None reported
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Cover spilled material with a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a weak acid solution.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Product is regulated as a hazardous water pollutant. Product is regulated as RCRA hazardous waste.
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: 154

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: heat Keep away from: acids
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have a safety shower nearby. Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: heat Keep away from: acids/acid fumes
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: None
pH: >14
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: 100°C
Melting Point: Not determined
Specific Gravity (water = 1): 1.010
Evaporation Rate (water = 1): 0.93
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Metal Corrosivity:
Steel: 0.00 in/yr

Aluminum: 20.156 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heat Evaporation Exposure to air.
Reactivity / Incompatibility: May react violently in contact with: strong acids
Hazardous Decomposition: No hazardous decomposition products known.
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Sodium Hydroxide: Oral rabbit LD_{Lo} = 500 mg/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002
Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Sodium Hydroxide Solution
--
DOT Hazard Class: 8
DOT Subsidiary Risk: NA
DOT ID Number: UN1824
DOT Packing Group: II
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Sodium Hydroxide Solution
--
ICAO Hazard Class: 8
ICAO Subsidiary Risk: NA
ICAO ID Number: UN1824
ICAO Packing Group: II
I.M.O.:
I.M.O. Proper Shipping Name: Sodium Hydroxide Solution

--
I.M.O. Hazard Class: 8
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: UN1824
I.M.O. Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Sodium Hydroxide 1000 lbs.
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Sodium Hydroxide - RQ = 1000 lbs. (454 kgs.)
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Standard solution
References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. In-house information. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

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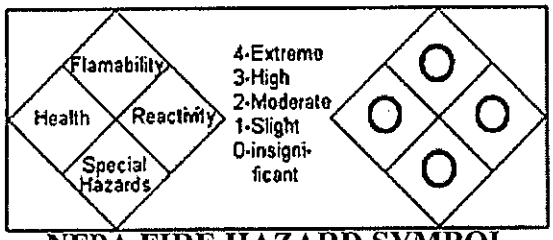


NFPA FIRE HAZARD SYMBOL
See NFPA 704 for detailed explanation

SILBRICO CORPORATION

MATERIAL SAFETY DATA SHEET

No.: 140 Rev. No.: 9
Date Revised: 1/2/97

I. PRODUCT IDENTIFICATION

Trade Name(s): Sil-Kleer®
CAS #: 93763-70-3
Chemical Name: Sodium Potassium Aluminum Silicate
Formula: Mixture
Manufacturer: SILBRICO CORPORATION
Address: 6300 River Road
City: Hodgkins
State: Illinois
Zip: 60525
Telephone: 708/354-3350
Emergency: 708/354-3350

II. PRODUCT INGREDIENTS

Ingredient Name: Expanded Perlite
CAS Number: 93763-70-3
%: 100
PEL and TLV (except as noted)
15 mg/m³ total dust-OSHA
5 mg/m³ respirable dust-OSHA
10 mg/m³ total dust-ACGIH

Ingredient Name: This product may contain crystalline silica: Quartz (Typical Analysis)
CAS Number: 14808-60-7
%: <.1
PEL and TLV (except as noted)
1 mg/m³ respirable quartz
OSHA & ACGIH TLV

III. PHYSICAL DATA

Appearance and Odor: Dry White Powder or Aggregate/No Odor.
Boiling Point: NA
Evaporation Rate: NA
Vapor Pressure: NA
Specific Gravity (H2O = 1): 2.35
Water Solubility (%): Negligible
Melting Point: NA
Vapor Density (Air=1): NA
% Volatile by Volume: None

IV. FIRE AND EXPLOSION DATA

Flash Point (Method): Nonflammable
Flammable Limits: LEL: NA % **UEL:** NA %
Extinguishing Media: NA
Unusual Fire or Explosion Hazards: None
Special Fire-Fighting Procedures: None

V. REACTIVITY DATA

Material is Stable. Hazardous Polymerization Cannot Occur.
Chemical Incompatibilities: Hydrofluoric Acid
Conditions to Avoid: None in designed use
Hazardous Decomposition Products: May react with hydrofluoric acid to form a toxic gas.

VI. HEALTH HAZARD DATA

Route(s) of Entry:
Inhalation? Yes **Skin?** No **Ingestion?** No
Health Hazards (Acute and Chronic):
Acute: Upper Respiratory Irritant, Excessive Inhalation of Any Dust May Overload Lungs.
Chronic: None Known.
Carcinogenicity:
NTP? No **IARC Monographs?** No **OSHA Regulations?** No
Signs and Symptoms of Exposure:
Upper Respiratory and Eye Irritation
Medical Conditions Generally Aggravated by Exposure:
Pre-Existing Upper Respiratory and Lung Diseases
Emergency and First Aid Procedures:
Inhalation - Remove to Fresh Air
Eyes - Flush with Large Quantities of Water

VII. SPILL OR LEAK PROCEDURES

Procedures for Spill/Leak:
Vacuum clean or sweep up using a dust suppressant such as water.
Uncontaminated materials may be re-used.

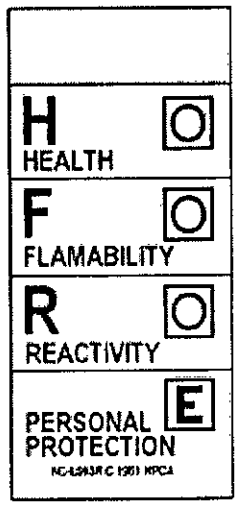
Waste Management:
Non-hazardous as defined by RCRA (40 CFR part 261).
Method of disposal - landfill.
Reportable quantity - N/A.

VIII. SPECIAL PROTECTION INFORMATION

Eye Protection: Goggles or Safety Glasses are recommended.
Gloves: Not normally required.
Respirator: MSHA/NIOSH approved respirator
Ventilation: Local exhaust ventilation may be required to keep dust concentrations below PEL/TLV.
Other Protective clothing or equipment: None

IX. SPECIAL PRECAUTIONS

Storage Segregation Hazard Classes: NA
Special Handling/Storage: Repair broken bags immediately; avoid creating dust
Special Workplace Engineering Controls: Not normally required.



Perlite is a naturally occurring substance and is therefore included, but not individually listed, in the TSCA inventory.

HMIS Ratings: 0 = Minimal Hazard E - Dust Respirator

Prepared/Revised by: SILBRICO CORPORATION

As of the date of preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable federal and state law(s). However, no warranty or representation with respect to such information is intended or given.

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MATERIAL SAFETY DATA SHEET

IDENTITY: SILKY-TOP 7425

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 1 REACTIVITY: 0 SPECIFIC HAZARDS: NA

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: May 9, 1991
DATE REVISED: February 19, 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
None in reportable quantities per OSHA 1910.1200.			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: NA
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Completely miscible.
APPEARANCE: Light tan liquid, slight odor.

SPECIFIC GRAVITY (H_2O = 1): 1.002
VAPOR PRESSURE (mm Hg): Not Determined
EVAPORATION RATE (BUTYL ACETATE = 1): >1
PERCENT VOLATILES BY WEIGHT: Approx. 90%
V.O.C.: 0.15 lbs./gal. 1.30 lbs./gal. (less water) 1.82% of Total Weight.

V FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200°F (93°C)
FLAMMABILITY CLASSIFICATION - OSHA: Combustible Class IIIB.
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, Carbon dioxide.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

FLAMMABLE LIMITS: Not established.

V REACTIVITY DATA

STABILITY: √ STABLE
UNSTABLE

CONDITIONS TO AVOID: None known.

INCOMPATIBILITY: Avoid strong acids and oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce oxides of nitrogen and carbon.

HAZARDOUS POLYMERIZATION: MAY OCCUR
√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: **INHALATION?** Yes **SKIN?** Yes **INGESTION?** Yes

CARCINOGENICITY: **NTP?** No **IARC MONOGRAPHS?** No **OSHA REGULATED?** No

EFFECTS OF OVEREXPOSURE: Irritating to the eyes, may cause lachrymation, conjunctivitis, and corneal edema, along with temporary corneal clouding. Ingestion or absorption through the skin may cause nausea, dizziness, gastric upset, and vomiting. Vapors may cause sneezing, coughing, difficulty in breathing, and pulmonary edema.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

EMERGENCY FIRST AID PROCEDURES: Unknown. Seek immediate medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Protect from freezing. Keep container closed.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: None should be needed.

VENTILATION: Mechanical exhaust required, local exhaust not needed.

PROTECTIVE GLOVES: Impervious gloves required for prolonged exposure.

EYE PROTECTION: Chemical splash goggles required.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Coveralls, aprons and boots to minimize skin contact. Eye wash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains chemicals at or above de minimis concentrations subject to the reporting of SARA Title III Section 313, 40CFR372.

CHEMICAL	CAS NO.
NONE	

CALIFORNIA (PROPOSITION 65)

This product contains the following chemicals:

CHEMICAL	CAS NO.
Formaldehyde (gas)	50-00-0

"The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Union Specialties, Inc. assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of this material."

MATERIAL SAFETY DATA SHEET (MSDS)

Revision 6/24/99. The current version of this document can be obtained from http://www.riccisand.com/.

Identity: Crystalline Silica CAS #14808-60-7

MANUFACTURER IDENTIFICATION

- Ricci Bros Sand Co., Inc.
- 2099 Dragston Rd. P.O. Box 664 Port Norris NJ 08349
- 856-785-0166 or 856-785-2136 fax

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Chemical Components: Silica, Crystalline Quartz (respirable). **Specific Chemical Identity:** Silicon Dioxide, SiO2. **Composition:** SiO2: 95% minimum **Balance:** Fe2O3, CaO, Na2O, MgO Al2O3, K2O, TiO2. **Common Identity:** Silica Sand, Crystalline Silica, Sandblast Sand, Filter Sand, Filter Gravel or trade name (**See page two for more trade names).

Permissable Exposure Limits: Exposure to airborne crystalline silica shall not exceed an 8 hour time weighted average (TWA) limit as stated in 29CFR1910.1000 (refer to reference 1). **Threshold Limit Values (TLVs)** for exposure to crystalline silica: **Crystalline silica TLV:** 10/(%crystalline silica +2) mg/m3. **Total silica TLV:** 30/(%crystalline silica +2) mg/m3. **ACGIH TLV:** 0.10mg/m3 for 8 hr time weighted average for 100% crystalline silica (see reference 2). **NIOSH TLV:** 0.05 mg/m3 for 10 hr shift, 40 hr. week for 100% crystalline silica (see reference 3).

PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 4046F. **Specific Gravity:** 2.65. **Melting Point:** 3050F. **Vapor Pressure:** none. **Evaporation Rate** (Butyl Acetate=1): none. **Vapor Density** (Air=1): none. **Solubility in water:** insoluble. **Appearance and Odor:** white, grey or tan, no odor or taste.

FIRE, EXPLOSION AND REACTIVITY DATA

Flash Point: non-flammable. **Flammable Limits:** none. **LEL:** none. **UEL:** none. **Extinguishing Media:** none required. **Special Firefighting Procedures:** N/A. **Unusual Fire and Explosion Hazards:** N/A **Stability:** stable. **Conditions to avoid:** none. **Incompatibility (materials to avoid):** *Contact with agents such as molten magnesium, fluorine, chlorine triflouride, manganese trioxide, oxygen difluoride, or hydrofluoric acid may cause fires or corrosive gases.* **Hazardous Polymerization:** will not occur.

HEALTH HAZARD DATA

Routes of Entry: Inhalation? Yes. Skin? No. Ingestion? No. **Acute and Chronic Health Hazards:** *Prolonged exposure to crystalline silica by inhalation may cause silicosis, a fibrosis (scarring) of the lungs which can be progressive and may lead to death.* **Silica as Related to Carcinogenicity:** *Crystalline silica (quartz) inhaled from occupational souces is classified by the International Agency for Research on Cancer (IARC) as class I: carcinogenic to humans (see reference 4)*; **Signs and Symptons of Exposure:** *Shortness of breath, reduced pumonary function, coughing, wheezing. and possible chest illness.* **Medical Conditions Generally Aggravated by Exposure:** Bronchitis, Emphysema and Asthma. Smoking is known to aggravate the effects of exposure. *Persons with silicosis may develop tuberculosis (reference 5). Exposure to crystalline silica may also result in scleroderma and/or kidney disease (reference 5).* **Emergency First Aid Procedures:** For sand in eyes, immediately flush with water. For gross inhalation, remove person to fresh air and seek medical attention accordingly.

CONTROL MEASURES

Workplace Dust Surveys: *Test the employee personal breathing zone for crystalline silica using dust sampling equipment and real time dust monitoring equipment (refer to reference 9).* **Respiratory Protection:** Use NIOSH/MSHA approved (ANSI Z88.2 Part 11) *particulate* respirators with this product. Put in place a respiratory protection and monitoring program which meets the requirements of 29CFR 1910.134: "Respiratory Protection". (Refer to references 6 and 7). *Select respiratory based on the results of the workplace dust surveys. Use respirators that protect against the highest concentrations of crystalline silica if the actual concentration is unknown. Choose respiratory protection that meets the requirements of the table below (refer to references 3 and 9):*

Concentration of Crystalline Silica in Multiples of Standard	Recommended Respirator Type
<=5X	Single use (valveless dust respirator)
<=10X	Quarter or half-mask respirator with replaceable dust filter or single use (with valve) dust respirator OR type C, demand type (negative pressure), with quarter or half mask facepiece
<=100X	Full facepiece respirator with replaceable dust filter OR Type C, demand type (negative pressure), with fullfacepiece
<=200X	Powered air purifying (positive pressure) respirator with replaceable applicable filter or with 99.7% efficient HEPA-type filter
>200X	Type C, supplied air respirator, continuous flow type with full facepiece, hood or helmet

Engineering and Administrative Controls *Use designed ventilation systems as the primary method to remove crystalline silica from workplace air. Use administative controls such as job rotation and water spray to supplement engineering controls and respiratory protection.* If sandblasting use a respirator approved by NIOSH for abrasive blasting operations. Enclose the operation in a properly designed and maintained blasting enclosure (see reference 8).**Other Protective Clothing or Equipment:** *Use gloves, protective clothing and ANSI-approved eye protection with this product.* **Medical Surveilance:** *Make bi-annual annual medical evaluations available to all workers whom may be exposed to crystalline silica. Include in the evaluations the employee medical history, chest X-Ray, pulmonary functions and review by a physician(see reference 3).*

PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: Use dustless method (water or wet HEPA-type vacuum) if not contaminated. Use water sprays and shovels to clean up spills. Do not dry sweep this product with brooms. *Do NOT use compressed air to clean up product.* If contaminated use recommended method for contaminate. **Waste Disposal Method:** Dispose in accordance with federal, state and local regulations. **Work/Hygenic Practices:** Avoid creating and breathing dust. Warn and train your employees and customers of the hazards of this product in accordance with applicable "Right to Know" practices. *Do not smoke if working with silica products. Refer to the guidelines in references 11, 12 and 13 while working with crystalline silica.*

OSHA HAZARD COMMUNICATION

This product falls under the OSHA Hazard Communication Standard 29CFR1910.1200 (see reference 10). Refer to "Hazard Communication Labeling and Warning" document: http://www.riccisand.com/hazlabel.html.

REFERENCES

1. Code of Federal Regulations 29CFR1910.1000: "Air Contaminants," Occupational Safety and Health Administration (OSHA), Washington, DC, http://www.osha.gov.

2. Threshold Limit Values and Exposure Indices for Chemical Substances in Workroom Air," American Conference of Governmental Industrial Hygenists (ACGIH), Cincinnati, OH 1988, http://www.acgih.org.

3. National Technical Information Service, Springfield VA (703/487-4650): Criteria for a Recommended Standard - Occupational Exposure to Crystalline Silica, HEW Publication No. (NIOSH) 75-120, NTIS Acquisition No. PB 246-697, http://www.ntis.gov.

4. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans-*Silica and Some Silicates, Coal Dust and Para-Aramid Fibrils, Vol. 68, 1997*. World Health Organization, International Agency for Research on Cancer (IARC), Lyon, France, 1997, http://www.iarc.fr.

5. Crystalline Silica Health Effects. National Industrial Sand Association (NISA), Calverton, MD, 1997. http://www.riccisand.com/.

6. Code of Federal Regulations, 29CFR Part 1910.134: "Respiratory Protection," Occupational Safety and Health Administration (OSHA), Washington, DC 1993. http://www.osha.gov.

7. "American National Standards Institute (ANSI) Practices for Respiratory Protection," ANSI Z88.2-1992, ANSI, New York, http://www.ansi.org.

8. "Air Quality: Health Standards for Abrasive Blasting...Final Rule," Federal Register 59.34, 2/18/94.

9. ASTM E1132-89 (Reapproved 1993): "Standard Practice for Health Requirements Relating to Occupational Exposure to Quartz Dust," American Society for Testing and Materials (ASTM), Phila, PA, http://www.astm.org.

10. Occupational Safety and Health Administration (OSHA) Regulations (Standards - 29 CFR) - 1910.1200 - Hazard Communication, http://www.osha-slc.gov/OshStd_data/1910_1200.html.

11. National Institute for Occupational Safety and Health (NIOSH), "A Guide to Working Safely with Silica," 1997. http://www.cdc.gov/niosh/otherpub.html.

12. NIOSH Publications (1992-1996). http://www.cdc.gov/niosh/consilic.html. Preventing Silicosis and Deaths in Construction Workers--DHHS (NIOSH) Publication No. 96-112. http://www.cdc.gov/niosh/92-107.html. Preventing Silicosis and Deaths from Rock Drilling--DHHS (NIOSH) Publication No. 92-107. http://www.cdc.gov/niosh/92-102.html. Preventing Silicosis and Deaths from Sandblasting--DHHS (NIOSH) Publication No. 92-102.

13. NIOSH Resprator User's Notice: Attention: All Users of Type CE, Abrasive-Blast Supplied-Air Respirators, National Institute for Occupational Safety and Health (NIOSH), May 23,1996. http://www.cdc.gov/niosh/abrasi-1.html.

NOTICE

THE INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET IS BELIEVED TO BE CORRECT. RICCI BROS SAND COMPANY, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUMES NO LIABLITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. CUSTOMERS AND USERS OF THESE SILICA PRODUCTS MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE, LOCAL REGULATIONS, AND MUST SEEK MEDICAL, LEGAL AND TECHNICAL OPINONS REGARDING THEIR USE AND THEIR HAZARDS.

**TRADE NAME LISTING OF SILICON DIOXIDE AS PRODUCED BY RICCI BROS. SAND CO., INC. OTHER TRADE NAMES MAY APPLY.

Industrial Sands: OOO, OO, OON, O, 1, 2, 3, 1Q, 2Q, 3Q, 4Q, 10 grit-50 grit. **Filter Media**: 0.10-3.0 mm. **Foundry Sand:** AFS 30 thru 100, cement lining sand, P30, P40, etc. **Well Gravel:** OO thru #4. **Gravels:** Sizes 1.2 -63.0mm. **Other Media:** C-3, reactor sand, runway traction sand, torpedo sand, pump sand, pool filter sand, play sand, sewage sand, mason sand. **Blends:** O-1 blend, 20-30 grit, 0.8-2.0mm, etc.

Return to Welcome Page E-mail Us Hazard Com Warning and Labeling.

Health Effects Paper. Health and Safety Links.

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1. PRODUCT IDENTIFICATION

CATALOG NO.: R-0706
PRODUCT NAME: Silver Nitrate Reagent
CHEMICAL FAMILY: Inorganic salt solution

2. INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
*Silver nitrate	7761-88-8	<5	Oxidizer, toxic
Deionized water	7732-18-5	to 100	None

*This chemical is subject to the reporting requirements of SARA Title III Section 313 and 40 CFR 372.

3. PHYSICAL/CHEMICAL CHARACTERISTICS

STATE: Liquid APPEARANCE: Clear, colorless ODOR: None
BOILING PT (F): 212 pH: 4.4 SPECIFIC GRAVITY: 1
VAPOR PRESSURE (mm Hg): 17 VAPOR DENSITY (AIR=1): .6
PERCENT VOLATILE BY VOLUME: 98 SOLUBILITY IN WATER: Soluble

4. FIRE, EXPLOSION HAZARD AND REACTIVITY DATA

FLASH PT: NA METHOD: NA
FLAMMABLE LIMITS: LEL: NA UEL: NA
EXTINGUISHING MEDIA: Water only
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and full-protective clothing
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: May ignite other combustible materials. Reacts with organics to produce flammable products. May emit toxic fumes of nitrogen oxides.
NFPA CODE: Health: 1 Flammability: 0 Reactivity: 0 Specific: NA
CONDITIONS TO AVOID: Extreme heat, temperatures. Contact with organics, combustible materials.

5. HEALTH HAZARD DATA

INGREDIENT: Silver nitrate
TOXICITY: LD50(orl-mus): 50 mg/kg LDLo(unk-man): 29 mg/kg
PEL: .01 mg/m3 (as silver) TLV: .01 mg/m3 (as silver)
STEL: NE

ROUTE(S) OF ENTRY: Inhalation Ingestion X Skin X
TARGET ORGAN(S): Eyes, skin
CARCINOGENICITY: NTP No IARC No OSHA No
HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:
EYES: Irritant. Contact may cause severe irritation.
SKIN: Irritant. Contact causes staining.
INGESTION: Irritant. May cause gastrointestinal irritation, abdominal pain.
INHALATION: NA
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye and skin conditions

6. PRECAUTIONARY MEASURES
PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat
HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.
STORAGE: Cool, dry area. Avoid direct sunlight.

7. EMERGENCY AND FIRST AID PROCEDURES
EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with soap and water.
INGESTION: Give large amounts of water. Call physician. Induce vomiting under direction of physician.
INHALATION: NA

8. SPILL AND DISPOSAL PROCEDURES
SPILL OR RELEASE: Absorb with vermiculite or other inert material. Containerize for later disposal.
DISPOSAL: Incineration or other method to comply with all local, state, and federal regulations.

NA = Not applicable
ND = Not determined
NE = Not established

This Material Safety Data Sheet has been prepared in accordance with 29 CFR Part 1910.1200 and contains information believed to be accurate and complete at the date of preparation. However, no warranty is expressed or implied. Advice given under "Spill and Disposal Procedures" assumes compliance with federal, state, and local regulations regarding the disposal of hazardous waste.

DATE PREPARED: May 1996

MATERIAL SAFETY DATA SHEET: SIMPLE GREEN®

SUNSHINE MAKERS, INC.

RESEARCH AND DEVELOPMENT DIVISION
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA

Telephone: 800-228-0709
310-795-6000

Version: No. 1004
Issue Date: March 1993

SUPERSEDES ANY PREVIOUS VERSION

PRODUCT IDENTIFICATION

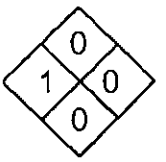
Other Names: Simple Green®
Simple Green®-Industrial Cleaner and Degreaser

UN Number: Not required

Dangerous Goods Class: Nonhazardous

Hazard Rating (NFPA):

Health = 1*	Reactivity = 0
Fire = 0	Special = 0



Rating Scale:

0 = minimal	1 = slight
2 = moderate	3 = serious
4 = severe	

*Mild eye irritant, non-mutagenic and non-carcinogenic. **None of the ingredients in Simple Green® are regulated or listed as potential cancer agents by Federal OSHA, NTP, or IARC.**

Use: An all purpose cleaner and degreaser used undiluted or diluted in water for direct, spray, and dip tank procedures. Safely used on oil and petroleum spills as an emulsifier and beach and wildlife cleaner.

SAFE HANDLING INFORMATION

Fire/Explosion Hazard

Simple Green® is nonflammable, stable, and will not burn.
Flash Point/Auto-Ignition: Not relevant.
Extinguishing Media: Nonflammable/nonexplosive. No special procedures required.

Special Fire Fighting Procedures: None required.

Reactivity Data

Nonreactive. Simple Green® is stable, even under fire conditions, and will not react with water or oxidizers. Hazardous polymerization will not occur.

Storage and Transport

No special precautions are required. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.**

Simple Green® requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

Spills and Disposal

Spill or Leakage Procedures: Recover usable material by convenient method; residual may be removed by wipe or wet mop.
If necessary, unrecoverable material may be washed to drain with large quantities of water.

Waste Disposal: Simple Green® is fully water soluble and biodegradable and will not harm sewage-treatment microorganisms if disposal by sewer or drain is necessary. Dispose of in accordance with all applicable local, state, and federal laws.

PRECAUTIONS FOR USE

Exposure Limits: None; the Simple Green® formulation presents no health hazards to the user.

Ventilation: No special ventilation is required during use.

Personal Protection

Precautionary Measures:	No special requirements under normal use conditions.
Eye Protection:	Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur.
Skin Protection:	No special precautions required; rinse completely from skin after contact.
Respiratory Protection:	No special precautions required.
Work and Hygienic Practices:	No special requirements. Wash or rinse hands before touching eyes or contact lenses.

SYMPTOMS OF OVEREXPOSURE AND FIRST AID TREATMENT

Eye contact:	Reddening may develop. Immediately rinse the eye with large quantities of cool water; continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.
Skin contact:	Minimal effects, if any; rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.
Swallowing:	Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.
Inhalation:	Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

INGREDIENT INFORMATION

The only ingredient of Simple Green® with established exposure limits is undiluted 2-butoxyethanol (<6%) (Butyl Cellosolve; CAS No. 111-76-2): the OSHA PEL and ACGIH TLV is 25 ppm (skin).

Note, however, that Butyl Cellosolve is only one of the raw material ingredients that undergo processing and dilution during the manufacture of Simple Green®. Upon completion of the manufacturing process, Simple Green® does not possess the occupational health risks associated with exposure to undiluted Butyl Cellosolve. Verification of this is contained in the independent test results detailed under "Toxicity Information" on Page 3 of this MSDS.

TOXICITY INFORMATION

Human Health Effects or Risks from Exposure

Adverse effects on human health are not expected from Simple Green®, based upon seventeen years of use without reported adverse health incidence in diverse population groups, including extensive use by inmates of U.S. Federal prisons in cleaning operations.

Simple Green® is a mild eye irritant; mucous membranes may become irritated by concentrate-mist.

Simple Green® is not likely to irritate the skin in the majority of users. Repeated daily application to the skin without rinsing, or continuous contact of Simple Green® on the skin may lead to temporary, but reversible, irritation.

The Butyl Cellosolve in Simple Green® is part of a chemical category (glycol ethers) regulated by the Emergency Planning and Community Right-to-Know Act (SARA, Title III, section 313); therefore, a reporting requirement exists.

Medical Conditions Aggravated by Exposure

No aggravation of existing medical conditions is expected; dermal-sensitive users may react to dermal contact by Simple Green®.

Nonhuman Toxicity

Acute Mortality Studies:

Oral LD_{50} (rat): >5.0 g/kg body weight
Dermal LD_{50} (rabbit): >2.0 g/kg body weight

Dermal Irritation: Only mild, but reversible, irritation was found in a standard 72-hr test on rabbits. A value of 0.2 (non-irritating) was found on a scale of 8.

Eye Irritation: With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 15 (mild irritant) on a scale of 110.

Subchronic dermal effects: No adverse effects, except reversible dermal irritation, were found in rabbits exposed to Simple Green (up to 2.0 g/kg/day for 13 weeks) applied to the skin of 25 males and 25 females. Only female body weight gain was affected. Detailed microscopic examination of all major tissues showed no adverse changes.

Fertility Assessment by Continuous Breeding: The Simple Green® formulation had no adverse effect on fertility and reproduction in CD-1 mice with continuous administration for 18 weeks, and had no adverse effect on the reproductive performance of their offspring.

BIODEGRADABILITY AND ENVIRONMENTAL TOXICITY INFORMATION

Biodegradability:

Simple Green® is readily decomposed by naturally occurring microorganisms. The biological oxygen demand (BOD), as a percentage of the chemical oxygen demand (COD), after 4, 7, and 11 days was 56%, 60%, and 70%, respectively.

In a standard biodegradation test with soils from three different countries, Butyl Cellosolve reached 50% degradation in six to 23 days, depending upon soil type, and exceeded the rate of degradation for glucose which was used as a control for comparison.

Environmental Toxicity Information:

Simple Green® is nontoxic to any of the following marine and estuarine test animals at concentrations below 200 mg/L (0.02%). The Simple Green® concentrations that are likely to be lethal to 50% of the exposed organisms are summarized in the following table.

	LC_{50} in mg/L (ppm)	
	48-hour	96-hour
Marine Fish:		
Mud minnow *(Fundulus heteroclitus)*	1690	1574
Whitebait *(Galaxias maculatus)*	210	210
Marine/Estuarine Invertebrates:		
Brine Shrimp *(Artemia salina)*	610	399
Grass Shrimp *(Palaemonetes pugio)*	270	220
Green-lipped Mussel *(Perna canaliculus)*	220	220
Mud Snail *(Potamopyrgus estuarinus)*	410	350

Chemicals of Environmental Concern:

Based upon chemical analysis, Simple Green® contains no known EPA priority pollutants, heavy metals, or chemicals listed under TSCA, RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

OTHER INFORMATION

Physical Description and Properties

Appearance/odor: Translucent green liquid with characteristic sassafras odor.
Flashpoint: Nonflammable
Flammability Limits: Nonflammable
Vapor Pressure: 17 mm Hg @ 20 °C
22 mm Hg @ 25 °C
VOC Composite Partial Pressure: 0.006 mm Hg @ 20 °C
Water Solubility: Completely soluble in water. The higher salt concentrations in marine ecosystems will lead to complexes with Simple Green that may become visible at ratios above one part Simple Green® to 99 parts seawater.
Detection: Simple Green® has a characteristic sassafras odor that is not indicative of any hazardous situation.

Boiling Point: 110 °C (231 °F)
Freezing Point: -9 °C (16 °F)
Specific Gravity: 1.0257
pH: 9.5
Vapor Density: 1.3 (air = 1)
Volatile Organic Compounds: 7.96 g/L

Additional Data

Ash Content: At 600 °F: 1.86% by weight.
Nutrient Content: Nitrogen: <1.0% by weight (fusion and qualitative test for ammonia).
Phosphorus: 0.3% by formula.
Sulfur: 0.6% by weight (barium chloride precipitation method).

General Information

Containers: Simple Green® residues can be completely removed by rinsing with water; the container may be recycled or applied to other uses.

Electrical Wiring Compatibility: Polyimide insulated wiring is not affected by exposure to Simple Green®. After immersion in Simple Green® for 14 days at 74°F, the 61 cm piece of polyimide insulated wire passed a one minute dielectric proof test at 2500 volts (ASTM D-149).

Contact Point: Sunshine Makers, Inc., Director of Research and Development: 310-795-6000.

*****NOTICE*****

All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgements as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.

LD002 MATERIAL SAFETY DATA SHEET 5125-0001 THRU - 0007 new

MSDS# A112

SECTION 1 - IDENTIFICATION

IDENTITY: SLIC-TITE PASTE WITH TEFLON

MANUFACTURER
LA-CO INDUSTRIES, INC./MARKAL COMPANY
250 N. WASHTENAW AVE.
CHICAGO, IL, 60612

EMERGENCY TELEPHONE NO. 312-826-1700
INFORMATION TELEPHONE NO. 312-826-1700
DATE PREPARED: 12/17/90
SUPERSEDES ISSUE DATE 07/05/90

LABELING

HMIS: 010 NFPA: 210
EPA HAZARDS: NONE
WHMIS(CANADA): NONE
D.O.T.: CEMEMT OR COMPOUND, PIPEFITTING, CLASS 55
BILL OF LADING:
U.P.S.:

SECTION 2 - HAZARDOUS INGREDIENTS

INGREDIENT	C.A.S.#	OSHA PEL	ACGIH TLV	SUPERFUND RQ	%

SLIC-TITE PASTE HAS BEEN BIOLOGICALLY EVALUATED AND PROVEN NON-TOXIC AND NON-IRRITATING WITHIN THE MEANING OF THE FEDERAL HAZARDOUS SUBSTANCES LABELING ACT.

SECTION 3 - PHYSICAL / CHEMICAL CHARACTERISTICS

BOILING POINT: 350deg.F
VAPOR PRESSURE(mmHg): 1mm
VAPOR DENSITY(AIR=1): N.A.
SOLUBILITY IN WATER: INSOLUBLE
APPEARANCE: WHITE PASTE

SPECIFIC GRAVITY(H_2O=1): 1.42
MELTING POINT: N.A.
EVAP. RATE(butyl acetate=1): N.A.
ODOR: GREASE LIKE

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (method used): +300deg.F., toc
FLAMMABLE LIMITS - LEL: N.A. UEL: N.A.
EXTINGUISHING MEDIA: WATER, CARBON DIOXIDE, CHEMICAL FOAM.
SPECIAL FIRE FIGHTING PROCEDURES: KEEP CONTAINERS COOL BY SPRAYING WITH WATER.
UNUSUAL FIRE AND EXPLOSION HAZARDS: TEFLON WILL EMIT HYDROGEN FLUORIDE AND PERFLUOROCARBON OLEFINS ABOVE 500deg.F. SELF-CONTAINED BREATHING APPARATUS RECOMMENDED.

SECTION 5 - REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: N.A.
INCOMPATABILITY (MATERIALS TO AVOID): OXIDIZERS.
HAZARDOUS DECOMPOSITION PRODUCTS:
TEFLON WILL LIBERATE HYDROGEN FLUORIDE AND PERFLUOROCARBON OLEFINS ABOVE 500deg. F.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: N.A.

VVVVVVVVVV CONTINUED ON BACK PAGE VVVVVVVVVV

SECTION 6 - HEALTH HAZARD DATA

ROUTES OF ENTRY: INHALATION? NO SKIN? NO INGESTION? NO
HEALTH HAZARDS: N.A.
CARCINOGENICITY: NTP? NO IARC? NO OSHA? NO
SIGNS AND SYMPTOMS OF EXPOSURE: NONE
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE
EMERGENCY AND FIRST AID PROCEDURES: USE GOOD INDUSTRIAL HYGIENE, AND WASH HANDS WITH SOAP AND WATER.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

RELEASE AND SPILL PROCEDURES: SCOOP UP SPILLS AND PLACE IN STEEL CONTAINER.
WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS. AVOID DISPOSING IN WATER DRAINS. INSOLUBLE.
HANDLING AND STORAGE PRECAUTIONS: WASH HANDS AFTER USE TO AVOID TRANSFER OF TEFLON ONTO CIGARETTE OR TOBACCO.
OTHER PRECAUTIONS: N.A.

SECTION 8 - CONTROL MEASURES

RESPIRATORY PROTECTION: NONE
VENTILATION / LOCAL EXHAUST: NONE
VENTILATION \ MECHANICAL(GENERAL): NONE
SPECIAL: NONE
OTHER: NONE
PROTECTIVE GLOVES: NONE
EYE PROTECTION: NONE
OTHER PROTECTIVE EQUIPMENT: NONE
WORK/HYGIENIC PRACTICES: WASH HANDS AFTER USE.

N.A. = NOT APPLICABLE N.D. = NOT DETERMINED

The information contained herein is based on data available to us and is accurate and reliable to the best of our knowledge and belief. However, LA-CO Industries, Inc./Markal Co. makes no representations as to its completeness or accuracy. Information is supplied upon condition that persons receiving such information will make their own determination as to its suitability for their purposes prior to use. In no event will LA-CO Industries, Inc./Markal Co. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information contained herein.

MSDS# A112 PRODUCT: S L I C - T I T E P A S T E W I T H T E F L O N

Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

PRODUCT
57250803
57250804

IDENTITY
SLIC-TITE TAPE OF TEFLON

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

MSDS #: LA0002

Manufacturer's Name LA-CO Industries	Emergency Telephone Number 847-956-7600
Address (Number, Street, City, State, and ZIP Code) 1201 Pratt Blvd	Telephone Number for Information 847-956-7600
Elk Grove Village, IL 60007	Date Prepared
	Signature of Preparer (optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s)	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
No ingedients considered hazardous under OSHA Hazard Communication Standard 29 CFR 1910.1200.				

Section III - Physical/Chemical Characteristics

Boiling Point NA		Specific Gravity (H2O = 1) 2.15-2.20	
Vapor Pressure (mm Hg) NA		Melting Point 621 deg F	
Vapor Density (AIR = 1) NA		Evaporation rate (Butyl Acetate = 1) NA	

Solubility in Water
Insoluble

Appearance and Odor
White film, 0.3 mils thick - NO odor

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) NA	Flammable Limits NA	LEL NA	UEL NA

Extinguishing Media
NA

Special Firefighting Procedures
Use self-contained breathing apparatus

Unusual Fire and Explosion Hazards
Teflon will decompose forming hydrogen fluoride ate high temperatures

Section V - Reactivity Data

	Stable	Unstable	Conditions to Avoid
		XXX	Temperatures above 750 deg F

Incompatibility (Materials to Avoid)

NA

Hazardous Decomposition or Byproducts

Teflon will liberate hydrogen fluoride & perfluorocarbon olefins above 750 deg F

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	XXX	

Section VI - Health Hazard Data

Route(s) of Entry: Inhalation? NO Skin? NO Ingestion? NO

Health Hazards (Acute and Chronic)

Non-hazardous

Carcinogenicity NTP? NO IARC Monographs? NO OSHA Regulated? NO

Signs and Symptoms of Exposure

NA

Medical Conditions Generally Aggravated by Exposure NA

Emergency and First Aid Procedure

NA

Section VII - Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled

Sweep up & place in waste container

Waste Disposal Method

Dispose of in accordance with local regulations

DO NOT INCINERATE

Precautions to be Taken in Handling and Storage

NA

Other Precautions

NA

Section VIII - Control Measures

Respiratory Protection (Specify Type)

NA

Ventilation	Local Exhaust	Special
	NA	NA
	Mechanical (General)	Other
	NA	NA

Protective Gloves

NA

Other Protective Clothing or Equipment

NA

Work/Hygenic Practices

07 Tanyard 2/8 Ex P

MATERIAL SAFETY DATA SHEET

AURORA SPECIALTY CHEMISTRIES
1520 LAKE LANSING ROAD
LANSING MI 48912
EMERGENCY PHONE: (517) 372-9121

SECTION 1 -- PRODUCT INFORMATION

REVISED DATE: 12/00 TRADE SECRET

PRODUCT NAME: SM-10P

CHEMICAL FAMILY: Slimicide/Microbiocide

DOT CLASSIFICATION: Pesticides, Liquids, Toxic, NOS, (Methylene Bis [thiocyanate]), 6.1, UN2902, III, Stow away from food.

SECTION 2 -- HAZARDOUS INGREDIENTS

INGREDIENTS	CAS#	%	PEL/TWA
Methylenebis(thiocyanate)	6317-18-6	10	None established

SECTION 3 -- PHYSICAL CHARACTERISTICS

BOILING POINT (°F): Not determined
VAPOR PRESSURE (mmHg @ 25 °C): N/D
VAPOR DENSITY (AIR=1): N/D
SOLUBILITY IN WATER: Dispersible
SPECIFIC GRAVITY (WATER=1): 1.02 – 1.04
PERCENT VOLATILE BY VOLUME: N/A
pH: 2-5
APPEARANCE AND ODOR: Off-white creamy liquid, with slight organic odor.

SECTION 4 -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200°F
METHOD USED: PMCC
FLAMMABLE LIMIT
LFL: None
UFL: None

EXTINGUISHING MEDIA: As for surroundings

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: Always wear self-contained breathing apparatus when fighting fires involving chemicals.

STABILITY : STABLE: XX
UNSTABLE:

INCOMPATIBILITY: Strong oxidizing agents and temps >212°F

HAZARDOUS DECOMPOSITION: Thermal decomposition produces carbon dioxide, sulfur dioxide, nitrous oxide, and water.

HAZARDOUS POLYMERIZATION: May occur. Avoid temps. > 300° F

CONTINUED ON PAGE 2

SECTION 5 -- SPILL, LEAK AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS: Dike spill. Save salvageable material. Soak up remainder with absorbent material and remove. Flush spill area with water. **DO NOT FLUSH PRODUCT TO OPEN SEWER OR WATER COURSES. CONTAIN ALL SPILLED MATERIAL.**

DISPOSAL METHOD: Material is a pesticide and must be disposed of in a manner approved by EPA Resource Conservation and Recovery Act (RCRA) and all local, state, and federal regulatory agencies. If you are uncertain, contact your State Water Board or Regional Office of the EPA.

SECTION 6 -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Not determined for mixture.

EYE: Will cause irritation, discomfort or irreversible eye damage.

SKIN CONTACT: Corrosive! Will cause irritation or burns. Prolonged exposure may cause skin eruptions. May cause sensitization in some individuals.

SKIN ABSORPTION: Not expected to be a hazard.

INGESTION: May be harmful or fatal if swallowed. Highly toxic. Active ingredient acute oral LD50 for rats is 50 mg/kg. Prolonged absorption may produce runny nose, dizziness, cramps, nausea, vomiting, and mild or severe disturbances of the nervous system.

INHALATION: May cause irritation to respiratory tract.

CARCINOGENIC - NTP PROGRAM: None

SYSTEMIC AND OTHER EFFECTS: No target organ effects known or anticipated.

Hazard Ratings (NFPA): Health: 2 , Fire: 0, Reactivity: 0, Special: N/A

ECOLOGICAL INFORMATION

Aquatic toxicity	
-96 Hour – LC50, fish	0.09 mg/l (Rainbow trout, Static)
	0.25 mg/l (Bluegill sunfish, Static)
	0.6 mg/l (Sheepshead minnow, Acute flow)
	0.036 mg/l (Mysid shrimp, Acute flow)
-98 Hour – EC50, fish	3.4 pg/l (Eastern oyster, Acute flow through)
-48 Hour – EC50	
-Daphnia magna	0.06 mg/l (Static)
Avian toxicity	
-Bobwhite quail, acute oral LD50	42 mg/kg
-Mallard duck, dietary LC50	2785 ppm
-Bobwhite quail, dietary LC50	5863 ppm

CONTINUED ON PAGE 3

SECTION 7 -- FIRST AID

EYES: Flush with water for 15 minutes, holding lids open. Call a physician if irritation persists.

SKIN: Wash thoroughly with soap and water. Call a physician if irritation persists.

INGESTION: Immediately give several glasses of water but DO NOT INDUCE VOMITING. If vomiting occurs, give fluids again. Seek immediate medical attention. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If breathing has stopped, give mouth to mouth respiration and call a physician.

SECTION 8 -- SPECIAL HANDLING INFORMATION

RESPIRATORY PROTECTION: Not needed under normal use conditions.

VENTILATION: General ventilation satisfactory under normal use conditions.

SECTION 8 -- SPECIAL HANDLING INFORMATION (continued)

EYE PROTECTION: Safety glasses with side-shields or chemical splash goggles.

PROTECTIVE GLOVES: Rubber or other impervious material.

PROTECTIVE CLOTHING: Impervious clothing and footwear recommended.

SECTION 9 -- SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Do not freeze. Avoid temperatures > 140° F. Keep container closed when not in use. Keep away from children and other unauthorized personnel.

Product is generally stable from 0-110°F, expected shelf life to 1 year. In the event of separation due to low or high temperature conditions, remix product and use as usual.

OTHER PRECAUTIONS: Eyewash station and shower in work area recommended when handling chemicals of any kind. Wash thoroughly after handling.

IN CASE OF EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT INVOLVING CHEMICALS, CONTACT CHEMTREC AT 1-800-424-9300

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Vol III

MATERIAL SAFETY DATA SHEETS

EMERGENCY PHONE NUMBERS

IN PLANT: 1st: Leo Devarenne ext 5619 or 363-2165
2nd: Madeleine Barrette ext 5766 or 361-5944

PHYSICIAN: Dr. STeve Ottenweller 455-9601

PARAMEDICS: Days: Nurse's office ext 5625
Nights: 1st: Janice Barnes ext 5709 or 866-2284
~~2nd: Madeleine Barrette ext 5766 or 361-5944~~

FIRE DEPT: 173-012 451-2911

POLICE: State: 173-010 866-4411
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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #1
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5198-2

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
KAYDOL	8042-47-5	100.0

2. PHYSICAL DATA

BOILING POINT: 343 C
VAPOR PRESSURE: < 1 mmHg
VAPOR DENSITY: N/D
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: neglig.
SPECIFIC GRAVITY: ca. 0.875 Water=1
PERCENT VOLATILE: 0 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 223 C COC
FLAMMABLE LIMITS - LEL: N/D
FLAMMABLE LIMITS - UEL: N/D
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Water or foam may cause frothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

ENVIRONMENTAL DATA:
Not determined.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material.

RECOMMENDED VENTILATION:
Use in a well-ventilated area.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

RECOMMENDED STORAGE:
Store in a cool place. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep away from heat, sparks, open flame, and other sources of ignition.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
KAYDOL.....	5	MG/M3	TWA	CMRG	
KAYDOL.....	10	MG/M3	STEL	CMRG	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- CMRG: Chemical Manufacturer Recommended Exposure Guidelines

8. HEALTH HAZARD DATA

EYE CONTACT:
Contact with the eyes during product use is not expected to result in significant irritation.

SKIN CONTACT:
Mild Skin Irritation (after prolonged or repeated contact): signs/symptoms can include redness, swelling, and itching.

INHALATION:
No adverse health effects are expected from inhalation exposure.

IF SWALLOWED:
Ingestion may cause:

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #2
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5199-0

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
KAYDOL	8042-47-5	65.0
HEXADECANE	544-76-3	35.0

2. PHYSICAL DATA

BOILING POINT: N/D
VAPOR PRESSURE: N/D
VAPOR DENSITY: N/D
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: nil
SPECIFIC GRAVITY: ca. 0.8 Water=1
PERCENT VOLATILE: 0 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: ca. 129 C
FLAMMABLE LIMITS - LEL: N/D
FLAMMABLE LIMITS - UEL: N/D
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Water or foam may cause frothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

ENVIRONMENTAL DATA:
Not determined.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: No PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: nitrile rubber.

RECOMMENDED VENTILATION:
Use with appropriate local exhaust ventilation. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Nonflammable.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
KAYDOL.....	5	MG/M3	TWA	CMRG	
KAYDOL.....	10	MG/M3	STEL	CMRG	
HEXADECANE.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- CMRG: Chemical Manufacturer Recommended Exposure Guidelines

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

SKIN CONTACT:
Moderate Skin Irritation: signs/symptoms can include redness, swelling, itching, and dryness.

May be absorbed through the skin and produce effects similiar to

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8. HEALTH HAZARD DATA (continued)

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those caused by inhalation and/or ingestion.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Harmful or fatal if swallowed.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #3
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5200-6

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
HEXADECANE	544-76-3	100.0

2. PHYSICAL DATA

BOILING POINT: ca. 287 C
VAPOR PRESSURE: 1 mmHg
AT 105.3 C
VAPOR DENSITY: 7.8 Air=1
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: nil
SPECIFIC GRAVITY: ca. 0.773 Water=1
PERCENT VOLATILE: 0 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: 18 C

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 134 C
FLAMMABLE LIMITS - LEL: N/D
FLAMMABLE LIMITS - UEL: N/D
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S.

5. ENVIRONMENTAL INFORMATION (continued)

EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: No PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material.

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Nonflammable.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
HEXADECANE.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Severe Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, cloudy appearance of the cornea, impaired vision and possible permanently impaired vision.

SKIN CONTACT:
Severe Skin Irritation: signs/symptoms can include redness, swelling, itching, dryness, cracking, blistering, and pain.

May be absorbed through the skin and produce effects similiar to those caused by inhalation and/or ingestion.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Harmful or fatal if swallowed.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

8. HEALTH HAZARD DATA (continued)

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #4
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5201-4

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
TETRADECANE	629-59-4	100.0

2. PHYSICAL DATA

BOILING POINT: 252 - 254 C
VAPOR PRESSURE: 1 mmHg at 76.4 C
VAPOR DENSITY: 6.83 Air=1
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: nil
SPECIFIC GRAVITY: ca. 0.763 Water=1
PERCENT VOLATILE: 0 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: 5.5 C

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 99 C
FLAMMABLE LIMITS - LEL: 0.5 %
FLAMMABLE LIMITS - UEL: N/D
AUTOIGNITION TEMPERATURE: 201 C

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S.

5. ENVIRONMENTAL INFORMATION (continued)

EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material.

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Nonflammable.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
TETRADECANE.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

SKIN CONTACT:
Moderate Skin Irritation: signs/symptoms can include redness, swelling, itching, and dryness.

May be absorbed through the skin and produce effects similiar to those caused by inhalation and/or ingestion.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Harmful or fatal if swallowed.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in

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8. HEALTH HAZARD DATA (continued)

vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #5
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5202-2

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
N-DODECANE	112-40-3	100.0

2. PHYSICAL DATA

BOILING POINT: 215 - 217 C
VAPOR PRESSURE: 1 mmHg
at 47.8 C
VAPOR DENSITY: 5.96 Air=1
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: nil
SPECIFIC GRAVITY: ca. 0.749 Water=1
PERCENT VOLATILE: 0 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: -9.6 C

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 71 C
FLAMMABLE LIMITS - LEL: 0.6 %
FLAMMABLE LIMITS - UEL: N/D
AUTOIGNITION TEMPERATURE: 204 C

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion. Closed containers exposed to heat from fire may build pressure and explode.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Contain spill. Cover with absorbent material. Collect spilled material. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
Not applicable. If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material.

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

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7. PRECAUTIONARY INFORMATION (continued)

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
N-DODECANE.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

SKIN CONTACT:
Moderate Skin Irritation: signs/symptoms can include redness, swelling, itching, and dryness.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Harmful or fatal if swallowed.

Ingestion may cause:

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8. HEALTH HAZARD DATA (continued)

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #6
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5203-0

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
N-DECANE	124-18-5	~ 99.5
ISOPARRAFINS	Unknown	~ 0.5

2. PHYSICAL DATA

BOILING POINT: 171 C
VAPOR PRESSURE: 5.2 mmHg @ 37.8 C
VAPOR DENSITY: 4.9 Air=1
EVAPORATION RATE: < 1 BuOAc=1
SOLUBILITY IN WATER: nil
SPECIFIC GRAVITY: ca. 0.73 Water=1
PERCENT VOLATILE: 100 % by wt
pH: N/A
VISCOSITY: 0.93 centipoise
MELTING POINT: N/D

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 44 C TOC
FLAMMABLE LIMITS - LEL: 0.8 % by vol
FLAMMABLE LIMITS - UEL: 2.6 % by vol
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Evacuate unprotected personnel from hazard area. Cover with absorbent material. Cover spill area with Light Water Brand or other AFFF foam. (For further information on AFFF foam usage, contact 3M Fire Protection Systems.) Collect using non-sparking tools. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in an approved metal container. Seal the container.

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 100 %.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if the release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: neoprene.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. Prevent all sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. No smoking while handling this material. Avoid static discharge.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
N-DECANE.....	NONE	NONE	NONE	NONE	
ISOPARRAFINS.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

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8. HEALTH HAZARD DATA (continued)

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Harmful or fatal if swallowed.

Ingestion may cause:

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

OTHER HEALTH HAZARD INFORMATION:
N-Decane has enhanced the cancer-causing potential of known carcinogens and has demonstrated tumor promoting activity when tested dermally in mice. However, no carcinogenic or mutagenic activity has been associated with exposure to n-decane alone.

Some isoparaffins have produced kidney damage in male rats only. No comparable kidney disease is known to occur in humans.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #7
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5204-8

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
OCTANE	111-65-9	~ 99.5
RELATED COMPOUNDS	Unknown	~ 0.5

2. PHYSICAL DATA

BOILING POINT: 122 - 138 C
VAPOR PRESSURE: 11 mmHg @ 37.8 C
VAPOR DENSITY: 3.9 Air=1
EVAPORATION RATE: < 1 BuOAc=1
SOLUBILITY IN WATER: neglig.
SPECIFIC GRAVITY: 0.703 Water=1
PERCENT VOLATILE: 100 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 13 C TOC
FLAMMABLE LIMITS - LEL: 1 % by vol
FLAMMABLE LIMITS - UEL: 6.5 % by vol
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents, Sparks and/or Flames.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Evacuate unprotected personnel from hazard area. Cover with absorbent material. Cover spill area with Light Water Brand or other AFFF foam. (For further information on AFFF foam usage, contact 3M Fire Protection Systems.) Collect using non-sparking tools. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in an approved metal container. Seal the container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 100 %.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if the release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: nitrile rubber, fluoroelastomer (Viton).

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Keep away from heat, sparks, open flame, and other sources of ignition. Prevent all sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. Combustible liquid and vapor. No smoking while handling this material. Avoid static discharge.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
OCTANE	300	PPM	TWA	ACGIH	
OCTANE	375	PPM	STEL	ACGIH	
OCTANE	300	PPM	TWA	OSHA	
OCTANE	375	PPM	STEL	OSHA	
RELATED COMPOUNDS	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

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8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
No information was found regarding effects from skin contact.

INHALATION:
Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Harmful or fatal if swallowed.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #8
ISSUED: December 13, 1999
SUPERSEDES: December 10, 1998
DOCUMENT: 07-5205-5

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
HEPTANE	142-82-5	~ 99

2. PHYSICAL DATA

BOILING POINT: 98 C
VAPOR PRESSURE: 83 mmHg @ 37.8 C
VAPOR DENSITY: 3.4 Air=1
EVAPORATION RATE: 1 BuOAc=1
SOLUBILITY IN WATER: neglig.
SPECIFIC GRAVITY: ca. 0.69 Water=1
PERCENT VOLATILE: 100 % by wt
pH: N/A
VISCOSITY: N/D
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: -4 C TCC
FLAMMABLE LIMITS - LEL: 1.0 % by vol
FLAMMABLE LIMITS - UEL: 7.0 % by vol
AUTOIGNITION TEMPERATURE: N/D

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA (continued)

EXTINGUISHING MEDIA:
Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Strong Oxidizing Agents, Sparks and/or Flames.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Evacuate unprotected personnel from hazard area. Cover with absorbent material. Cover spill area with Light Water Brand or other AFFF foam. (For further information on AFFF foam usage, contact 3M Fire Protection Systems.) Collect using non-sparking tools. Clean up residue with an appropriate organic solvent. Read and follow safety precautions on the solvent label and MSDS. Place in an approved metal container. Seal the container.

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 100 %.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. In the event of an uncontrolled release of this material, the user should determine if the release qualifies as a reportable quantity. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: No

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles. Wear safety glasses with side shields.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: nitrile rubber, fluoroelastomer (Viton).

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Use with adequate dilution ventilation.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

RECOMMENDED STORAGE:
Store in a cool place. Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Keep away from heat, sparks, open flame, and other sources of ignition. Prevent all sources of ignition. Extremely flammable liquid and vapor. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. No smoking while handling this material. Avoid static discharge.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
HEPTANE.....	400	PPM	TWA	ACGIH	
HEPTANE.....	500	PPM	STEL	ACGIH	
HEPTANE.....	400	PPM	TWA	OSHA	
HEPTANE.....	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation (after prolonged or repeated contact): signs/symptoms can include redness, swelling, and itching.

INHALATION:
Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

IF SWALLOWED:
Harmful or fatal if swallowed.

Ingestion may cause:

Gastrointestinal Effects: signs/symptoms generally will include abdominal pain.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE December 10, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3010 SCOTCHGARD (TM) Oil Test Kit - Bottle #9
ISSUED: December 13, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-5206-3

1. INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	70.0
ISOPROPYL ALCOHOL	67-63-0	30.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 19.7 mmHg
(calc @ 20C)
VAPOR DENSITY: 0.79 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.94 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 29 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 281 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3070 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 10
ID NUMBER/U.P.C.:
98-0211-3471-7 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1047-5

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ISOPROPYL ALCOHOL	67-63-0	100.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 33.0 mmHg
(calc @ 20C)
VAPOR DENSITY: 2.07 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.79 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 12 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 790 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

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7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

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8. HEALTH HAZARD DATA (continued)

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Single overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3069 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 9
ID NUMBER/U.P.C.:
98-0211-3470-9 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1046-7

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ISOPROPYL ALCOHOL	67-63-0	90.0
WATER	7732-18-5	10.0

2. PHYSICAL DATA

BOILING POINT:	80 - 100 C (Azeotrope boils at 80.4 C)
VAPOR PRESSURE:	28.9 mmHg (calc @ 20C)
VAPOR DENSITY:	1.68 Air=1 (calc @ 20C)
EVAPORATION RATE:	N/D
SOLUBILITY IN WATER:	complete
SPECIFIC GRAVITY:	0.81 Water=1 (calc @ 20C)
PERCENT VOLATILE:	100 %
pH:	N/A
VISCOSITY:	< 10 centipoise
MELTING POINT:	N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 12 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 730 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	
WATER.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3068 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 8
ID NUMBER/U.P.C.:
98-0211-3469-1 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1045-9

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ISOPROPYL ALCOHOL	67-63-0	80.0
WATER	7732-18-5	20.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 26.2 mmHg
(calc @ 20C)
VAPOR DENSITY: 1.41 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.83 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 12 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 666 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	
WATER.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

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8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3067 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 7
ID NUMBER/U.P.C.:
98-0211-3468-3 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1044-2

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ISOPROPYL ALCOHOL	67-63-0	70.0
WATER	7732-18-5	30.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 24.2 mmHg
(calc @ 20C)
VAPOR DENSITY: 1.22 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.85 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 12 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 597 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H20 & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	
WATER.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3066 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 6
ID NUMBER/U.P.C.:
98-0211-3467-5 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1043-4

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
ISOPROPYL ALCOHOL	67-63-0	60.0
WATER	7732-18-5	40.0

2. PHYSICAL DATA

BOILING POINT:	80 - 100 C (Azeotrope boils at 80.4 C)
VAPOR PRESSURE:	22.7 mmHg (calc @ 20C)
VAPOR DENSITY:	1.07 Air=1 (calc @ 20C)
EVAPORATION RATE:	N/D
SOLUBILITY IN WATER:	complete
SPECIFIC GRAVITY:	0.87 Water=1 (calc @ 20C)
PERCENT VOLATILE:	100 %
pH:	N/A
VISCOSITY:	< 10 centipoise
MELTING POINT:	N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 13 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 524 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	
WATER.....	NONE	NONE	NONE	NONE	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

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8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3065 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 5
ID NUMBER/U.P.C.:
98-0211-3466-7 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1042-6

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	50.0
ISOPROPYL ALCOHOL	67-63-0	50.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 21.5 mmHg
(calc @ 20C)
VAPOR DENSITY: 0.96 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.90 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 16 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 448 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

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7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DATA SHEET

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St. Paul, Minnesota
55144-1000
1-800-364-3577 or (651) 737-6501 (24 hours)

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2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3064 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 4
ID NUMBER/U.P.C.:
98-0211-3465-9 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1041-8

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	60.0
ISOPROPYL ALCOHOL	67-63-0	40.0

2. PHYSICAL DATA

BOILING POINT	80 - 100 C (Azeotrope boils at 80.4 C)
VAPOR PRESSURE	20.5 mmHg (calc @ 20C)
VAPOR DENSITY	0.86 Air=1 (calc @ 20C)
EVAPORATION RATE	N/D
SOLUBILITY IN WATER	complete
SPECIFIC GRAVITY	0.92 Water=1 (calc @ 20C)
PERCENT VOLATILE	100 %
pH	N/A
VISCOSITY	< 10 centipoise
MELTING POINT	N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 20 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 366 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors: Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER.....	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue, blurred vision, slurred speech, giddiness, tremors and convulsions.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3063 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 3
ID NUMBER/U.P.C.:
98-0211-3464-2 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1040-0

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	70.0
ISOPROPYL ALCOHOL	67-63-0	30.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 19.7 mmHg
(calc @ 20C)
VAPOR DENSITY: 0.79 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.94 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 29 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 281 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER.....	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3062 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 2
ID NUMBER/U.P.C.:
98-0211-3463-4 - - -
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1039-2

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	80.0
ISOPROPYL ALCOHOL	67-63-0	20.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 19.0 mmHg
(calc @ 20C)
VAPOR DENSITY: 0.72 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.96 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 36 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 192 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

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7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER.....	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL.....	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL.....	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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MATERIAL SAFETY
DATA SHEET

3M
3M Center
St. Paul, Minnesota
55144-1000
1-800-364-3577 or (651) 737-6501 (24 hours)

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DIVISION: 3M SPECIALTY MATERIALS
TRADE NAME:
SPS-3061 SCOTCHGARD (TM) Aqueous Test Kit - Bottle 1
ID NUMBER/U.P.C.:
98-0211-3462-6
ISSUED: December 10, 1999
SUPERSEDES: January 29, 1998
DOCUMENT: 07-1023-6

1. INGREDIENT

INGREDIENT	C.A.S. NO.	PERCENT
WATER	7732-18-5	90.0
ISOPROPYL ALCOHOL	67-63-0	10.0

2. PHYSICAL DATA

BOILING POINT: 80 - 100 C
(Azeotrope boils at 80.4 C)
VAPOR PRESSURE: 18.5 mmHg
(calc @ 20C)
VAPOR DENSITY: 0.67 Air=1
(calc @ 20C)
EVAPORATION RATE: N/D
SOLUBILITY IN WATER: complete
SPECIFIC GRAVITY: 0.98 Water=1
(calc @ 20C)
PERCENT VOLATILE: 100 %
pH: N/A
VISCOSITY: < 10 centipoise
MELTING POINT: N/A

APPEARANCE AND ODOR:
Clear, colorless liquid.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... 42 C
Setaflash CC
FLAMMABLE LIMITS - LEL:..... N/D
FLAMMABLE LIMITS - UEL:..... N/D
AUTOIGNITION TEMPERATURE:..... N/D

EXTINGUISHING MEDIA:
Water spray, Carbon dioxide, Dry chemical, Alcohol-type foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

OSHA FIRE HAZARD CLASS: Class IB Flammable Liquid

4. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
None known.

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide.

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Ventilate area. Extinguish all ignition sources. Contain spill. Cover with absorbent material. Collect using non-sparking tools. Clean up residue with water. Place in an approved metal container. Seal the container.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

5. ENVIRONMENTAL INFORMATION (continued)

RECOMMENDED DISPOSAL:
Incinerate in a permitted hazardous waste incinerator.

ENVIRONMENTAL DATA:
Not determined.

REGULATORY INFORMATION:
Volatile Organic Compounds: 98 gms/liter South Coast Air Quality Mgmt Dist Method (Grams/Liter of Material).
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = D001 (Ignitable)

EPCRA HAZARD CLASS:
FIRE HAZARD: Yes PRESSURE: No REACTIVITY: No ACUTE: N/D CHRONIC: N/D

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water. Get immediate medical attention.

SKIN CONTACT:
Wash affected area with soap and water.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact.

SKIN PROTECTION:
Avoid skin contact.

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7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED VENTILATION:
Use in a well-ventilated area. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

RESPIRATORY PROTECTION:
Avoid prolonged breathing of vapors. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: half-mask organic vapor respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Not determined.

RECOMMENDED STORAGE:
Store away from heat. Keep container closed when not in use. Keep container in well-ventilated area.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. Flammable liquid and vapor. Keep away from heat, sparks, open flame, and other sources of ignition. No smoking while handling this material.

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
WATER	NONE	NONE	NONE	NONE	
ISOPROPYL ALCOHOL	400	PPM	TWA	ACGIH	
ISOPROPYL ALCOHOL	500	PPM	STEL	ACGIH	
ISOPROPYL ALCOHOL	400	PPM	TWA	OSHA	
ISOPROPYL ALCOHOL	500	PPM	STEL	OSHA	

* SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration

- NONE: None Established

8. HEALTH HAZARD DATA

EYE CONTACT:
Mild Eye Irritation: signs/symptoms can include redness, swelling, pain, and tearing.

SKIN CONTACT:
Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching.

INHALATION:
Prolonged or repeated overexposure, above recommended guidelines, may cause:

Central Nervous System Depression: signs/symptoms can include headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Ingestion may cause:

Irritation of Gastrointestinal Tissues: signs/symptoms can include pain, vomiting, abdominal tenderness, nausea, blood in vomitus, and blood in feces.

Aspiration Pneumonitis: signs/symptoms can include coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

SECTION CHANGE DATES

PRECAUTIONARY INFO. SECTION CHANGED SINCE January 29, 1998 ISSUE

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MATERIAL SAFETY DATA SHEET

Sodium Carbonate, Anhydrous

(Soda Ash LT)

MSDS Ref. No.: 497-19-8
Date Approved: 01/26/2004
Revision No.: 6

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sodium Carbonate, Anhydrous

ALTERNATE PRODUCT NAME(S): Soda Ash, Sodium Carbonate Anhydrous

GENERAL USE: Glass manufacture, detergent manufacture, sodium chemicals and carbonate chemicals manufacture, pulp and paper, brine treatment, water hardness removal, pH adjustment in water or waste water, flue gas desulfurization, coal treatment, ion exchange resin regeneration.

This chemical is certified to ANSI/NSF Standard 60, Drinking Water Chemicals-Health Effects (as packaged in the original, unopened container). The maximum dosage level for this chemical is 150 mg/L

MANUFACTURER

FMC Wyoming Corporation
Alkali Chemicals Division
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

EMERGENCY TELEPHONE NUMBERS

(800) 424-9300 (CHEMTREC - U.S.)
(303) 595-9048 (Medical - Call Collect)

(307) 872-2452 (Plant - Green River, WY)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- White, odorless, granular solid.
- Product is non-combustible.
- Reacts with acids to release carbon dioxide gas and heat.
- Irritating to the eyes and continuous contact may irritate the skin.
- Not expected to be toxic to the environment, nor to aquatic organisms.

POTENTIAL HEALTH EFFECTS: Direct contact with the product causes irritation of the eyes and continuous contact may cause skin irritation (red, dry, cracked skin). Excessive levels of airborne dust may irritate the mucous membranes and upper respiratory tract.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sodium carbonate	497-19-8	99.8	207-838-8	Xi, R36

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist as necessary.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

NOTES TO MEDICAL DOCTOR: While internal toxicity is low, irritant effects of high concentrations may produce corneal opacities, and vesicular skin reactions in humans with abraded skin only. Treatment is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Water, water fog, carbon dioxide (CO_2), dry chemical

FIRE / EXPLOSION HAZARDS: Not applicable

FIRE FIGHTING PROCEDURES: Wear full protective clothing and self-contained breathing apparatus.

FLAMMABLE LIMITS: Not applicable

HAZARDOUS COMBUSTION PRODUCTS: Fumes of sodium oxide.

SENSITIVITY TO IMPACT: None

SENSITIVITY TO STATIC DISCHARGE: None

6. ACCIDENTAL RELEASE MEASURES

COMMENTS: PERSONAL PRECAUTIONS: Refer to Section 8 "Exposure Controls / Personal Protection".

CONTAINMENT: Prevent large quantities of this product from contacting vegetation or waterways; large spills could kill vegetation and fish.

CLEAN-UP: This product, if spilled, can be recovered and re-used if contamination does not present a problem. Vacuum or sweep up the material. If the spilled product is unusable due to contamination, consult state or federal environmental agencies for acceptable disposal procedures and locations. See Section 13 "Disposal Considerations".

NOTIFICATION REQUIREMENTS: Federal regulations do not require notification for spills of this product. State and local regulations may contain different requirements; consult local authorities.

7. HANDLING AND STORAGE

HANDLING: Use air conveying / mechanical systems for bulk transfer to storage. For manual handling o bulk transfer use mechanical ventilation to remove airborne dust from rail car, ship or truck. Use approved respiratory protection when ventilation systems are not available. Selection of respirators is based on the dust cloud generation. Keep material out of lakes, streams, ponds and sewer drains.

STORAGE: Store in a cool dry area, away from acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Where possible, provide general mechanical and/or local exhaust ventilation to prevent release of airborne dust into the work environment.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Appropriate eye and face protection equipment (ANSI Z87 approved) should be selected for the particular use intended for this material. Safety glasses with side shields are recommended.

RESPIRATORY: Whenever dust in the worker's breathing zone cannot be controlled with ventilation or other engineering means, workers should wear respirators or dust masks approved by

NIOSH/MSHA, EU CEN or comparable certification organization to protect them against airborne dust.

PROTECTIVE CLOTHING: Dry product is generally non-irritating to intact skin. However, this product can be irritating where skin has been damaged and can create skin irritation after long exposures when moisture is present. Under such conditions, gloves and long-sleeved clothing are recommended to minimize skin contact.

COMMENTS:

ADDITIONAL EXPOSURE GUIDELINES:

Federal guidelines treat the ingredient(s) in this product as a nuisance dust, as no product-specific guidelines have been issued for exposure. As with all nuisance dusts, worker breating zone concentrations should be measured by validated sampling and analytical methods. The following limits (OSHA and MSHA) apply to this material:

Particulates Not Otherwise Regulated:
OSHA (PEL / TWA): 15 mg/m³ (total dust); 5 mg/m³ (resp fraction)
MSHA (PEL / TWA): 10 mg/m³ (total dust)

The information noted above provides general guidance for handling this product. Specific work environments and material handling practices will dictate the selection and use of personal protection equipment (PPE).

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	White, granular solid.
AUTOIGNITION TEMPERATURE:	Not applicable
BOILING POINT:	Decomposes
COEFFICIENT OF OIL / WATER:	Not applicable
DENSITY / WEIGHT PER VOLUME:	(g/ml) Dense Grades = 0.86 - 1.12; Light Grades = 0.70 - 0.90
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Non-combustible
FREEZING POINT:	851°C (1564°F)
ODOR THRESHOLD:	Not applicable
OXIDIZING PROPERTIES:	Not applicable
PERCENT VOLATILE:	Not applicable

pH:	11.4 (1% solution)
SOLUBILITY IN WATER:	33.2 % maximum
SPECIFIC GRAVITY:	2.509 (water = 1)
VAPOR DENSITY:	Not Applicable
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Contact with acids except under controlled conditions.
STABILITY:	Stable
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Reacts with acids with release of large volumes of carbon dioxide gas and heat.
HAZARDOUS DECOMPOSITION PRODUCTS:	Heated to decomposition, it emits fumes of sodium oxide.

COMMENTS:

Materials to Avoid : Aluminum powder, acids, fluorine, molten lithium

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Severe irritant (rabbit) [Toxicology 23:281 (1982)]

SKIN EFFECTS: Non-irritating to intact skin. Minor irritation may occur on abraded skin. [Toxicol. Appl. Pharmacol. 31:481 (1975)]

DERMAL LD_{50}: No data available for the product.

ORAL LD_{50}: 4,090 mg/kg (rat) [RTECS 1986]

INHALATION LC_{50}: 2.3 mg/l (2 h) (rat) [Environ, Res. 31:138 (1983)]

SENSITIZATION: 0.25% sodium carbonate: Non-sensitizing (human) [Toxicol. Appl. Pharmacol. 31:481 (1975)]

TARGET ORGANS: Eyes

ACUTE EFFECTS FROM OVEREXPOSURE: May cause severe irritation of the eyes, including corneal opacities. Dusts and mists may be irritating to the skin, mucous membranes and upper respiratory tract. No significant acute toxicological effects expected.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the product.

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	(ACGIH) Not listed

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: 96-hour LC_{50} = 265 - 565 mg/L (daphnia magnia) (low toxicity)
96-hour LC_{50} = 300 - 320 mg/L (bluegill sunfish) (low toxicity)

CHEMICAL FATE INFORMATION: Biodegradability does not apply to inorganic substances. No significant toxicity to aquatic organisms is expected.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: When this product is discarded or disposed of, as purchased, it is neither a characteristic nor a listed hazardous waste according to US Federal RCRA regulations (40 CFR 261). As a non-hazardous waste the material may be disposed of in a landfill in accordance with government regulations; check local or state regulations for applicable requirements prior to disposal. Any processing, usage, alteration, chemical additions to, or contamination of, the product may alter the disposal requirements. Under Federal regulations, it is the generator's responsibility to determine if a waste is a hazardous waste.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Not regulated
PRIMARY HAZARD CLASS / DIVISION:	Not applicable
UN/NA NUMBER:	None
LABEL(S):	Not applicable

PLACARD(S): Not applicable

MARKING(S): Not applicable

ADDITIONAL INFORMATION: Hazardous Substance/RQ: Not applicable
49 STCC Number: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

ADDITIONAL INFORMATION: Not regulated

ADR - EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD

ADDITIONAL INFORMATION: Not regulated

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)/ INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

ADDITIONAL INFORMATION: Not regulated

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs:
None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Not listed

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):
Waste Number: Refer to Section 13 "Disposal Considerations" for RCRA status.

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number:	Not applicable
Hazard Classification / Division:	Toxic, Class D, Div. 2, Subdiv. B
Ingredient Disclosure List:	Listed

E NUMBERS:

E 500

EU EINECS NUMBERS:

011-005-00-2

INTERNATIONAL LISTINGS

Australia (AICS): Listed
Korea: KE-31380
Japan (ENCS): (1)-164
Philippines (PICCS): Listed
China: Listed

COMMENTS:

CLEAN WATER ACT (CWA) - SECTION 307 / 311
Not listed as a hazardous pollutant (40 CFR 116), nor as a toxic pollutant (40 CFR 401.15)

CLEAN AIR ACT (CAA) - SECTION 112
Not regulated under the chemical accident prevention provisoins (40 CFR 68)

16. OTHER INFORMATION

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:

Sodium carbonate:

EC Symbols:	Xi	(Irritant)
EC Risk Phrases:	R36	(Irritating to eyes.)
EC Safety Phrases:	S2	(Keep out of the reach of children.)
	S22	(Do not breathe dust.)
	S26	(In case of contact with eyes, rinse immediately with plenty of water and seek medical advice)

HMIS

Health	2
Flammability	0
Physical Hazard	0
Personal Protection (PPE)	B

Protection = B (Safety glasses and gloves)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	2
Flammability	0
Reactivity	0
Special	None

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

REVISION SUMMARY:

Changes in information are as follows:
New Format, as well as text changes and/or updates to one or more Sections of this MSDS.

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STAufferChem.

60110-D
Rev
HAZ

RHONE-POULENC BASIC CHEMICALS CO.
1 Corporate Drive Box 881 Shelton, CT. 06484 (203)925-3300
24-HOUR EMERGENCY TELEPHONE CHEMTREC 1-800-424-9300

PRODUCT NAME(S):

SODA ASH (SODIUM CARBONATE, ANHYDROUS)

Effective Date: May 31, 1991
Supercedes: April 18, 1991

I. IDENTIFICATION

CHEMICAL NAME OF PRIMARY COMPONENT(S): Sodium Carbonate, anhydrous

FORMULA: Na_2CO_3 FORMULA WEIGHT: 105.99

SYNONYMS: Disodium carbonate; soda, calcined; soda ash; carbonic acid, disodium salt
CAS # & name: 497-19-8 Carbonic acid disodium salt

II. INGREDIENTS/SUMMARY OF HAZARDS

INGREDIENT(S)	CAS NUMBER	OSHA HAZARDOUS (H)/ NON-HAZARDOUS (NH)	PERCENT
sodium carbonate	497-19-8	H	100

WARNING STATEMENTS:

WARNING! CAUSES EYE IRRITATION.
PROLONGED OR REPEATED CONTACT MAY CAUSE SKIN IRRITATION.

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Wear appropriate protective clothing and devices when handling. Avoid breathing dust. Do not take internally.

(See Section VI for complete Health Hazard Data)

NATIONAL FIRE PROTECTION ASSOCIATION RATING

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

	NFPA	HMIS
HEALTH	2	2
FIRE	0	0
REACTIVITY	0	0

(4=Extreme/Severe 3=High/Serious
2=Moderate 1=Slight 0=Minimum)

SARA TITLE III HAZARD CLASSIFICATION

IMMEDIATE (ACUTE) HEALTH	YES
DELAYED (CHRONIC) HEALTH	NO
FIRE	NO
SUDDEN RELEASE OF PRESSURE	NO
REACTIVE	NO

III. PHYSICAL DATA

SPECIFIC GRAVITY:	2.532
BULK DENSITY:	48-65 lbs./cu.ft.
MELTING POINT [°C (°F)]:	851°C (1564°F)
DECOMPOSITION POINT [°C (°F)]:	400°C (752°F) begins to evolve CO_2
pH	11.3 (1% aqueous solution) 11.6 (10% aqueous solution)
SOLUBILITY IN WATER [@ 0 °C]:	7g/100g water
APPEARANCE AND ODOR:	white granular solid/odorless

(For additional technical information call 1-800-642-4200)

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [°C (°F)]: Noncombustible

FLAMMABLE LIMITS IN AIR: Not applicable

AUTOIGNITION TEMPERATURE [°C (°F)]: Not applicable

SPECIAL FIRE FIGHTING PROCEDURES:
Wear a NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Dike area to prevent runoff and contamination of water sources.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Does not contribute any unusual hazards in a fire. Decomposes to form carbon dioxide, a fire extinguishing agent.

V. REACTIVITY DATA

STABILITY:
Stable at ambient temperatures and atmospheric pressure.

CONDITIONS TO AVOID:
Hygroscopic; protect from moisture. Remixing of separated acid and sodium carbonate solutions could cause CO_2 evolution and severe splattering.

MATERIALS TO AVOID:
Reacts with strong acids.
Can react violently with Al, P_2O_5, H_2SO_4, F_2, Li and 2,4,6-trinitrotoluene (1)
This material upon contact with certain food products or their residues which contain reducing sugars, may react to form deadly carbon monoxide gas. Proper tank entry and occupancy procedures should be observed. Monitor the tank atmosphere for the presence of carbon monoxide gas.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon dioxide is evolved at very high temperatures (1000°C, 1832°F) or when mixed with acids.

HAZARDOUS POLYMERIZATION:
Will not occur.

VI. HEALTH HAZARD DATA/FIRST AID PROCEDURES

EXPOSURE LIMITS: (None specifically established for this product.)

Chemical Name(s)	ACGIH (TLV)	OSHA (TWA)
Particulates Not Otherwise Classified	10 mg/m³ (TWA) total dust	15 mg/m³ total dust 5 mg/m³ respirable fraction

TOXICOLOGY DATA:

Oral LD50 (rats):	3160 mg/kg (2), 4090 mg/kg (3)
Dermal LD50 (rabbits):	No information available
Inhalation LC50 (rats):	2300 mg/m³/2H (3)
Skin Effects (rabbits):	Non-irritant; 4 hr exposure (2) Mild irritant 24 hr exposure (3)
Eye Effects (rabbits):	Severe irritant (2) Mild irritant (100 mg with 30 sec rinse) (3)

CARCINOGENICITY:
This product does not contain any ingredient designated by IARC, NTP, ACGIH OR OSHA as a probable human carcinogen.

EFFECTS OF SINGLE OVEREXPOSURE:

Swallowing: May cause burns of the mouth, throat, esophagus and stomach. May cause nausea, vomiting, and diarrhea if large quantities are ingested.

Skin Absorption: Skin absorption through intact skin is likely to be negligible.

Inhalation: May be irritating to the nose, throat and respiratory tract.

Skin Contact: May cause skin irritation, seen as redness and swelling. In presence of moisture or sweat, may cause more severe irritation, including burns, following prolonged contact.

Eye Contact: Causes eye irritation.

EFFECTS OF REPEATED OVEREXPOSURE:
Repeated exposure may lead to irritation and/or sensitivity of the skin.

OTHER EFFECTS OF OVEREXPOSURE:
Concentrated solutions in contact with skin and eyes may cause chemical burns.

EXISTING MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:
Skin irritation may be aggravated in persons with existing skin lesions. Breathing of dust may aggravate acute or chronic asthma and other chronic pulmonary disease.

VI. HEALTH HAZARD DATA/FIRST AID PROCEDURES (continued)

EMERGENCY AND FIRST AID PROCEDURES:

Swallowing: If victim is conscious and alert, give two or more glasses of water or milk to drink. Do not induce vomiting. If vomiting does occur, give fluids again. Do not give carbonated beverages or weak acids such as vinegar. Do not give anything by mouth to an unconscious or convulsing person. GET IMMEDIATE MEDICAL ATTENTION.

Skin: Immediately wipe excess material off skin with a dry cloth then wash with soap and plenty of water. Remove contaminated clothing and shoes. If heavy contamination has occurred, then discard the clothing in a manner which limits further exposure. Otherwise, thoroughly clean contaminated clothing and shoes before reuse. GET MEDICAL ATTENTION.

Inhalation: Remove victim to fresh air. IF not breathing administer cardiopulmonary resuscitation or artificial respiration. If breathing is difficult or irritation develops, GET MEDICAL ATTENTION.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Lift upper and lower lids and rinse well under them. GET MEDICAL ATTENTION, preferably an ophthamologist.

NOTES TO PHYSICIANS:

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

If burns result from overexposure, treat in the following manner:

Ingestion

Treat asphyxia from glottal edema by maintaining an adequate airway. Treat shock. Maintain normal blood pressure by transfusion and by the administration of 5% dextrose in saline. If symptoms are severe and perforation of the stomach or esophagus is suspected, give nothing by mouth until endoscopic examination has been done. Maintain nutrition by giving carbohydrate or hyperalimentary fluid intravenously. Give prednisolone, 2 mg/kg/d in divided doses for 10 days, to reduce progression of fibrocystic and hyaline lung disease. Esophageal stricture may require dilation.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

To the extent possible, clean up spillage using shovels, sweeping, or vacuuming. Avoid dust generation. Place in appropriate containers for disposal. Flush area with water.

If spilled on the ground, the affected area should be scraped clean and the material placed in an appropriate container for disposal. Do not flush material to public sewer systems or any waterways. Wear appropriate protective clothing and equipment during clean up activities. Ensure adequate decontamination of tools and equipment following clean up.

Large spills should be handled according to a predetermined plan. For assistance in developing a plan, contact the Technical Service Department, 1-800-642-4200.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE (continued)

WASTE DISPOSAL METHOD:
Dispose of in accordance with Local, State and Federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Do not ingest. Avoid exposure by inhalation. Avoid getting in eyes or on skin and clothing.
Containers should be stored in a cool, dry, well ventilated area away from flammable materials and sources of heat or flame. Store away from foodstuffs or animal feed. Exercise due caution to prevent damage to or leakage from container.

VIII. SPECIAL PROTECTION INFORMATION

PROTECTIVE EQUIPMENT SHOULD BE USED DURING THE FOLLOWING PROCEDURES:
- Manufacture or formulation of this product
- Repair and maintenance of contaminated equipment
- Clean up of leaks and spills
- Any activity that may result in exposures to concentrations that exceed exposure limits.

RESPIRATORY PROTECTION:
In dusting conditions, use a NIOSH/MSHA approved dust mask if concentration exceeds suggested exposure limits. Use positive pressure supplied air or self-contained breathing apparatus for emergency or other conditions where a higher level of protection is required.

VENTILATION:
Provide adequate ventilation. Use local exhaust as needed to maintain airborne exposure below control limits.

PROTECTIVE CLOTHING:
Work clothing. Chemical resistant gloves and boots.

EYE PROTECTION:
Chemical safety goggles.

OTHER PROTECTIVE EQUIPMENT:
Maintain a sink, safety shower and eyewash fountain in the work area. Have oxygen readily available.

IX. REGULATORY STATUS

TSCA Inventory Status: This product is listed on the TSCA inventory.

Transportation Status: Not regulated

SARA Title III
Section 302 Extremely Hazardous Substance List: Not listed
Section 313 Toxic Chemicals: Not listed

Reportable Quantity (RQ) under US EPA CERCLA: Not listed

RCRA Hazardous Waste: Not listed
State/International Right-to-Know Regulations: Listed for Canada only.

X. REFERENCES

(1) Bretherick, Handbook of Reactive Chemical Hazards, 3rd ed.
(2) Unpublished RP toxicity study.
(3) RTEC 1/91
(4) Dreisbach, Handbook of Poisoning, 12th ed.

The information herein is given in good faith
but no warranty, expressed or implied, is made.

MSDS # 03500-90.BSC
PSIS # SOD.455.B

General Chemical

PRODUCT SAFETY DATA SHEET

SODA ASH

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME)		☒ C.A.S. NO. ☐ GENERAL PRODUCT CODE #
Soda Ash		497-19-8
CHEMICAL NAME AND/OR SYNONYM		
Sodium Carbonate		
FORMULA		MOLECULAR WEIGHT
Na_2CO_3		105.99

SODA ASH

REACTIVITY 1

PERSONAL PROTECTION E

0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE

FOR FURTHER INFORMATION CONSULT MSDS

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)

GENERAL CHEMICAL CORPORATION
90 East Halsey Road
Parsippany, N.J. 07054

CONTACT	PHONE NUMBER	LAST ISSUE DATE	CURRENT ISSUE DATE
Manager of Product Safety	(201) 515-1840	July, 1990	March, 1993

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER
(800) 631-8050

SKIN: Wash with plenty of water.

EYES: Flush with plenty of water for at least 15 minutes and get medical attention.

INGESTION: Drink large quantities of water to dilute the material. Do not induce vomiting.

INHALATION: Remove to fresh air.

Get medical attention for irritation, ingestion or discomfort from inhalation.

C. HAZARDS INFORMATION

HEALTH

INHALATION

Inhalation of product dust may irritate nose, throat and lungs.

INGESTION

Although low in toxicity, ingestion can be harmful - consult a physician.
May irritate mouth, esophagus, stomach, etc. LD_{50} (rat): 2.8 gm/kg. See reference (a).

SKIN

May cause skin irritation from prolonged contact.

EYES

May irritate or burn eyes.

PERMISSIBLE CONCENTRATION: AIR (SEE SECTION J)		BIOLOGICAL
No TLV established.	None established.	None.

UNUSUAL CHRONIC TOXICITY

None known.

ND = NOT DETERMINED

NA = NOT APPLICABLE

. HAZARDS (Cont.)

RE AND EXPLOSION

ASH POINT	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS IN AIR (% BY VOL.)
Not flammable] OPEN CUP ☐ CLOSED CUP	NA	LOWER - NA UPPER - NA

NUSUAL FIRE AND EXPLOSION HAZARDS

None.

. PRECAUTIONS/PROCEDURES

RE EXTINGUISHING AGENTS RECOMMENDED

NA

RE EXTINGUISHING AGENTS TO AVOID

NA

PECIAL FIRE FIGHTING PRECAUTIONS

NA

ENTILATION

Local exhaust if dusty condition prevails.

ORMAL HANDLING

Avoid eye contact or prolonged skin contact. Avoid breathing dust. When dissolving, add to water cautiously and with stirring; solutions can get hot.

TORAGE

Store in a cool, dry area away from acids. Prolonged storage may cause product to cake from atmospheric moisture.

PILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT - SECTION E)

Shovel up dry chemical into an empty container with a cover. Flush residue with plenty of water.
(See Section I for disposal methods).

PECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

SIGNAL WORD - WARNING!

Avoid simultaneous exposure to soda ash and lime dust. In the presence of moisture the two materials combine to form caustic soda (NaOH), which may cause burns.

E. PERSONAL PROTECTIVE EQUIPMENT

ESPIRATORY PROTECTION

Where required, use a respirator approved by NIOSH for product dusts.

YES AND FACE

Wear hard hat (or other head covering) and chemical safety goggles.
Do not wear contact lenses.

ANDS, ARMS, AND BODY

Wear long-sleeve shirt and trousers, and gloves for routine product use.
Cotton gloves are sufficient for dry product; wear impervious gloves when handling solutions.

THER CLOTHING AND EQUIPMENT

Eyewash is recommended.

F. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	White powder. Odorless.	
BOILING POINT °C MELTING POINT 854 °C	SPECIFIC GRAVITY (H20 = 1) 2.533	VAPOR DENSITY (AIR = 1) NA
SOLUBILITY IN WATER (% by Weight) 17% solution at 20 °C	pH 1% solution; pH = 11.3	VAPOR PRESSURE (mm Hg at 20°C) ☐ (PSIG) ☐ NA
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☐ NA	% VOLATILES BY VOLUME (At 20°C) NA	

G. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☒ STABLE	None.

INCOMPATIBILITY (MATERIALS TO AVOID)

Contact with acids will release carbon dioxide gas.
When mixed with lime dust and water, corrosive caustic soda may be produced.

HAZARDOUS DECOMPOSITION PRODUCTS

See above

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	None.

H. HAZARDOUS INGREDIENTS (Mixtures Only)

MATERIAL OR COMPONENT / C.A.S. #	WT. %	HAZARD DATA (SEE SECT. J)
NA		

* = PROPRIETARY - TRADE SECRET

ENVIRONMENTAL

GRADABILITY/AQUATIC TOXICITY

ND

OCTANOL/WATER PARTITION COEFFICIENT
ND

A HAZARDOUS SUBSTANCES (CLEAN WATER ACT SEC. 311) ☐ YES ☒ NO IF SO REPORTABLE QUANTITY: _____ # — 40 CFR 116-117

ASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)

If permitted by applicable disposal regulations, bury in a solid waste landfill or dissolve and neutralize as follows: Dissolve in water using caution as solution can get hot. Neutralize with acid and flush to sewer with plenty of water. Good ventilation is required during neutralization due to release of CO_2 gas. Neutralized waste may have to be disposed of by an approved contractor.

RA STATUS OF UNUSED MATERIAL IF DISCARDED
Not a hazardous waste.

HAZARDOUS WASTE NUMBER: (IF APPLICABLE) — 40 CFR 261

REFERENCES

RMISSIBLE CONCENTRATION REFERENCES

None.

GULATORY STANDARDS

D.O.T. CLASSIFICATION: Not regulated — 49 CFR 173

None additional cited.

NERAL

(a) General Chemical Corporation data, unpublished.

ADDITIONAL INFORMATION

This product is not for use as a food or drug additive.

PSDS FILE NO. - GC 1000

THIS PRODUCT SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION.

GENERAL CHEMICAL CORPORATION PROVIDES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.

19-120354

SAM HPRP Chemicals Inc.
19055 Valley View Road, Eden Prairie, MN 55346 - 3945, USA
Phone :+1 (952) 974 9174 Fax: +1 (952) 974 8183
E Mail: morsunusa@msn.com

MATERIAL SAFETY DATA SHEET

Sodium Acetate

Section 1: Product and Company Identification

Product Identification:	Sodium Acetate Synonyms: Acetic Acid, Sodium Salt
Date of MSDS:	01/10/05

Manufacturer's Information

Manufacturer's Name:	SAM HPRP Chemicals Inc.
Manufacturer's Address1:	19055 Valley View Road
Manufacturer's Address2:	Eden Prairie, MN 55346
Manufacturer's Country:	USA
General Information Telephone:	952 974 9174
Emergency Telephone:	612 280 7079
MSDS Preparer's Name:	Sunil Shah

Section 2 - Composition/Information on Ingredients

Ingredient Name:	Sodium Acetate, 98-100%
Ingredient CAS Number:	127-09-3

Section 3 - Hazards Identification, Including Emergency Overview

Emergency Overview:

WARNING! MAY CAUSE IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Health Hazards Acute & Chronic:	No information found.
Signs & Symptoms of Overexposure:	No information found.
Medical Conditions Aggravated by Exposure:	No information found.
Inhalation:	May cause irritation to the respiratory tract. Symptoms may include coughing, sore throat, labored breathing, and chest pain.

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Skin:	May cause irritation with redness and pain.
Ingestion:	Large doses may produce abdominal pain, nausea, and vomiting.
Eye:	May cause irritation, redness and pain.

Section 4 – First Aid Measures

First Aid	**Inhalation:** Remove to fresh air. Get medical attention for any breathing difficulty. **Ingestion:** Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice. **Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops. **Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

Section 5 – Fire Fighting Measures

Fire Fighting Procedures:	**Fire:** Autoignition temperature: 611C (1132F) Combustible. May pose a fire hazard when exposed to elevated temperatures or by contact with an ignition source. **Explosion:** Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. **Fire Extinguishing Media:** Water spray, dry chemical, alcohol foam, or carbon dioxide. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode

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Section 6 – Accidental Release Measures

Spill Release Procedures:	Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. Small amounts of residue may be flushed to sewer with plenty of water.

Section 7 – Handling and Storage

Handling and Storage Precautions:	Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls & Personal Protection

Respiratory Protection:	For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Ventilation:	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Protective Gloves:	Yes

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Eye Protection:	Yes with Industrial goggles. Maintain Eye-wash fountain.

Section 9 – Physical and Chemical Properties

Boiling Point:	Not Applicable
Melting/Freezing Point:	324C (615F)
Vapor Pressure:	No Information Found.
Vapor Density:	No Information Found.
Percent Volatile Organic Content:	0
Specific Gravity:	1.53
pH:	No Information Found.
Evaporation Weight and Reference:	No Information Found.
Solubility in Water:	119 g/100 g cold water
Appearance and Odor:	White hygroscopic crystals. Odorless.

Section 10 – Stability and Reactivity Data

Stability Indicator:	Stable under ordinary conditions of use and storage. Hygroscopic powder.
Materials to Avoid:	Incompatible with Nitric acid, fluoride, potassium nitrate, strong oxidizers and diketene.
Stability Condition to Avoid:	Heat, flames, ignition sources and incompatibles.
Hazardous Decomposition Products:	Emits fumes of acetic acid upon heating and on contact with strong acids.
Hazardous Polymerization Indicator:	Will not occur.

Section 11 – Toxicology Information

Toxicological Information:	Oral rat LD50: 3530 mg/kg; inhalation rat LC50: > 30 gm/m3; skin rabbit LD50: > 10 mg/kg; Irritation Data, standard Draize: Skin rabbit 500 mg/24H, mild; standard Draize, Eye rabbit 10 mg, mild. Investigated as a mutagen.

```
  --------\Cancer Lists\-----------------------
-------------------------------
                                                ---NTP
Carcinogen---
  Ingredient                                    Known
Anticipated    IARC Category
  ------------------------------------          -----
-----------    -------------
  Sodium Acetate (127-09-3)                      No
No             None
```


WWW_104(e)_018313

Section 12 – Ecological Information

Ecological Information:	No Information Found.

Section 13 – Disposal Considerations

Waste Disposal Methods:	Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – MSDS Transport Information

Transport Information:	Nor Regulated.

Section 15 – Regulatory Information

```
--------\Chemical Inventory Status - Part 1\---------------------------
------
  Ingredient                                          TSCA  EC   Japan
Australia
  ----------------------------------------------  ----  ---  -----  --
-------
  Sodium Acetate (127-09-3)                        Yes  Yes   Yes
Yes

  --------\Chemical Inventory Status - Part 2\-------------------------
--------

                                                          --Canada--
  Ingredient                                         Korea  DSL   NDSL
Phil.
  ----------------------------------------------  -----  ---   ----  -
----
  Sodium Acetate (127-09-3)                        Yes   Yes   No
Yes

  --------\Federal, State & International Regulations - Part 1\--------
--------

                                              -SARA 302-    ------SARA
313------
  Ingredient                                  RQ    TPQ     List
Chemical Catg.
```


WWW_104(e)_018314

```
---------------------------------------- ---   -----   ----  --------
------
  Sodium Acetate (127-09-3)                 No    No      No
No

  --------\Federal, State & International Regulations - Part 2\--------
--------
                                                        -RCRA-    -
TSCA-
  Ingredient                                CERCLA     261.33     8(d)
  ---------------------------------------- ------     ------    -----
-
  Sodium Acetate (127-09-3)                 No         No         No


Chemical Weapons Convention:  No     TSCA 12(b):  No     CDTA:  No
SARA 311/312:  Acute: Yes      Chronic: No   Fire: No  Pressure: No
Reactivity: No          (Pure / Solid)
```

Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16 – Other Information

Other Information:	**NFPA Ratings:** Health: **1** Flammability: **1** Reactivity: **0** **Label Hazard Warning:** CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. **Label Precautions:** Avoid contact with eyes, skin and clothing. Avoid breathing dust. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. **Label First Aid:** If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. **Product Use:**

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19-120354

MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard, 29CFR 1910. 1200. Standard must be consulted for specific regulations.

SODIUM ACETATE
Quick Identifier
Common Name (Used on Label and List)

SECTION I - GENERAL INFORMATION

Manufacturer's Name - JARCHEM INDUSTRIES, INC.
Address - 414 Wilson Avenue
Newark, NJ 07105

Emergency Telephone # - (201) 344-0600
Other Information Calls - (201) 344-0600

Secondary Telephone No.: CHEMTREC
(800) 424-9300
24 Hour a Day

Date Prepared - February 5, 1997

SECTION II - HAZARDOUS INGREDIENTS / IDENTITY

HAZARDOUS COMPONENT(S) [CHEMICAL & COMMON NAMES]:
Sodium Acetate is non-hazardous.

OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NUMBER
* not established				127-09-3

HMIS: H-1, F-0, R-0, P-B
* Consider ACIGH TWA of 10mg/m^3 for particulates not otherwise classified.

SECTION III - PHYSICAL & CHEMICAL CHARACTERISTICS

BOILING POINT: N/A
SPECIFIC GRAVITY (H_2O = 1): 1.53

VAPOR DENSITY (AIR = 1): N/A VAPOR PRESSURE (mmHg): N/A

SOLUBILITY IN WATER: 46% by weight
REACTIVITY IN WATER: N/A
APPEARANCE & ODOR: White crystalline powder / Acetous odor.
MELTING POINT: 324° C

SECTION IV- FIRE & EXPLOSION DATA

FLASH POINT: N/A Method Used = N/A

FLAMMABLE LIMITS IN AIR BY VOLUME: LEL Lower - N/A UEL Upper - N/A

AUTO-IGNITION TEMPERATURE: N/A

EXTINGUISHER MEDIA: Water

SPECIAL FIRE FIGHTING PROCEDURES: N/A

UNUSUAL FIRE & EXPLOSIVE HAZARDS: Thermal decomposition may cause carbon monoxide.

SECTION V - PHYSICAL HAZARDS (REACTIVITY DATA)

STABILITY: Stable [X] Unstable [ ] CONDITIONS TO AVOID: N/A

INCOMPATIBILITY (MATERIALS TO AVOID): N/A
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide

HAZARDOUS POLYMERIZATION: May Occur / Will NOT Occur [X] CONDITIONS TO AVOID: N/A

SECTION VI - HEALTH HAZARDS

1. ACUTE: Irritation 2. CHRONIC: N/A

SIGNS & SYMPTOMS OF EXPOSURE: Irritation to skin, eyes or respiratory tract.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Irritation to skin, eyes or respiratory tract.

CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:

National Toxicology Program - Yes [ ] No [X] I.A.R.C. Monographs Yes [ ] No [X] OSHA Yes [ ] No [X]

EMERGENCY AND FIRST AID PROCEDURES:
Remove to fresh air. Flush affected area with water. Seek medical attention for eye contact or ingestion.

ROUTES OF ENTRY:
1. Inhalation Possible with insuing irritation.
2. Eyes Possible with insuing irritation.
3. Skin Possible with insuing irritation.
4. Ingestion Possible with insuing irritation.

SECTION VII - SPECIAL PRECAUTION AND SPILL / LEAK PROCEDURES

PRECAUTION TO BE TAKEN IN HANDLING AND STORAGE: Keep in closed containers, in a dry place.

OTHER PRECAUTIONS: N/A

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Shovel to clean container, and hold for disposal. Flush area with water.

WASTE DISPOSAL METHODS (CONSULT FEDERAL, STATE & LOCAL REGULATIONS):
In accordance with all Federal, State and Local regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION / CONTROL MEASURES

RESPIRATORY PROTECTION: Use NIOSH approved respirator, if dusting occurs.

VENTILATION: N/A LOCAL EXHAUST: If dusty
MECHANICAL (GENERAL): N/A SPECIAL: N/A
PROTECTIVE GLOVES: Rubber or plastic
EYE PROTECTION: Safety glasses or goggles
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: N/A

WORK / HYGIENIC PRACTICES: Good personal hygiene

NIACET CORPORATION
P.O. Box 258
Niagara Falls, NY 14304
Fx (716) 285 1497
Ph (716) 285 1474

MSDS
NIACET ANHYDROUS
SODIUM ACETATE

Issued: April 1994

EMERGENCY PHONE NUMBER: (800) 424 9300

MATERIAL SAFETY DATA SHEET
ANHYDROUS SODIUM ACETATE

SECTION I - PRODUCT IDENTIFICATION

Product Name: NIACET Sodium Acetate, Anhydrous
Chemical Synonyms: ASA; acetic acid, sodium salt
Chemical Family: organic acid, sodium salt
Chemical Formula: C2H3O2Na

SECTION II - INGREDIENTS

	% by wt.	CAS #
Sodium Acetate (dry basis)	99 min	127-09-3
Water	0.7 max	7732-18-5

SECTION III - PHYSICAL DATA

Molecular Weight:	82.03
Appearance:	white powder
pH of 10% Aq Soln:	7.5 to 9.2
Odor:	odorless
Melting Point:	324 'C
Boiling Point:	not applicable
Vapor Pressure:	not applicable
Bulk Density:	approx. 50 lbs./cu. ft.
Solubility in Water:	34% in water at 20'C
Reactivity in Water:	does not react

SECTION IV - FIRE & EXPLOSION HAZARD

Flash Point:	None by Tag Closed Cup
Flammable Limits:	Not Determined
Auto-Ignition Temperature:	Not Applicable
Unusual Hazards:	Avoid dispersion of dust to minimize possible explosion hazard.
Extinguishing Media:	Appropriate media for surrounding fire.

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Niagara Falls, NY 14304
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Ph (716) 285 1474

SECTION V - REACTIVITY DATA

Hazardous Decomposition Products: Carbon monoxide
Hazardous Polymerization: Will not occur.
Incompatability: Strong oxidizing agents

SECTION VI - TOXICITY DATA

* Sodium Acetate is a non-toxic food chemical and Generally *
* Recognized As Safe (GRAS) by the FDA. *

Occupational Exposure: No exposure limits have been set by OSHA, NIOSH or ACGIH.
Carcinogen: IARC: NO, NTP: NO, OSHA: NO

SECTION VII - HEALTH HAZARD INFORMATION

Primary Routes of Exposure:

Ingestion: If swallowed, wash mouth out with water.
Eye Contact: Can cause irritation. Flush with water for at least 15 minutes, hold eyelids open. Get medical attention.
Skin Contact: May cause irritation of the skin. Wash area with soap and water. Get medical attention if irritation persists.
Inhalation: If irritation develops, remove to fresh air.

Effects of Overexposure:
Dust, in high concentration, may cause irritation of eyes, nose and throat.

Medical Conditions Aggravated by Exposure:
None identified. Handle with reasonable care.

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Ph (716) 285 1474

EMERGENCY PHONE NUMBER: (800) 424 9300

SECTION VIII - EMPLOYEE PROTECTION

Protective Clothing:	Appropriate work apparel. Plastic or rubber gloves optional.
Eye Protecton:	Safety glasses should always be worn when working with chemicals.
Respiratory Protection:	Material should be handled in a manner that does not produce airborne particles. If dust is a problem a dust mask or respirator is recommended.

SECTION IX - SPILL AND DISPOSAL PROCEDURES

Action to be Taken for Spills:
Wear suitable protective clothing including a respirator or dust mask. Sweep up spillage and collect for disposal. Wash down area with large quantities of water.

Disposal Methods:
Material is biodegradable. Dispose of in accordance with applicable Federal, state and local regulations.

SECTION XI - OTHER REGULATORY CONTROLS

TSCA Inventory:	YES	(all ingredients)
OSHA Hazard:	NO	
Regulated under RECRA:	NO	
Regulated under CERCLA:	NO	
Regulated under SARA Title III:	NO	

The information herein is given in good faith and believed to be accurate and has been compiled from sources believed to be reliable. Buyer assumes all risk of use, storage and handling of this product in compliance with applicable federal, state, and local laws and regulations.

**** MATERIAL SAFETY DATA SHEET ****

Sodium Azide
20960

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Sodium Azide
Catalog Numbers:
BP922I 500, BP922I-500, BP922I500, BP922I50001, S227B100, S227B25, S227I 1, S227I 100, S227I 25, S227I 500, S227I-1, S227I-100, S227I-25, S227I-500, S227I1, S227I100, S227I25, S227I500
Synonyms:
Hydrazoic Acid, Sodium Salt.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
26628-22-8	Sodium azide	100.0	247-852-1

Hazard Symbols: T+ N
Risk Phrases: 28 32 50/53

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: colourless.
Danger! May be fatal if swallowed. May be harmful if absorbed through the skin. Water-Reactive. Poison! May cause cardiac disturbances. Causes eye and skin irritation. Causes digestive and respiratory tract irritation.
Target Organs: Cardiovascular system.

Potential Health Effects
Eye:
Causes eye irritation.
Contact with dust or vapor may cause systemic toxic effects.

Skin:
Causes skin irritation. May be fatal if absorbed through the skin. Substance is rapidly absorbed through the skin.
Ingestion:
May be fatal if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.
This chemical is rapidly absorbed from the gastrointestinal tract. Exposure may cause a rapid fall in blood pressure, weakness, headache, collapse and death. Solutions of sodium azide release hydrazoic acid vapor, which is highly toxic.
Inhalation:
May be fatal if inhaled. Dust is irritating to the respiratory tract. May cause effects similar to those described for ingestion. Rapidly absorbed.
Chronic:
Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:
Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes. SPEEDY ACTION IS CRITICAL!
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth respiration.
Notes to Physician:
Treat symptomatically and

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Will react with water to form toxic and corrosive fumes. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Combustible material; may burn but does not ignite readily.
Extinguishing Media:
Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well after fire is out.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.
Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Do not store in metal containers. Keep containers tightly closed.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium azide	as sodium azide: C 0.29 mg/m3	none listed	none listed

OSHA Vacated PELs:
Sodium azide:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Solid
Appearance:	colourless
Odor:	odorless
pH:	Not available.
Vapor Pressure:	Negligible.
Vapor Density:	2.2
Evaporation Rate:	negligible
Viscosity:	Not applicable.
Boiling Point:	Not applicable.
Freezing/Melting Point:	>527F decomposes
Autoignition Temperature:	Not available.

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Flash Point: 300 deg C (572.00 deg F)
NFPA Rating: (est.) Health: 4; Flammability: 0; Reactivity: 1
Explosion Limits, Lower: Not available.
Upper: Not available.
Decomposition Temperature: > 527 deg F
Solubility: Soluble.
Specific Gravity/Density: 1.846
Molecular Formula: N3Na
Molecular Weight: 65.0099

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable. However, may decompose if heated.
Conditions to Avoid:
Contact with water, strong acids, oxidizers, temperatures above 300&C.
Incompatibilities with Other Materials:
Sodium azide is self-reactive. It will decompose at 275C. Incompatible with benzoyl chloride, potassium hydroxide, bromine, carbon disulfide, chromyl chloride, copper, dibromomalononitrile, dimethyl sulfate, lead, nitric acid, silver, mercury. Reacts with lead, silver, mercury to form shock sensitive and explosive metal azides.
Hazardous Decomposition Products:
Nitrogen oxides, hydrazoic acid.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 26628-22-8: VY8050000
LD50/LC50:
CAS# 26628-22-8: Oral, mouse: LD50 = 27 mg/kg; Oral, rat: LD50 = 27 mg/kg; Skin, rabbit: LD50 = 20 mg/kg.
Carcinogenicity:
Sodium azide -
ACGIH: as sodium azide and as hydrozoic acid vapor: A4 - Not Cla
Epidemiology:
No information available.
Teratogenicity:
TDLo(Oral, rat) = 2730 mg/kg/78W-C; Skin and Appendages tumors TD - Toxic dose (other than lowest)(Oral,rat) = 5460 mg/kg/78W-C Endocrine - tumors, Skin and Appendages - tumors.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
Mutation in microorganisms(Salmonella typhimurium)= 30 ng/plate Mutation in microorganisms(Salmonella typhimurium)= 1 ug/plate Mutation in microorganisms(Escherichia coli) = 150 nmol/L.
Other Studies:
Laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, hepatic and cerebral effects.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Fish: Rainbow trout: LC50 = 0.8-1.6 mg/L; 96 Hr.; 13 degrees CFish: Bluegill/Sunfish: LC50 = 0.7-0.8 mg/L; 96 Hr.; 18 degrees CNo information available.
Other
For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: CAS# 26628-22-8: waste number P105.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: SODIUM AZIDE
Hazard Class: 6.1
UN Number: UN1687
Packing Group: II
Canadian TDG
Shipping Name: SODIUM AZIDE
Hazard Class: 6.1

UN Number: UN1687

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 26628-22-8 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
CAS# 26628-22-8: final RQ = 1000 pounds (454 kg)
Section 302 (TPQ)
CAS# 26628-22-8: TPQ = 500 pounds (This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solvent form); RQ = 1000 pounds
SARA Codes
CAS # 26628-22-8: acute, chronic, reactive.
Section 313
This material contains Sodium azide (CAS# 26628-22-8, 100 0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Sodium azide can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: T+ N
Risk Phrases:
R 28 Very toxic if swallowed.
R 32 Contact with acids liberates very toxic gas.
R 50/53 Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.
Safety Phrases:
S 28 After contact with skin, wash immediately with plenty of soap and water.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 60 This material and/or its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.
WGK (Water Danger/Protection)
CAS# 26628-22-8: 2
United Kingdom Occupational Exposure Limits
CAS# 26628-22-8: OES-United Kingdom, STEL as NaN3: 0.3 mg/m3 STEL
Canada
CAS# 26628-22-8 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of D1A, D2B.
CAS# 26628-22-8 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 26628-22-8: OEL-AUSTRALIA:TWA 0.1 ppm (0.3 mg/m3)
OEL-BELGIUM:STEL 0.11 ppm (0.3 mg/m3)
OEL-DENMARK:TWA 0.3 mg/m3
OEL-FINLAND:TWA 0.1 ppm (0.3 mg/m3);STEL 0.3 ppm (0.9 mg/m3)
OEL-FRANCE:STEL 0.1 ppm (0.3 mg/m3)
OEL-GERMANY:TWA 0.07 ppm (0.2 mg/m3)
OEL-THE NETHERLANDS:TWA 0.1 ppm (0.3 mg/m3)
OEL-SWITZERLAND:TWA 0.07 ppm (0.2 mg/m3)
OEL-UNITED KINGDOM:TWA 0.1 ppm (0.3 mg/m3);STEL
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

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MSDS Creation Date: 7/01/1999 Revision #6 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

WWW_104(e)_018323

60 - 120111

SAM HPRP Chemicals Inc.
19055 Valley View Road, Eden Prairie, MN 55346-3945, USA
Phone: +1 (952) 974 9174 Fax: +1 (952) 974 8183
Email: morsunusa@msn.com

Material Safety Data Sheet

Sodium Bicarbonate

Section 1: Product and Company Identification

Product Identification:	Sodium Bicarbonate Synonyms: Sodium hydrogen carbonate; sodium acid carbonate; baking soda; bicarbonate of soda
Date of MSDS:	01/10/05

Manufacturer's Information

Manufacturer's Name:	SAM HPRP Chemicals Inc.
Manufacturer's Address1:	19055 Valley View Road
Manufacturer's Address2:	Eden Prairie, MN 55346
Manufacturer's Country:	USA
General Information Telephone:	952 974 9174
Emergency Telephone:	612 280 7079
MSDS Preparer's Name:	Optional

Section 2 - Composition/Information on Ingredients

Ingredient Name:	Sodium Bicarbonate, 99-100%
Ingredient CAS Number:	144-55-8

Section 3 - Hazards Identification, Including Emergency Overview

Emergency Overview:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing. Health Rating: 1 - Slight
Flammability Rating: 1-Slight
Reactivity Rating: 1- Slight
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Green (General Storage)

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Potential Health Effects

Inhalation: High concentrations of dust may cause coughing and sneezing.
Ingestion: Extremely large oral doses may cause gastrointenstinal disturbances.
Skin Contact: No adverse effects expected.
Eye Contact: Contact may cause mild irritation, redness, and pain.
Chronic Exposure: No information found.
Aggravation of Pre-existing Conditions: No information found.

Section 4 – First Aid Measures

First Aid	**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **Ingestion:** Give several glasses of water to dilute. Never give anything by mouth to an unconscious person. Get medical attention. **Skin Contact:** Not expected to require first aid measures. **Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Section 5 – Fire Fighting Measures

Fire Fighting Procedures:	**Fire:** Not considered to be a fire hazard. **Explosion:** Not considered to be an explosion hazard. **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode.

Section 6 – Accidental Release Measures

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Spill Release Procedures:	Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Section 7 – Handling and Storage

Handling and Storage Precautions:	Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls & Personal Protection

Respiratory Protection:	**Airborne Exposure Limits:** None established. **Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. **Personal Respirators (NIOSH Approved):** For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. **Skin Protection:** Wear protective gloves and clean body-covering clothing. **Eye Protection:** Maintain eye wash fountain and quick-drench facilities in work area. Use chemical safety goggles and/or full-face shield where dusting or splashing of solutions is possible.

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Section 9 – Physical and Chemical Properties

Specific Gravity:	2.2@20.0C
pH:	8.3
Solubility in Water:	7.8 gm/100 gm water @ 18C
Appearance and Odor:	White crystals. Odorless.
Percent Volatiles by Volume:	0%
Melting Point	60 C (140F)
Boiling Point	No information found.

Section 10 – Stability and Reactivity Data

Stability Indicator:	Stable under ordinary use of use and storage.
Materials to Avoid:	Heat, Moistures.
Stability Condition to Avoid:	Reacts with acids to form carbon dioxide. Dangerous reaction with monoammonium phosphate or a sodium-potassium alloy.
Hazardous Decomposition Products:	Gaseous Carbon Dioxide
Hazardous Polymerization Indicator:	Will not occur.

Section 11 – Toxicology Information

Toxicological Information:	Investigated as a mutagen, reproductive effector. Oral rat LD50: 4220 mg/kg. Irritation data: human, skin, 30mg/3D-I mild, rabbit, eye, 100 mg/30 S, mild.

```
  --------\Cancer Lists\----------------------
-                    --NTP Carcinogen
          Known     Anticipated     IARC Category
Ingredient-----     -----------     -------------
Sodium
Bicarbonate
(144-55-8) No          No              None
```

Section 12 – Ecological Information

Ecological Information:	No information found on environmental toxicity.

Section 13 – Disposal Considerations

Waste Disposal Methods:	Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste

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	disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – MSDS Transport Information

Transport Information:	Not Regulated.

Section 15 – Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Sodium Bicarbonate (144-55-8)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Sodium Bicarbonate (144-55-8)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Sodium Bicarbonate (144-55-8)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Sodium Bicarbonate (144-55-8)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: No Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)
Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16 – Other Information

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Other Information:	**NFPA Ratings:** Health: **1** Flammability: **0** Reactivity: **0** **Label Hazard Warning:** As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing. **Label Precautions:** None. **Label First Aid:** Not Applicable. **Product Use:** Leather Tanning Process Chemical

WWW_104(e)_018329

NATRIUM PRODUCTS INC.

58 Pendleton St., PO Box 5465, Cortland, New York 13045 (607) 753-9829 FAX 607-753-0552

MATERIAL SAFETY DATA SHEET

SODIUM BICARBONATE, BAKING SODA, CARBONIC ACID MONOSODIUM SALT

ISSUE DATE: December 22, 2000 SUPERSEDES: December 28, 1998

1. INGREDIENTS:

	CAS #	FORMULA	PERCENT
Sodium Bicarbonate	144-55-8	$NaHCO_3$	100

2. HAZARD IDENTIFICATION:

Key: 4 Severe
3 Serious
2 Moderate
1 Slight
0 Minimal

HMIS RATING		NFPA RATING	
Health	0	Health	0
Flammability	0	Flammability	0
Reactivity	0	Reactivity	0
Protection	E	Special	None

HMIS "E" Rating = Safety glasses, gloves, dust respirator

There are no appreciable health or environmental effects associated with this material

3. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult a physician if necessary.

SKIN: Wash off in flowing water or shower. If necessary, consult physician.

INGESTION: Seek medical attention immediately if overdose is taken.

INHALATION: Remove to fresh air. Seek medical attention if discomfort persists.

NOTE TO PHYSICIAN: Large doses, particularly in patients with renal insufficiency, have produced systemic alkalosis and/or expansion in the extra-cellular fluid volume with edema.

4. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: Non-combustible **FLAMMABLE LIMITS:** Not Applicable

EXTINGUISHING MEDIA: Non-combustible **FIRE & EXPLOSION HAZARDS:** None

FIRE FIGHTING EQUIPMENT: Evolves carbon dioxide when heated. Carbon dioxide is an asphyxiant and self- contained breathing apparatus is necessary if large quantities are involved. Sodium bicarbonate decomposes on heating resulting in formation of sodium carbonate (soda ash) which is an irritant. Avoid contact and inhalation of soda ash.

5. ACCIDENTAL RELEASE MEASURES

Sweep up into clean dry containers for salvage or disposal. Wash away uncontaminated residue with water.

6. HANDLING & STORAGE

Store in a cool, dry place away from any incompatible materials.

7. EXPOSURE CONTROL/PERSONAL PROTECTION

Provide general and/or local exhaust ventilation to control airborne dust.

Personal Protection (for dusty conditions)
Eyes & Face: Safety glasses for dusty conditions
Respiratory: NIOSH approved dust mask
Miscellaneous: Full cover clothing, general purpose gloves

8. PHYSICAL DATA:

APPEARANCE:	White crystalline powder	**ODOR:**	Odorless
SPECIFIC GRAVITY:	2.2	**pH (1% solution)**	8.2
MELTING POINT:	Decomposes	**BOILING POINT:**	Not Applicable
VAP PRESS:	Not Applicable	**VAP DENSITY:**	Not Applicable
SOL. IN WATER:	Moderate	**MOLECULAR WGT.**	84.02

9. STABILITY & REACTIVITY:

STABILITY: Stable below 200°F.
INCOMPATIBILITY: Reacts with acids forming a salt, water and carbon dioxide.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide and soda ash.
HAZARDOUS POLYMERIZATION: Will not occur.

10. TOXICOLOGICAL INFORMATION:

Acute effects of overexposure: Sodium bicarbonate is generally recognized as safe (GRAS) for humans and animals. No significant toxicity is expected.

Chronic effects of overexposure: Large doses, particularly in patients with renal insufficiency, have produced systemic alkalosis and/or expansion in the extra-cellular fluid volume with edema.

11. DISPOSAL CONSIDERATIONS:

Dispose in accordance with pertinent federal, state and local regulations. Empty containers may be incinerated or discarded as general trash.

12. TRANSPORTATION INFORMATION:

Not regulated by the Department of Transportation

13. REGULATORY INFORMATION:

S.A.R.A. TITLE III SECTIONS 313 (40 CFR 372) - Not applicable
CERCLA (40 CFR 302.4) - Not applicable
TSCA (40 CFR 710) - Listed
OSHA (29 CFR 1910.1200) - Not hazardous

14. ADDITIONAL INFORMATION:

Maximum dose for drinking water corrosion and scale control 100mg/L as per ANSI/NSF 60 - 1988

This Material Safety Data Sheet is offered solely for your information, consideration, and investigation. Natrium Products, Inc. provides no warranties, either expressed or implied, and assumes no responsibility for the accuracy or the completeness of the data contained herein.

Church & Dwight Co.
609-683-5900

CONSUMER PRODUCTS · SPECIALTY PRODUCTS

MATERIAL SAFETY DATA SHEET 60-12D111

MSDS NUMBER: MSDS-960 ISSUE DATE: 04/17/98 revised

1. PRODUCT IDENTIFICATION

Product Name

SODIUM BICARBONATE
(BAKING SODA)

Emergency Phone:
1-609-683-5900 (U.S.A.)

Medical Emergency Phone:
1-800-228-5635
Ext. 007 (U.S.A.)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Ingredient (% by Weight)		CAS Number
Sodium Bicarbonate	100%	144-55-8

(X) Not hazardous under OSHA Standard 29 CFR 1910.1200.
(X) Not a WHMIS controlled substance.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

White crystalline powder
No odor
Not a fire hazard
No significant health or environmental effects associated with this material.

HMIS Rating

Health	0
Fire	0
Reactivity	0

Potential Health Effects

EYE: Not an eye irritant.

SKIN CONTACT: Not a skin irritant.

INGESTION: Material is practically non-toxic. Small amounts (1-2 tablespoonfuls) swallowed during normal handling operations are not likely to cause injury as long as the stomach is not overly full; swallowing larger amounts may cause injury (see Note in Section IV).

INHALATION: None known.

CONSUMER PRODUCTS · SPECIALTY PRODUCTS

MATERIAL SAFETY DATA SHEET

3. CONT. SUBCHRONIC EFFECTS/CARCINOGENICITY: Based on published studies on its effects in animals and humans, sodium bicarbonate is not teratogenic or genotoxic. Only known subchronic effect is that of a marked systemic alkalosis. The material is not listed as a carcinogen or potential carcinogen by IARC, NTP, OSHA, or ACGIH.

4. FIRST AID MEASURES

EYES: Check for and remove contacts. Flood eyes with clean flowing water, low pressure and luke warm (not hot) if possible, occasionally lifting eyelids.

INGESTION: If large amounts of this material are swallowed, do not induce vomiting. Administer water if person is conscious. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN: Large doses may produce systemic alkalosis and expansion in extracellular fluid volume with edema.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES	FLAMMABLE LIMITS
FLASHPOINT: Not combustible	LFL: Not applicable
METHOD USED: Not applicable	UFL: Not applicable

EXTINGUISHING MEDIA: Non-combustible material. Use extinguishing media appropriate for surrounding fire.

FIRE-FIGHTING INSTRUCTIONS: Carbon Dioxide may be generated making necessary the use of a self-contained breathing apparatus (SCBA) and full protective equipment (Bunker Gear). Carbon dioxide is an asphyxiant at levels over 5% w/w. Sodium oxide, another thermal decomposition product existing at temperatures above 1564°F is a respiratory, eye, and skin irritant. Avoid inhalation, eye and skin contact with sodium oxide dusts.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

6. ACCIDENTAL RELEASE MEASURES

Scoop up into dry, clean containers. Wash away uncontaminated residue with water.

7. HANDLING AND STORAGE

Store in cool, dry areas and away from incompatible substances (see Section 10).

CONSUMER PRODUCTS · SPECIALTY PRODUCTS

MATERIAL SAFETY DATA SHEET

Sodium Bicarbonate reacts with acids to yield carbon dioxide gas which can accumulate in confined spaces. Do not enter confined spaces until they have been well ventilated and carbon dioxide and oxygen levels have been determined to be safe.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Dust mask required if total dust level exceeds 10 mg/m^3.

PROTECTIVE GLOVES: General purpose for handling dry product. Impervious gloves when working with solutions.

EYE PROTECTION: Safety glasses when handling bulk material or when dusts are generated.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Full cover clothing. Apron where splashing may occur when working with solutions.

PROTECTIVE WORK/HYGIENIC PRACTICES: No special requirements with respect to chemical exposure beyond those provided above. Requirements with respect to specific equipment and applications are the responsibility of the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White crystalline powder.
ODOR: None.
PHYSICAL STATE: Solid
pH AS IS: Not Applicable
pH (1% SOLN. w/v): 8.2
VAPOR PRESSURE: Not applicable.
VAPOR DENSITY: Not applicable.
BOILING POINT: Not applicable.
FREEZING/MELTING POINT: Not applicable.
SOLUBILITY IN WATER: 8.6 g/100 ml @ 20°C.
BULK DENSITY (g/cc): 62 lb/Ft^3
% VOLATILE: Not applicable.
VOLATILE ORGANIC COMPOUNDS: Not applicable.
MOLECULAR WEIGHT: 84.02

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

CONDITIONS TO AVOID: Temperatures above 65°C (150°F).

INCOMPATIBILITY WITH OTHER MATERIALS: Reacts with acids to yield carbon dioxide. Also may yield free caustic in presence of lime dust (CaO) and moisture (i.e., water, perspiration).

CONSUMER PRODUCTS · SPECIALTY PRODUCTS

MATERIAL SAFETY DATA SHEET

HAZARDOUS DECOMPOSITION PRODUCTS: Heating above 100°C may cause dangerous levels of carbon dioxide gas to be present in confined spaces. Yields sodium oxide if exposed to temperatures above 850°C. Avoid inhalation, eye and skin contact with sodium oxide.

HAZARDOUS POLYMERIZATION: Not applicable.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: The material was minimally irritating to unwashed eyes and practically non-irritating to washed eyes (rabbits).

SKIN EFFECTS: Not a skin irritant or dermally toxic. Not a contact sensitizer.

ACUTE ORAL EFFECTS: Acute Oral-rat LD_{50} = 7.3 g/kg.

ACUTE INHALATION: LC_{50} (rat) > 4.74 mg/l.

AQUATIC TOXICITY:

Daphnids: EC_{50} = 4100 mg/l.
Bluegill: LC_{50} = 7100 mg/l.
Rainbow Trout: LC_{50} = 7700 mg/l.

12. DISPOSAL CONSIDERATIONS

Bury in a secured landfill in accordance with all local, state and federal environmental regulations. Empty containers may be incinerated or discarded as general trash.

13. TRANSPORTATION INFORMATION

D.O.T. SHIPPING NAME: Not regulated
TECHNICAL SHIPPING NAME: Sodium Bicarbonate
D.O.T. HAZARD CLASS: None
U.N./N.A. NUMBER: None
HAZARDOUS SUBSTANCE/RQ: None
D.O.T. LABEL: None
D.O.T. PLACARD: None

14. REGULATORY INFORMATION

CLEAN AIR ACT SECTION 611: Material neither contains nor is it manufactured with ozone depleting substances (ODS).

FEDERAL WATER POLLUTION CONTROL ACT (40 CFR 401.15): Material contains no intentionally added or detectable (contaminant) levels of EPA priority toxic pollutants.

CONSUMER PRODUCTS · SPECIALTY PRODUCTS

MATERIAL SAFETY DATA SHEET

FOOD AND DRUG ADMINISTRATION: Generally Recognized As Safe (GRAS) direct food additive (21 CFR 184.1736).

US DEPARTMENT OF AGRICULTURE: List of Proprietary Substances - Permitted Use Codes 3A, J1, A1, G1, and L1.

CERCLA REPORTABLE QUANTITY: None

OSHA: Not hazardous under 29 CFR 1910.1200

RCRA: Not a hazardous material or a hazardous waste by listing or characteristic.

14. CONT. SARA TITLE III:
Section 302, Extremely Hazardous Substances: None
Section 311/312, Hazardous Categories: Non-hazardous
Section 313, Toxic Chemicals: None

15. MISCELLANEOUS INFORMATION

Sodium Bicarbonate is reported in the EPA TSCA Inventory List.

Material is listed on the Canadian DSL.

Material is not listed as carcinogen or potential carcinogen by NTP Annual Report, IARC Group I or II, OSHA 29 CFR Part 1910 Subpart Z, or ACGIH Appendix A.

Material is neither a volatile organic compound nor does it contain VOCs.

NATIONAL STOCKING NUMBER: 6810002646618, Contract No. DLA 40086C1831
NSF STANDARD 60: Corrosion and Scale Control in Potable Water. Max use 200 mg/l.
EUROPEAN INVENTORY (EINECS): 205-633-8
JAPANESE INVENTORY (MITI): 1-164
AUSTRALIAN INVENTORY (AICS): Carbonic acid, monosodium salt.

SUPERSEDES DATE: 03/13/97

REASON FOR REVISION: Eliminated specific gravity and added bulk density to Section 9. Changed temperatures to °C in Sections 9 and 10. Corrected wording on VOC statement in Section 15.

This Product Safety Data Sheet is offered solely for your information, condsin and investigation. Church & Dwight Co., Inc. provides no warranties, either express or implied, and assumes no responsibility for the accuracy or completeness of data contained herein. Church & Dwight Co., Inc. urges persons receiving this information to make their own determination as to the information suitability for their particular application.

Allied Chemical

CHEMICALS COMPANY

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)	☒ C.A.S. NO. ☐ ALLIED PRODUCT CODE #
Sodium Bicarbonate (Baking Soda, Bicarbonate of Soda, Sodium Acid Carbonate)	144-55-8

CHEMICAL NAME
Sodium Hydrogen Carbonate

FORMULA	MOLECULAR WEIGHT
$NaHCO_3$	84.00

COMPANY/PLANT ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)
Chemicals Company
P.O. Box 1139R
Morristown, N.J. 07960

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
Director - Technical Service	(315) 487-4990	June 12, 1980	

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER
(201) 455-2000

Skin: Wash with plenty of water.
Eyes: Flush with plenty of water for at least 15 minutes and get medical attention.
Ingestion: Drink large quantity of water to dilute the material.
Get medical attention for irritation, ingestion, or discomfort from inhalation.

C. HAZARDS INFORMATION

FIRE AND EXPLOSION

FLASH POINT	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS IN AIR (% BY VOL.)
Not Flammable °C ☐ OPEN CUP ☐ CLOSED CUP	NA - Not Applicable °C	LOWER NA UPPER NA

UNUSUAL FIRE AND EXPLOSION HAZARDS
Carbon dioxide is released when material is heated.

HEALTH

INHALATION
Inhalation of product dust may irritate nose, throat and lungs.

INGESTION
Although low in toxicity, ingestion can be harmful - consult a physician.
May irritate mouth, esophagus, stomach, etc.

SKIN
May cause skin irritation from prolonged contact.

EYES
May irritate or burn eyes.

PERMISSIBLE CONCENTRATION: AIR (SEE SECTION J) BIOLOGICAL
No TLV established

UNUSUAL CHRONIC TOXICITY

C 2021 (10-78)

WWW_104(e)_018337

D. PRECAUTIONS/PROCEDURES

VENTILATION

Ventilation should maintain dust levels consistent with generally accepted industrial hygiene and housekeeping practices. Packaging and unloading areas and open processing equipment should be equipped with mechanical exhaust systems.

NORMAL HANDLING

STORAGE

Store in a cool dry area away from acids. Prolonged storage may cause product to cake from atmospheric moisture.

PRECAUTIONARY LABEL ☐ ATTACHED ☒ NOT ATTACHED

NONE

SPILL OR LEAK

Shovel up dry chemical and place in metal drum with a cover.
Cautiously spray residue with plenty of water. (See Section I for disposal methods.)

FIRE EXTINGUISHING AGENTS **RECOMMENDED**

NA

SPECIAL FIRE FIGHTING PRECAUTIONS

Because CO_2 gas may be present, wearing a NIOSH - approved self-contained respirator may be required.

FIRE EXTINGUISHING AGENTS TO **AVOID**

NA

SPECIAL PRECAUTIONS/PROCEDURES

E. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION

Where required, use a respirator approved by NIOSH for product dusts.

EYES AND FACE

As a minimum, wear hard hat and chemical safety goggles.
Do not wear contact lenses.

HANDS, ARMS, AND BODY

As a minimum, wear long-sleeve shirt and trousers, and gloves for routine product use.
Cotton gloves permitted for dry product - - impervious gloves when using solutions.

OTHER CLOTHING AND EQUIPMENT

WWW_104(e)_018338

F. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	White crystals or powder. Odorless.	
BOILING POINT °C MELTING POINT °C	SPECIFIC GRAVITY (H_2O = 1) 2.159	VAPOR DENSITY (AIR = 1) NA
SOLUBILITY IN WATER (% by weight) approx. 9% solution at 20°C	pH 1% solution; pH = 8.6	VAPOR PRESSURE (mm Hg at 20° C) NA
EVAPORATION RATE (Butyl Acetate = 1) NA	% VOLATILES BY VOLUME (At 20° C) NA	

G. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☒ STABLE	

INCOMPATIBILITY (MATERIALS TO AVOID)

Contact with acids will release carbon dioxide gas.

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	

H. HAZARDOUS INGREDIENTS (Mixtures Only)

MATERIAL OR COMPONENT	%	HAZARD DATA (SEE SECT. J)
NA		

WWW_104(e)_018339

ENVIRONMENTAL

BIODEGRADABILITY	OCTANOL/WATER PARTITION COEFFICIENT

WASTE DISPOSAL METHODS*.

Dissolve in water.
Neutralize with acid and flush to sewer with plenty of water if permitted by applicable disposal regulations. Good ventilation is required during neutralization due to release of CO_2 gas. Neutralized waste may have to be disposed of by an approved contractor.

*DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS.

REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES

REGULATORY STANDARDS

DOT Classification - Not Regulated (49 CFR). FDA Regulations pertain to "USP" and food grade products (21 CFR).

GENERAL

ADDITIONAL INFORMATION

This product is not for food or drug use unless material is labeled "USP" or "food grade," as applicable.

THIS PRODUCT SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION.
ALLIED CHEMICAL PROVIDES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.

002503 ... SODIUM BIFLUORIDE PAGE: 1

ACCEPTED BY O.S.H.A. AS ESSENTIALLY SIMILIAR TO O.S.H.A. FORM 20

24-HOUR EMERGENCY TELEPHONE: 606-324-1133 (LOCATED AT ASHLAND, KENTUCKY)

ASHLAND PRODUCT NAME: SODIUM BIFLUORIDE

WOLVERINE WORLD WIDE
ATTN: BRIGITTE KNOTTS
123 NORTH MAIN STREET
ROCKFORD, MICH 49351

ATTN: PURCHASING/SAFETY DEPT.

05 50 031 9855770-
DATA SHEET NO: 0001127-002
LATEST REVISION DATE: 08/83-83222
PRODUCT: 3921050
INVOICE: 870492
INVOICE DATE: 01/16/83
TO: WOLVERINE WORLD WIDE
TANNING PLANT
123 NORTH MAIN STREET
ROCKFORD, MICH 49351

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: SALTS

HAZARD CLASSIFICATION: (09) CORROSIVE MATERIAL (173.240)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV		*
SODIUM BIFLUORIDE	>95	2.5	2.5	MG/CUM	(1)

(1): AS (F). NIOSH RECOMMENDS A LIMIT OF 2.5 MG/CUM AS (F), 8 HOUR TIME WEIGHTED AVERAGE.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	UNAVAILABLE	
VAPOR PRESSURE	FOR PRODUCT	106.00 MMHG @ 2.00 DEG F (-16.66 DEG C)
VAPOR DENSITY	UNAVAILABLE	
SPECIFIC GRAVITY		2.080 @ 68.00 DEG F (20.00 DEG C)
PERCENT VOLATILES	UNAVAILIABLE	
EVAPORATION RATE	UNAVAILABLE	

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT UNAVAILABLE

EXPLOSIVE LIMIT NOT APPLICABLE

EXTINGUISHING MEDIA: WATER FOG

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, HYDROGEN FLUORIDE, ETC.

SPECIAL FIREFIGHTING PROCEDURES: WATER MAY BE USED TO EXTINGUISH FIRE BY COOLING, AND DILUTING LIQUID WITH WATER.
SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

UNUSUAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 2.5 MG/CUM

THRESHOLD LIMIT VALUE 2.5 MG/CUM

NOT ESTABLISHED FOR PRODUCT. SEE SECTION II.

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAUSES SEVERE DAMAGE AND EVEN BLINDNESS VERY RAPIDLY.
SKIN - CAUSES BURNS, POSSIBLE DEEP ULCERATION.
BREATHING - OF FUMES CAN CAUSE IRRITATION, DUST CAN CAUSE BURNS OR IRRITATION OF THE MUCOUS MEMBRANES.
IF SWALLOWED - MAY CAUSE GASTROINTESTINAL IRRITATION AND LARGE AMOUNTS MAY CAUSE SERIOUS HARM.

FIRST AID:

IF ON SKIN: IMMEDIATELY FLUSH EXPOSED AREA WITH WATER FOR AT LEAST 15 MINUTES, GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

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CONTINUED ON PAGE: 2

SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF IN EYES: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES, LIFTING UPPER AND LOWER LIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING. VOMITING WILL CAUSE FURTHER DAMAGE TO THE THROAT. DILUTE BY GIVING WATER. GIVE MILK OF MAGNESIA. KEEP WARM, QUIET. GET MEDICAL ATTENTION IMMEDIATELY.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATABILITY: AVOID CONTACT WITH:, EXCESSIVE HEAT, POWDERED METALS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: COVER THE CONTAMINATED SURFACE WITH SODIUM BICARBONATE OR A SODA ASH/SLAKED LIME MIXTURE (50-50). MIX AND ADD WATER IF NECESSARY TO FORM A SLURRY. SCOOP UP SLURRY AND WASH SITE WITH SODA ASH SOLUTION.

LARGE SPILL: PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP IS COMPLETED. STOP SPILL AT SOURCE. DIKE TO PREVENT SPREADING. PUMP TO SALVAGE TANK. SHOVEL MATERIAL INTO CONTAINERS. THOROUGHLY SWEEP AREA OF SPILL TO CLEAN UP ANY RESIDUAL MATERIAL.

WASTE DISPOSAL METHOD:

SMALL SPILL: FLUSH DOWN DRAIN WITH LARGE AMOUNTS OF WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: COLLECT AND ADD SLOWLY TO LARGE VOLUME OF AGITATED SOLUTION OF SODA ASH AND SLAKED LIME. ADD NEUTRALIZED SOLUTION TO EXCESS RUNNING WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF OVEREXPOSURE HAS BEEN DETERMINED OR DOCUMENTED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW LEVEL OF OVEREXPOSURE (FROM KNOWN, SUSPECTED OR APPARENT ADVERSE EFFECTS).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, BUNA-N

EYE PROTECTION: CHEMICAL SPLASH GOGGLES AND FACE SHIELD (8" MIN.) IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED, HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

ADDITION TO WATER RELEASES HEAT WHICH CAN RESULT IN VIOLENT BOILING AND SPATTERING. ALWAYS ADD SLOWLY AND IN SMALL AMOUNTS. NEVER USE HOT WATER.

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH ASHLAND OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

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DEFINITIONS

THIS DEFINITION PAGE IS INTENDED FOR USE WITH MATERIAL SAFETY DATA SHEETS SUPPLIED BY THE ASHLAND CHEMICAL COMPANY. QUESTIONS CONCERNING THESE SHEETS SHOULD BE DIRECTED TO THE ENVIRONMENTAL AND OCCUPATIONAL SAFETY DEPARTMENT.

SECTION I
PRODUCT IDENTIFICATION

PRODUCT CLASS: GENERAL OR GENERIC IDENTIFICATION.

HAZARDOUS CLASSIFICATION: PRODUCT MEETS DOT CRITERIA FOR HAZARDS LISTED.

SECTION II
HAZARDOUS COMPONENTS

A HAZARDOUS INGREDIENT IS ONE WHICH MEETS ONE OR MORE OF THE FOLLOWING CRITERIA:

1. IT IS LISTED IN THE ANNUAL REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES, OR IT IS KNOWN TO BE TOXIC WITHIN THE PARAMETERS OF THAT REGISTRY.

AND/OR

2. IT HAS A OSHA ESTABLISHED, 8-HOUR TIME-WEIGHTED AVERAGE PERMISSABLE EXPOSURE LIMIT (PEL) OR ACCEPTABLE CEILING (C), OR AN AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS' (ACGIH) THRESHOLD LIMIT VALUE, AND BY NATURE OF THE PRODUCT OR ITS KNOWN USE, IT IS LIKELY TO BECOME AIRBORNE.

AND/OR

3. IT CONTRIBUTES TO ONE OR MORE OF THE FOLLOWING HAZARDS OF THE PRODUCT:

   A. FLASHPOINT BELLOW 200 DEG F (CC), OR SUBJECT TO SPONTANEOUS HEATING OR DECOMPOSITION.

   B. CAUSES SKIN BURNS. (DOT)

   C. STRONG OXIDIZING AGENT. (DOT)

   D. SUBJECT TO HAZARDOUS POLYMERIZATION.

EACH INGREDIENT MEETING ONE OR MORE OF THE ABOVE CRITERIA IS LISTED IN SECTION II IF PRESENT AT A LEVEL AT LEAST GREATER THAN ONE PERCENT. INGREDIENTS WHICH ARE CLAIMED TO BE CARCINOGENS, TERATOGENS, MUTAGENS, OR CAUSATIVE AGENTS OF OTHER REPRODUCTIVE DISORDERS ARE LISTED IF KNOWN OR BELIEVED TO BE PRESENT, PROVIDED THAT THE DATA SUPPORTING SUCH CLAIMS IS CONSIDERED VALID.

EACH HAZARDOUS INGREDIENT IS LISTED BY CHEMICAL, GENERIC, OR PROPRIETARY NAME. ITS LEVEL IN THE PRODUCT IS EXPRESSED AS 1% OR LESS, 1-10%, 10-30%, 30-60%, OR GREATER THAN 60%, OR BY OTHER MEANS.

SECTION III
PHYSICAL DATA

INITIAL BOILING POINT: IF LIQUID AT 68 DEG F.

VAPOR PRESSURE: IF LIQUID AT 68 DEG F OR WHICH SUBLIMES.

VAPOR DENSITY: FOR VOLATILE PORTION OF PRODUCT.

SPECIFIC GRAVITY: IF SPECIFIC GRAVITY OF PRODUCT IS NOT KNOWN, INDICATED AS <1, =1, OR >1.

PERCENT VOLATILES: PERCENTAGE OF MATERIAL WITH INITIAL BOILING POINT BELOW 425 DEG F.

EVAPORATION RATE: INDICATED AS FASTER OR SLOWER THAN ETHYL ETHER, UNLESS STATED.

SECTION IV
PRODUCT IDENTIFICATION

FLASH POINT: CLOSED CUP.

LOWER EXPLOSION LIMIT: INDICATED FOR COMPONENT WITH LOWEST VALUE.

HAZARDOUS DECOMPOSITION PRODUCTS: KNOWN HAZARDOUS PRODUCTS RESULTING FROM HEATING, BURNING, ETC., OR REACTED RAW MATERIALS WHICH MAY ARISE THROUGH HEATING, BURNING, ETC.

SPECIAL FIREFIGHTING PROCEDURES: INDICATES EQUIPMENT TO PROTECT FIREMEN FROM TOXIC PROCEDURES OF COMBUSTION OR IF WATER IS NOT TO BE USED.

UNUSUAL FIRE AND EXPLOSION HAZARDS: HAZARDS NOT COVERED BY OTHER SECTIONS OF THIS REPORT ARE SHOWN HERE.

SECTION V
HEALTH HAZARD DATA

RECIPIENTS OF THIS DATA SHEET SHOULD CONSULT THE OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910), PARTICULARLY SUBPART G - OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL, AND SUBPART I - PERSONAL PROTECTIVE EQUIPMENT, FOR GENERAL GUIDANCE ON CONTROL OF POTENTIAL OCCUPATIONAL HEALTH HAZARDS.

PERMISSIBLE EXPOSURE LEVEL: OSHA ESTABLISHED PEL--IF NONE AVAILABLE, ADOPTED VALUE.

EFFECTS OF OVEREXPOSURE: GIVEN IN GENERAL TERMS, LOCAL AND SYSTEMIC EFFECTS TO THE EYES, SKIN, IF MATERIAL IS INHALED, UNLESS NOT APPLICABLE DUE TO PHYSICAL FORM OF PRODUCT.

SECTION VI
REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION RESULTING IN A LARGE RELEASE OF ENERGY.

STABILITY: CONDITIONS TO AVOID IF UNSTABLE UNDER NORMAL CIRCUMSTANCES.

INCOMPATIBILITY: MATERIALS TO AVOID.

SECTION VII
SPILL OR LEAK PROCEDURES

REASONABLE PRECAUTIONS TO BE TAKEN AND THE METHODS OF CLEAN-UP TO BE USED IN THE EVENT OF SPILLAGE OF THE PRODUCT. CONSULT FEDERAL, STATE AND LOCAL REGULATIONS FOR ACCEPTED PROCEDURES AND ANY REPORTING OR NOTIFICATION REQUIREMENTS.

SECTION VIII
PROTECTIVE EQUIPMENT TO BE USED

THIS SECTION INDICATES PROTECTIVE EQIUPMENT TO BE USED WHEN HANDLING THE PRODUCT.

SECTION IX
SPECIAL PRECAUTIONS OR OTHER COMMENTS

THIS SECTION IS TO COVER ANY RELEVANT POINTS NOT PREVIOUSLY MENTIONED.

ADDITIONAL COMMENTS

ASHLAND WISHES TO INFORM YOU THAT SERIOUS ACCIDENTS HAVE RESULTED FROM THE MISUSE OF "EMPTIED" CONTAINERS (DRUMS, 1 AND 5 GALLON PAILS, ETC.). REFER TO SECTIONS IV AND IX.

WE RECOMMEND THAT CONTAINERS BE EITHER PROFESSIONALLY RECONDITIONED FOR REUSE BY CERTIFIED FIRMS OR PROPERLY DISPOSED OF BY CERTIFIED FIRMS TO HELP REDUCE THE POSSIBILITY OF AN ACCIDENT. DISPOSAL OF CONTAINERS SHOULD BE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS. "EMPTY" DRUMS SHOULD NOT BE GIVEN TO INDIVIDUALS.

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

SODIUM BORATE

PRODUCT IDENTIFICATION:

Synonyms: Sodium borate decahydrate; borax; sodium pyroborate

Formula CAS No.: 1303-96-4 (Hydrate)

TSCA CAS No.: 1330-43-4 (Anhydrous)

Molecular Weight: 381.37

Chemical Formula: $Na_2B_4O_7 \cdot 10H_2O$

Hazardous Ingredients: Sodium borate

PRECAUTIONARY MEASURES

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
MAY CAUSE IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Avoid contact with eyes, skin and clothing.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: Grey, blue, or green crystals.

Odor: Odorless.

Solubility: 6g/100g water.

Boiling Point: Loses water @ 320°C (608°F).

Melting Point: 75°C (167°F).

Density: 1.73

Vapor Density (Air = 1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Emits toxic fumes of sodium oxide when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Acids, alkaloids, and metallic salts.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel may require respiratory protection from dust.

Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility.

Ensure compliance with local, state and federal regulations.

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
May cause irritation to the respiratory tract, coughing, nausea, and vomiting.

Ingestion:
May cause nausea, vomiting, diarrhea, muscular spasms, dullness, lethargy, circulatory depression, central nervous system depression, shock, kidney damage, coma, and death. Estimated lethal dose 15 to 20 grams.

Skin Contact:
May cause irritation. May be absorbed through the skin, especially damaged skin, with symptoms paralleling ingestion.

Eye Contact:
May cause irritation, redness, and pain.

Chronic Exposure:
Prolonged or repeated ingestion or skin absorption may cause anorexia, weight loss, vomiting, mild diarrhea, skin rash, convulsions, and anemia.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 2660 mg/kg. Mutation references cited. Reproductive effects cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL): 10 mg/m^3 (TWA)

-ACGIH Threshold Limit Value (TLV): 5 mg/m^3 (TWA)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

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BORES

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(6c)

IMC KALIUM HERSEY

MATERIAL SAFETY DATA SHEET

60-120109

Section I. MANUFACTURER'S INFORMATION

Product Name: **General Purpose Salt**

Supplier: IMC KALIUM
2345 Waukegan Road, Suite E-200
Bannockburn, IL 60015-5516
Tel: (847) 607-3000
Toll Free: (800) 533-2764
Fax: (847) 607-3535

IMC KALIUM HERSEY
1395 135 Ave.
Hersey, MI 49639
Tel: (616) 832-3755
Fax: (616) 832-3349

EMERGENCY ASSISTANCE
(616) 832-3775
(0730 to 1600 E.S.T.; Mon. to Fri.)
(616) 832-3759

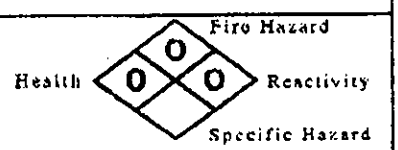
Synonym:	Salt; Halite; Solar Salt; Rock Salt
Chemical Name:	Sodium Chloride
Chemical Family:	Inorganic Salt; Neutral Salt of Alkali Metal
Chemical Formula:	NaCl
Manufacturer:	Refer to supplier

Section II. HAZARDOUS INGREDIENTS/IDENTITY

Name	CAS#	% by Weight
Sodium chloride	7647-14-5	99.2
Potassium chloride	7447-40-7	0.65

Hazardous Ingredients: None

National Fire Protection Association (U.S.A.)



Section III. Physical/Chemical Characteristics

Physical State and Appearance	Crystalline Solid	Odor:	Odorless
Molecular Weight	58.44	Taste:	Strong Saline
pH (10% soln/water)	~ 6.5	Color:	White
Boiling Point	1413 °C (2575°F)		
Melting Point	801 °C		
Specific Gravity	2.165 (Water = 1)		
Vapor Pressure	1 mm @ 865 °C (1589°F)		
Vapor Density	Not available.		
Volatility	Not available.		
Evaporation Rate	Not available		
Solubility	35.7 g of potash per 100cc of water at 0°C 36.0 g of potash per 100cc of water at 20°C		

Section IV. Fire and Explosion Hazard Data

The Product is:	Non-flammable.
Flash Point	Not applicable.
Flammable Limits (LEL, UEL)	Not applicable.
Explosive Limits	Not applicable.
Extinguishing Media	Not applicable.
Special Fire Fighting Procedures	None/Not Combustible
Unusual Fire and Explosion Hazards	None.

Section V. Reactivity and Stability Data

Stability	The product is stable.
Incompatibility with various substances	Avoid contact with concentrated acids such as sulfuric or nitric; Chlorine type cleansers.
Corrosivity	Mildly corrosive to metals in the presence of moisture.
Hazardous Decomposition Products	Hydrochloric acid from acid mixtures with salt; Chlorine from reaction of rust removal agent with Chlorine-type cleansers.
Hazardous Polymerization	None

Section VI. Health Hazard Data and Emergency/First Aid Procedures

Routes of Entry	Ingestion. Inhalation.
Toxicity to Animals	ORAL (LD50): 4000 mg/kg (Mouse) 3000 mg/kg (Rat) ORAL (LDLO): 8000 mg/kg (Rabbit) EYE (severe): 100 mg/24 hr. (Rabbit)
Chronic Effects on Health	CARCINOGENIC EFFECTS: Not applicable. MUTAGENIC EFFECTS: Not applicable. TERATOGENIC EFFECTS: Not applicable. REPRODUCTION EFFECTS: Not applicable.
Other Health Effects	As shipped this product does not present special health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Dust from this product may be considered a "nuisance" dust and may cause irritation to skin, eyes and respiratory tract.
Effects of Overexposure =	**No acute systemic, chronic systemic or chronic local toxicity. In sensitive persons some dermal or eye irritation effects, or after excessive ingestion, edema and/or temporary elevated blood pressure effects. Gavage ingestion of 15 - 50 g may induce vomiting resulting in partial vacating of stomach contents.**
Medical Conditions Aggravated by Exposure:	Not Available
Eye Contact:	**Immediately flush eyes thoroughly with copious amounts of running water, holding eyelids open, for at least 15 minutes. If discomfort or irritation persists, seek medical attention.**
Skin Contact:	**Wash exposed area thoroughly with soap or mild detergent and copious amounts of running water. If irritation persists, seek medical attention.**
Inhalation:	**Remove from exposure area to a ventilated area. If breathing discomfort persists, seek medical attention.**
Ingestion:	**Drink Water. High fluid intake facilitates urinary excretion and relief of edema and temporary elevated blood pressure. Do not induce vomiting or give a liquid to an unconscious person. Seek medical attention.**

Section VII. Handling and Storage

Handling:	Avoid generating dust during handling and promote personal hygiene among workers.
Storage:	Store under dry (less than 75 % R.H.) conditions to prevent Caking of salt. Store on pallets under protective cover. Do not store cases/bags directly on damp or concrete floors.
Spill:	Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Wash area with water; however, avoid contaminating surface water, waterways or sewers leading to surface water. Dissolve in sufficient amounts of water to meet local existing water quality standards.
Disposal:	Dispose in compliance with local or regional regulations.

Section VIII. Engineering Control Measures/Personal Protective Equipment

Ventilation:	Provide general and local ventilation as necessary to control dust levels.
Clothing:	Wear appropriate clothing to prevent repeated or prolonged skin contact. Gloves are recommended.
Eye Protection:	Use safety glasses or goggles to prevent eye contact. An eye wash station should be available for emergency use.
Respiratory Protection:	Provide respiratory protection (dust mask or dust respirator) for conditions of use where exposure to dust is apparent.

The information in this MSDS was obtained from sources which we believe are accurate and reliable. However, this information is provided without any representation or warranty express or implied, regarding the accuracy or correctness, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

60-120109A Rev. NH

Material Safety Data Sheet

CARGILL SALT

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Chemical Product Name	Sodium Chloride (Salt)
Chemical Product Code	500
Chemical Family	Alkali Metal/Halide
Chemical Name	Sodium Chloride
Formula	NaCl
Molecular Weight	58.44

Manufacturer
Cargill Incorporated
Salt Division
P. O. Box 5621
Minneapolis, MN 55440

Emergency Telephone Numbers
612-984-8214 during business hours; after hours
Emergency only number is 612/742-7715.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Description
White crystalline solid.

Ingredient Name CAS Number	Exposure Limits	Concentration (%)
7647-14-5		100%

3. HAZARDS INDENTIFICATION

EMERGENCY OVERVIEW

None - GRAS Substance (Generally Recognized As Safe)

Potential Health Effects

Route(s) Of Entry: Ingestion, skin/eye contact, inhalation.

Human Effects and Symptoms of Overexposure:

Acute Inhalation: Irritation of the respiratory tract.

Chronic Inhalation: No applicable information found for chronic systemic effects

Acute Skin Contact: Large amounts can cause irritation and if applied to damaged skin, absorption can occur with effects similar to those via ingestion.

Chronic Skin Contact: No applicable information found for chronic systemic effects.

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Acute Eye Contact: Irritation with burning and tearing (salt concentrations greater than the normal saline present).

Chronic Eye Contact: No applicable information found for chronic systemic effects.

Acute Ingestion: Intake of large amounts has generally occurred for deliberate reasons: suicide, absorption, and to induce vomiting. The following effects were observed; nausea and vomiting, diarrhea, cramps, restlessness, irritability, dehydration, water retention, nose bleed, gastrointestinal tract damage, fever, sweating, sunken eyes, high blood pressure, muscle weakness, dry mouth and nose, shock, cerebral (fluid on brain) or pulmonary edema (fluid in lungs), blood cell shrinkage, and brain damage (due to dehydration of brain cells). Death is generally due to cardiovascular collapse or CNS damage. Less than a few grams would not be harmful. For larger quantities, drink large amounts of water or milk.

Chronic Ingestion: No applicable information found for chronic systemic effects.

Carcinogenicity
NTP: Not listed as a carcinogen or mutagen.
IARC: Not listed as a carcinogen or mutagen.
OSHA: Not listed as a carcinogen or mutagen.

Medical Conditions Aggravated by Exposure: In some cases of confirmed hypertension, ingestion may result in elevated blood pressure.

4. FIRST AID MEASURES

First Aid For Eyes: For eye contact, flush with water immediately, lifting eyelids occasionally.

First Aid For Skin: Remove clothing from affected area. Wash skin thoroughly. Rinse carefully.

First Aid For Inhalation: If person breathes large quantities, remove to fresh air at once. If breathing stops, apply artificial respiration immediately.

First Aid For Ingestion: Less than a few grams would not be harmful. For larger quantities, drink large amounts of water or milk.

5. FIRE AND MEASURES

Flash Point: N/A

Extinguishing Media: N/A. This product is nonflammable.

Special Fire Fighting Procedures: N/A.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Contain spills to prevent contamination of water supply or sanitary sewer system. Vacuum or sweep into containers for proper disposal.

7. HANDLING AND STORAGE

Storage Temperature (min./max.): Avoid humid or wet conditions as product will cake and become hard.

Special Sensitivity: Avoid contact with strong acids.

Handling and Storage Precautions: Becomes hygroscopic at 70% Relative Humidity

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection Requirements: Eyeglasses or goggles should be worn in dusty areas.

Skin Protection Requirements: Protective clothing may be worn in dusty areas, but is generally not required.

Respiratory/Ventilation Requirements: NIOSH/MSHA approved respirator for particulates.

Exposure Limits: Not listed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: White crystalline solid with slight halogen odor.

Color: White crystalline solid

Odor: Halogen odor

Boiling Point (760mm Hg) (°C): 760 mm Hg. 1465 degrees C.

Melt Point/Freeze Point (°C): 801 degrees C.

PH: 6.7 - 7.3

Solubility In Water (g/cc, %): 26.4%

Specific Gravity (H_2O=1): 2.16 (H_2O)

Bulk Density: 53-83 Lbs/Ft^3

% Volatile By Weight: N/A

Vapor Pressure (mm Hg/747°C): = 2.4

Vapor Density (Air=1): (Air=1) N/A

10. REACTIVITY

Stability: Stable

Incompatibilities: Avoid contact with strong acids. Becomes corrosive to metals when wet.

Decomposition Products: May evolve chlorine gas when in contact with strong acids.

11. TOXICOLOGICAL INFORMATION

Description: Not Listed

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not Listed.

Environmental Degradation: Not Listed.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Follow applicable Federal, state and local regulations.

14. TRANSPORTATION INFORMATION

D.O.T. Shipping Name: Not Listed

Technical Shipping Name: Not Listed

D.O.T Hazard Class: Not Listed

U.N./N.A. Number: Not Listed

Product Rq (lbs.): N/A

D.O.T. Label: Not Listed

D.O.T. Placard: N/A

Freight Class Bulk: N/A

Freight Class Package: N/A

Product Label: N/A

15. REGULATORY INFORMATION

OSHA Status: Not Listed

TSCA Status: Listed as non hazardous.

Cercla reportable Quantity
SARA Title III
Section 302 Extremely
Hazardous Substances: Not Listed

Section 311/312
Hazard categories: Not Listed

Section 313
Toxic Chemicals: Not Listed

RCRA Status: Not Listed

State Regulatory Information

Component Name /CAS Number	Concentration	State-Code
N/A		

16. OTHER INFORMATION

Reason For Issue: Regulatory Compliance
Prepared By: Ellen Bragg

Approved By: Dave Merriweather
Title: Director-Quality Administration
Approval Date: December 1998
Supersedes Date: September 1995
MSDS Number: S2

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Sodium Chloride

Morton

Morton Salt
100 North Riverside Plaza Chicago, IL 60606-1597

CHEMICAL NAME
BODY PART
REACTIVITY 0
FLAMMABILITY 0
PERSONAL PROTECTION B
0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

Material Safety Data Sheet

60-120109B

Emergency Phone Number: *312/807-2000*

Product Identification

January 28, 1999

Chemical Name: *Sodium Chloride*

Common Name: *Salt*

Product Name: Morton Purex Salt

CAS Number: *7647-14-5*

Chemical Formula: *NaCl*

Product Use:

Hazardous Ingredients

Chemical Name	Common Name	CAS Number	%	OSHA PEL	ACGIH TLV-TWA
None					

Physical Data

Boiling Point (760mm Hg) *1413 °C (2575 °F)*

Specific Gravity (Water = 1) *2.165*

Vapor Pressure (mm Hg) *1mm @ 865 °C (1589 °F)*

% Non-Volatile *100*

Vapor Density (Air = 1) *N/A*

Evaporation Rate (Ether = 1) *N/A*

Solubility in Water *36g/100cc water at 20 °C (68 °F)*

pH *About 7*

Appearance *Colorless or White Crystals*

Odor *None*

Fire and Explosion Hazard Data

Flash Point *N/A* °F

Flammable Limits **Lel** *N/A* **Uel** *N/A*

Method Used:

Product is non-combustible

Extinguishing Media:

None required

Special Fire Fighting Procedures:

None

Unusual Fire and Explosion Hazards:

None

Hazardous Decomposition Products:

None

Health Hazard Data

Oral Toxicity:

Oral rat LD50: 3000 mg/kg (RTECS, 1986)

Dermal Toxicity:

Skin irritation rabbit: 500mg/24hr. Mild (RTECS, 1986)

Eye:

Eye irritation rabbit: 100mg/24hr. Moderate (RTECS, 1986)

Inhalation:

No information found.

Chronic Toxicity:

No information found

Mutagenesis:

Mutation references cited (RTECS, 1986)

Effects of Overexposure:

Ingestion: *Very large doses can cause vomiting, diarrhea, and prostration.*

Skin Contact: *Not expected to be a health hazard.*

Eye Contact: *May cause irritation.*

Inhalation: *Inhalation of dust may cause mild irritation to mucous membranes, nose and throat. Symptoms may include coughing, dryness and sore throat.*

Acute Systemic Effects:

Dehydration and congestion may occur in internal organs. Hypertonic salt solutions can produce inflammatory reactions in the gastrointestinal tract.

Chronic Systemic Effects:

No information found.

Emergency and First Aid Procedures

Eye Contact: *Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.*

Skin Contact: *Wash exposed area with soap and water. Get medical advice if irritation develops.*

Inhalation: *Remove to fresh air. Get medical attention for any breathing difficulty.*

Ingestion: *If large amounts were swallowed, get medical advice.*

Reactivity Data

Stability ☒ **Stable** ☐ **Unstable** **Conditions to Avoid:**

Incompatibility: (Materials to Avoid)

Stable and inert under normal conditions.
Will react with strong acids (to generate HCl) and strong oxidizing agents (to generate Cl_2).

Can Hazardous Polymerization Occur:

No

Hazardous Decomposition Products and Conditions:

None

Spill or Leak Procedures

Response to Small Spills:

Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Response to Large Spills:

Shovel and sweep up; containerize for reclamation or disposal.

Hazards to be Avoided:

None known.

Reportable Quantity:

Check your state for requirements.

Waste Classification:

Some states have set maximum limits on Chlorides in waste effluent.

Disposal Methods:

Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility, or if local ordinances allow, can be dissolved in sufficient amounts of water to meet water quality standards, and flushed down a sewer drain. Ensure compliance with local, state and federal regulations.

Special Protection Information

Respiratory Protection:

For conditions of use where exposure to the dust is apparent, a NIOSH approved dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

For Hands, Body:

If deemed necessary, wear protective gloves and clean body-covering clothing.

For Eyes:

Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

Ventilation:

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Special Precautions

Other Precautions:

Transport in dry equipment; store in dry location.

Labeling Information

DOT Shipping Name:

Salt (common), sodium chloride

DOT Label:

Not applicable

UN No.:

Not applicable

Other Contents of Product Label:

Not applicable

Warning:

None

Users Responsibility

The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.

Disclaimer of Liability

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Morton

Morton Salt
100 North Riverside Plaza Chicago, IL 60606-1597 312/807-2000

Material Safety Data Sheet

Morton *International*
110 North Wacker Drive, Chicago, IL 60606-1555

Emergency Phone No. (312) 807-2000 MK

60-109-C

PRODUCT IDENTIFICATION

Chemical Name: Sodium Chloride

Common Name: Salt

Product Name: PACKAGED NORTHERN FINE ROCK

CAS Number: 7647-14-5

Chemical Formula: NaCl

Product Use:

HAZARDOUS INGREDIENTS

Chemical Name	Common Name	CAS NO.	%	OSHA PEL	ACGIH TLV-TWA
None					

PHYSICAL DATA

Boiling Point, (760mm Hg.) 1413°C

Specific Gravity (Water = 1) 2.165

Vapor Pressure (mm Hg) 1mm @ 865°C

% Non-Volatile 100

Vapor Density (AIR = 1) N/A

Evaporation Rate (Ether = 1) N/A

Solubility in Water 1g in 2.8ml H_2O at 25°C

pH 6.7 - 7.3

Appearance White Crystalline Powder

Odor Odorless

FIRE AND EXPLOSION HAZARD DATA

Flash Point N/A °F

Flammable Limits Lel N/A Uel N/A

Method Used: Non-Combustible

Extinguishing Media: Not applicable

Special Fire Fighting Procedures: Not applicable

Unusual Fire and Explosion Hazards: Not applicable

Hazardous Decomposition Products: When heated to decomposition it emits toxic fumes of Cl_2 and Na_2O

FORM 1220 A 6/90

HEALTH HAZARD DATA

Oral Toxicity:

Does not meet toxicity criteria under OSHA 1910.1200 Hazard Communication, Appendix A parts 3. & 6.

Dermal Toxicity:

Not toxic to the skin

Eye:

Not toxic to the eye

Inhalation:

Not toxic through inhalation

Chronic Toxicity: No applicable information found

Mutagenesis:

No applicable information found

Effects of Overexposure:

Ingestion:
1. Disagreeable taste
2. Nausea and vomiting

Skin Contact:
1. Irritation
2. Inflammation
3. Small ulcerations

Eye Contact:
1. Mechanical irritation
2. Watering of eyes
3. Inflammation of conjunctivas

Inhalation:
1. Slight irritation of nose
2. Sneezing

Acute Systemic Effects:

Ingestion of large amounts can cause irritation of the stomach.

Chronic Systemic Effects:

No applicable information found.

EMERGENCY AND FIRST AID PROCEDURES

Eye Contact:
1. Wash the affected eye or eyes under slowly running water for 15 minutes or longer making sure that the victim's eyelids are held wide apart and he moves his eyes slowly in every direction.
2. Make sure that no solid particles remain the the creases of the eye; if they do, continue to wash the eye.
3. If the pain persists, the medical service will refer the victim to an ophthalmologist.

Skin Contact:
1. Remove the victim from the source of contamination.
2. Remove clothing from the affected area.
3. Wash affected area under the shower.
4. Rinse carefully.

Skin Contact: (continued)

5. Dry gently with a clean soft towel.
6. If the skin is inflamed or painful, contact the medical service who will treat it in the same way as a heat or thermal burn.

Inhalation:

1. Make the victim blow his nose to remove the dust but discourage him from sniffing.
2. If there is any doubt about the victim's condition send or escort him to the infirmary, first-aid room or hospital.

Ingestion:

1. Make the victim vomit by having him stick his finger down his throat or tickling his uvula with the handle of a spoon.
2. Afterwards give him as much milk or water as he wants.

REACTIVITY DATA

Stability ☒ **Stable** ☐ **Unstable** **Conditions to Avoid:**

Incompatibility: (Materials to Avoid)
Bromine Trifluoride, Lithium (BrF_3, Li)

Can Hazardous Polymerization Occur: No

Hazardous Decomposition Products and Conditions:
When heated to decomposition it emits toxic fumes of Cl_2 and Na_2O

SPILL OR LEAK PROCEDURES

Response to Small Spills: No special requirements

Response to Large Spills: No special requirements

Hazards to be Avoided: None known

Reportable Quantity: Check your State for requirements

Waste Classification: Some States have set maximum limits on Chlorides in waste effluent.

Disposal Methods: Dilution with water is the only practical method to meet requirements.

SPECIAL PROTECTION INFORMATION

Respiratory Protection:
No special equipment

For Hands, Body:
No special equipment

For Eyes:
No special equipment

Ventilation:
None required

SPECIAL PRECAUTIONS

Other Precautions:

Transport in dry equipment. Storage should be in a dry location.

LABELING INFORMATION

DOT Shipping Name: Salt (common) sodium chloride

DOT Label: Not applicable

UN No.: Not applicable

Other Contents of Product Label:

Not applicable

WARNING:

None

USERS RESPONSIBILITY

The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.

Disclaimer of Liability

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

Nothing contained herein is to be construed as a recommendation for use in violation of any patents or of applicable laws or regulations.

Morton International

110 North Wacker Drive, Chicago, IL 60606-1555 (312) 807-2000

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

SODIUM CHLORIDE

PRODUCT IDENTIFICATION:

Synonyms: Salt

Formula CAS No.: 7647-14-5

Molecular Weight: 58.44

Chemical Formula: NaCl

Hazardous Ingredients: Sodium chloride

PRECAUTIONARY MEASURES

WARNING! CAUSES EYE IRRITATION.

Avoid contact with eyes.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White crystalline.

Odor: Odorless.

Solubility: 36g/100cc water @ 20°C (68°F)

Boiling Point: 1413°C (2575°F)

Melting Point: 801°C (1474°F)

Specific Gravity: 2.16

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): 1.0 @ 865°C (1589°F)

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
When heated to above 801°C (1474°F) it emits toxic fumes of chloride and sodium oxide

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Lithium, bromide trifluoride.

SECTION 4 Leak/Spill Disposal Information

Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.
Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility, or if local ordinances allow, can be dissolved in sufficient amounts of water to meet water quality standards, and flushed down a sewer drain.

Ensure compliance with local, state and federal regulations.

New 24-147

WWW_104(e)_018361

SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of dust may cause mild irritation to mucous membranes, nose and throat. Symptoms may include coughing, dryness, and sore throat.

Ingestion:
Very large doses can cause vomiting, diarrhea, and prostration. Dehydration and congestion occur in most internal organs. Hypertonic salt solutions can produce violent inflammatory reactions in the gastrointestinal tract.

Skin Contact:
Not expected to be a health hazard.

Eye Contact:
May cause irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
If large amounts were swallowed, get medical advice.

Skin Exposure:
Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure:
Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 3000 mg/kg. Reproductive effects cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

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MALLINCKRODT

Material Safety Data Sheet

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Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

Emergency Telephone Number: 314-982-5000

SODIUM CHLORIDE

PRODUCT IDENTIFICATION:

Synonyms: Salt

Formula CAS No.: 7647-14-5

Molecular Weight: 58.44

Chemical Formula: NaCl

Hazardous Ingredients: Sodium chloride

PRECAUTIONARY MEASURES

WARNING! CAUSES EYE IRRITATION.

Avoid contact with eyes.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White crystalline.

Odor: Odorless.

Solubility: 36g/100cc water @ 20°C (68°F)

Boiling Point: 1413°C (2575°F)

Melting Point: 801°C (1474°F)

Specific Gravity: 2.16

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): 1.0 @ 865°C (1589°F)

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
When heated to above 801°C (1474°F) it emits toxic fumes of chloride and sodium oxide

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Lithium, bromide trifluoride.

SECTION 4 Leak/Spill Disposal Information

Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.
Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility, or if local ordinances allow, can be dissolved in sufficient amounts of water to meet water quality standards, and flushed down a sewer drain.

Ensure compliance with local, state and federal regulations.

New 24-147

WWW_104(e)_018363

SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of dust may cause mild irritation to mucous membranes, nose and throat. Symptoms may include coughing, dryness, and sore throat.

Ingestion:
Very large doses can cause vomiting, diarrhea, and prostration. Dehydration and congestion occur in most internal organs. Hypertonic salt solutions can produce violent inflammatory reactions in the gastrointestinal tract.

Skin Contact:
Not expected to be a health hazard.

Eye Contact:
May cause irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
If large amounts were swallowed, get medical advice.

Skin Exposure:
Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure:
Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 3000 mg/kg. Reproductive effects cited.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

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Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061.

SODIUM CITRATE

PRODUCT IDENTIFICATION:

Synonyms: Citrosodine; trisodium citrate; citric acid ,trisodium salt; 2-hydroxy-1,2,3-propanecarboxylic acid, trisodium salt, dihydrate

Formula CAS No.: 6132-04-3

TSCA CAS No.: 68-04-2

Molecular Weight: 294.10

Chemical Formula: $Na_3C_6H_5O_7 2H_2O$

Hazardous Ingredients: None.

PRECAUTIONARY MEASURES

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

EMERGENCY/FIRST AID

SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White crystals.

Odor: Odorless.

Solubility: 72 g/100 g of water.

Boiling Point: Decomposes at red heat.

Melting Point: Loses water at 150°C (302°F).

Density: ca. 1.7

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: Not applicable.

SECTION 2 Fire and Explosion Information

Fire:
As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Fire Extinguishing Media:
Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Strong oxidizers.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel may require respiratory protection from dust. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility as non-hazardous waste.

Ensure compliance with local, state and federal regulations.

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of dust may cause irritation to the respiratory tract.

Ingestion:
Extremely large oral dosages may produce gastrointestinal disturbances.

Skin Contact:
Possible irritation on prolonged contact with moist or sensitive areas of the skin.

Eye Contact:
No adverse effects expected but dust may cause mechanical irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Exposure:
Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure:
Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1982)

No LD50/LC50 information found relating to normal routes of occupational exposure.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

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HERCULES

MATERIAL SAFETY DATA SHEET

Hercules Incorporated
Paper Technologies and Ventures
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894
(302) 594-5000 24 HOURS

MSDS NO.: 710 4000 0000 **VER:** 12
SAP CODE: 100PL1063A00000002
ISSUE DATE: 05/02/2008
SUPERSEDES: 710 4000 0000 **VER:** 11

1 PRODUCT IDENTIFICATION

PRODUCT NAME	**HERCULES® TECHNICAL SODIUM FORMATE**
CHEMICAL/COMMON NAME	formic acid, sodium salt
CAS NUMBER	141-53-7

2 COMPOSITION / INFORMATION ON INGREDIENTS

OSHA Hazardous Ingredient	CASRN	Amount
monopentaerythritol	115-77-5	< 3%

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
WARNING!

Static charges generated by emptying package in or near flammable vapors may cause flash fire.
May form flammable dust-air mixtures.
May cause eye irritation.
May cause skin irritation by mechanical abrasion.
Inhalation of dust may cause respiratory tract irritation.

Refer to Section 5 for Hazardous Combustion Products, and Section 10 for Hazardous Decomposition/Hazardous Polymerization Products.

4 FIRST AID MEASURES

SKIN
Wash thoroughly with soap and water. Get medical attention if irritation develops or persists.

EYE
Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists.

INHALATION
Remove to fresh air. Get medical attention if nasal, throat or lung irritation develops.

INGESTION
Not an ingestion hazard under anticipated conditions of use. For accidental ingestion: Do NOT induce vomiting. Get immediate medical attention.

5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
Water spray, dry chemical, foam, carbon dioxide or clean extinguishing agents may be used on fires involving this product.

FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH approved (or equivalent) and full protective gear when fighting fires involving this product.

CONDITIONS TO AVOID
None known.

HAZARDOUS COMBUSTION PRODUCTS
During combustion, the following substances may be formed: carbon monoxide , carbon dioxide and sodium oxide . Combustion products may cause eye, skin or respiratory irritation.

6 ACCIDENTAL RELEASE MEASURES

Ventilate area. Avoid dust formation. If product is not contaminated, scoop into clean containers for use. If product is contaminated, scoop into containers, and dispose appropriately. In case of accidental spill or release, refer to Section 8, Personal Protective Equipment and General Hygiene Practices.

7 HANDLING & STORAGE

GENERAL MEASURES
Ground all equipment.
Blanket vessel with inert gas when emptying bags where flammable vapors may be present.
Ground operator and pour material slowly into conductive, grounded chute.
Store in a cool, dry place: approximately 20° C (68° F).
Keep container closed when not in use.

MATERIALS OR CONDITIONS TO AVOID
Avoid conditions that generate dust; product may form flammable dust-air mixtures.
Avoid emptying package in or near flammable vapors; static charges may cause flash fire.
Keep away from heat, flame, sparks and other ignition sources.
Do not store near acids.
Material is corrosive to carbon steel.
Avoid storing product near incompatible materials. See MSDS Section 10.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

WORK PRACTICES & ENGINEERING CONTROLS
Eyewash fountains and safety showers should be easily accessible.
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Discharge from the ventilation system should comply with applicable air pollution control regulations.

GENERAL HYGIENIC PRACTICES
Avoid contact with eyes, skin, and clothing.
Avoid breathing dust.
Handle in areas with adequate ventilation.
Avoid contamination of food, beverages, or smoking materials.
Wash thoroughly after handling, and before eating, drinking or smoking.
Remove contaminated clothing promptly and clean thoroughly before reuse.

RECOMMENDED EXPOSURE LIMITS

ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)	
monopentaerythritol	10 mg/m3 TWA
U.S. - OSHA - Vacated PELs - TWAs	
monopentaerythritol	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

PERSONAL PROTECTIVE EQUIPMENT
Safety glasses
Impervious gloves
Appropriate protective clothing
Appropriate respiratory protection is required when exposure to airborne contaminants may exceed acceptable limits. Respirators should be selected and used in accordance with OSHA, Subpart I (29 CFR 1910.134) and manufacturers recommendations.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE
Eliminate ignition sources and prevent build-up of static electrical charges.
Completely isolate and thoroughly clean all equipment, piping, or vessels before beginning maintenance or repairs.
Keep area clean.

9 PHYSICAL & CHEMICAL PROPERTIES

PHYSICAL STATE:	crystalline powder
COLOR:	white
ODOR:	odorless
Specific Gravity	1.92
Melting Point	487 ° F
Solubility In Water	slightly soluble
pH Value	7.0-8.5 , conc: 1M at 20 C (solution)

10 STABILITY & REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS
If heated to decomposition, the following substances may be formed: sodium carbonate (soda ash) and sodium oxides

HAZARDOUS POLYMERIZATION
Not anticipated under normal or recommended handling and storage conditions.

GENERAL STABILITY CONSIDERATIONS
Stable under recommended handling and storage conditions.

INCOMPATIBLE MATERIALS
Incompatible with: acids

11 TOXICOLOGICAL INFORMATION

CARCINOGENICITY INFORMATION
Not listed as a carcinogen by NTP. Not regulated as a carcinogen by OSHA. Not evaluated by IARC.

REPORTED HUMAN EFFECTS
Ingestion of 10 grams (1/3 ounce) caused no adverse effects. Use as a substitute for table salt caused no adverse effects. Due to the physical nature of this material, may cause eye, skin and respiratory irritation.

COMPONENT - monopentaerythritol: No effects at a single oral dose of 50 grams (approx. 2 oz.), the highest dose reported.

REPORTED ANIMAL EFFECTS
Acute oral LD50 (mouse): 11 g/kg.

COMPONENT - monopentaerythritol: Acute oral (rat): > 5 g/kg caused diarrhea; (mouse): > 15 g/kg caused central nervous system effects. Eye irritation (rabbit, 50% aqueous suspension): minimal temporary irritation. Doses of 10 g/kg applied as a paste to rabbits skin did not cause any clinical signs of toxicity. Doses of up to 2.5 g/kg/day in the diet caused only diarrhea in rats. No adverse effects were seen upon inhalation exposure of animals to 8 g/m3 for 90 days.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION
No ecological studies have been carried out on this product.

COMPONENT - monopentaerythritol: Acute aquatic 48-hour static EC50 value, in the Daphnia, falls within the relatively harmless range of >1000 mg/L, according to U. S. Fish and Wildlife criteria.

BIODEGRADABILITY
This product is biodegradable.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL
Landfilling in a permitted solid or hazardous waste facility is recommended. Handling, transportation, and disposal of material should be conducted in a manner to prevent a nuisance dust hazard. Fully containerize the material before handling, and protect from exposure to the outdoors. Ensure there are no restrictions on disposing of bulk or semi-bulk quantities of waste material. Disposal should be in accordance with all Federal, State and local regulations.

14 TRANSPORT INFORMATION

GENERAL
This product is not subject to DOT regulations. For specific information regarding transportation of this product, please call the Hercules representative at (905) 279-3338.

15 REGULATORY INFORMATION

CHEMICAL INVENTORIES
U.S. TSCA: The components of this product are included on the TSCA Inventory.
Canadian CEPA : Included on DSL Inventory.

SARA TITLE III - SECTIONS 302/304
This product is not an Extremely Hazardous Substance subject to reporting under 40CFR355.

SARA TITLE III - SECTIONS 311 AND 312
HC-1: Acute health hazard
HC-3: Fire hazard

SARA TITLE III - SECTION 313
This product does not contain any chemicals subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act and 40CFR372.

CERCLA
This product does not contain any chemicals subject to reporting as a CERCLA Hazardous Substance under 40CFR302.4.

RCRA
This product is not a hazardous waste as listed in 40CFR261.33. It does not exhibit any of the hazardous characteristics listed in 40CFR261, Subpart C.

16 OTHER INFORMATION

HMIS RATINGS:

Health	1	Slight Hazard
Flammability	1	Slight Hazard
Reactivity	0	Minimal Hazard

LIST OF ACRONYMS

ACGIH: American Conferences of Governmental Industrial Hygienists
AIHA WEEL: American Industrial Hygienists Association-Workplace Environmental Exposure Level
ANSI: American National Standards Institute
CASRN: Chemical Abstracts Service Registry Number
CEPA: Canadian Environmental Protection Act
CERCLA: Comprehensive Emergency Response, Compensation and Liability Act
DSL: Domestic Substances List (Canadian)
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
NDSL: Non-Domestic Substances List (Canadian)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit (OSHA)
RCRA: Resource Conservation and Recovery Act
RQ: Reportable Quantity
SARA: Superfund Amendment Reauthorization Act
STEL: Short-Term Exposure Limit
TLV: Threshold Limit Values (registered trademark of ACGIH)
TPQ: Threshold Planning Quantity
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average

DISCLAIMER

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

MSDS STATUS

Supersedes Date	MSDS Revision(s)
10/03/2006	Section 1 (correct product name)

60 120 112

SAM HPRP Chemicals Inc.
19055 Valley View Road, Eden Prairie, MN 55346 - 3945, USA
Phone :+1 (952) 974 9174 Fax: +1 (952) 974 8183
E Mail: morsunusa@msn.com

Material Safety Data Sheet

Sodium Formate

Section 1: Product and Company Identification

Product Identification:	Sodium Formate Synonyms: Formic Acid, Sodium Salt
Date of MSDS:	01/10/05

Manufacturer's Information

Manufacturer's Name:	SAM HPRP Chemicals Inc.
Manufacturer's Address1:	19055 Valley View Road
Manufacturer's Address2:	Eden Prairie, MN 55346
Manufacturer's Country:	USA
General Information Telephone:	952 974 9174
Emergency Telephone:	612 280 7079
MSDS Preparer's Name:	Sunil Shah

Section 2 - Composition/Information on Ingredients

Ingredient Name:	Sodium Formate, 97-99%
Ingredient CAS Number:	141-53-7

Section 3 - Hazards Identification, Including Emergency Overview

Emergency Overview:

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Health Rating: 1 - Slight
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT

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Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:
Inhalation of dust can irritate the respiratory tract with symptoms of sore throat, coughing, and shortness of breath.

Ingestion:
Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.

Skin Contact:
Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:
Causes irritation, redness, and pain.

Chronic Exposure:
No information found.

Aggravation of Pre-existing Conditions:
No information found.

Section 4 – First Aid Measures

First Aid	**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention. **Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse. **Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Section 5 – Fire Fighting Measures

Fire Fighting Procedures:	**Fire:** Not considered to be a fire hazard. **Explosion:** Not considered to be an explosion hazard. **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. **Special Information:** In the event of a fire, wear full

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	protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode.

Section 6 – Accidental Release Measures

Spill Release Procedures:	Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Section 7 – Handling and Storage

Handling and Storage Precautions:	Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls & Personal Protection

Respiratory Protection:	**Airborne Exposure Limits:** None established. **Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. **Personal Respirators (NIOSH Approved):** For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerin, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where

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	the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. **Skin Protection:** Wear protective gloves and clean body-covering clothing. **Eye Protection:** Maintain eye wash fountain and quick-drench facilities in work area. Use chemical safety goggles and/or full-face shield where dusting or splashing of solutions is possible.

Section 9 – Physical and Chemical Properties

Specific Gravity:	1.92@20C
pH:	Not Found
Solubility in Water:	97 g per 100 gm of water @ 20 C
Appearance and Odor:	White, deliquescent, granules or crystalline powder. Odorless to slight formic acid odor.
Percent Volatiles by Volume:	0.5
Melting Point	253C (487F)
Boiling Point	Decomposes

Section 10 – Stability and Reactivity Data

Stability Indicator:	Hygroscopic. Readily absorbs moisture from the air. Solutions are strong bases.
Materials to Avoid:	Reacts with strong acids to form formic acid fumes.
Stability Condition to Avoid:	No information found.
Hazardous Decomposition Products:	At higher temperatures, substance decomposes into sodium oxalate and hydrogen, then into sodium carbonate. Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization Indicator:	This substance does not polymerize.

Section 11 – Toxicology Information

WWW_104(e)_018375

Toxicological Information:	No LD50/LC50 information found relating to normal routes of occupational exposure. --------\Cancer Lists\---------- ---------- ---NTP Carcinogen--- Ingredient Known Anticipated IARC Category ---------- ----- ---------- ---------- Sodium Formate (141-53-7) No No None

Section 12 – Ecological Information

Ecological Information:	No information found on environmental toxicity.

Section 13 – Disposal Considerations

Waste Disposal Methods:	Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 – MSDS Transport Information

Transport Information:	Not Regulated.

Section 15 – Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Sodium Formate (141-53-7)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Sodium Formate (141-53-7)	Yes	Yes	No	Yes

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--------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Sodium Formate (141-53-7)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------

Ingredient	-RCRA- CERCLA	261.33	-TSCA- 8(d)
Sodium Formate (141-53-7)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)
Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16 – Other Information

Other Information:	**NFPA Ratings:** Health: **2** Flammability: **0** Reactivity: **0** **Label Hazard Warning:** WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. **Label Precautions:** Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing dust. Keep container closed. Use only with adequate ventilation. **Label First Aid:** In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In all cases, get medical attention. **Product Use:** Leather Tanning Process Chemical

WWW_104(e)_018377

Perstorp Polyols, Inc.

CHEMICAL NAME Sodium Formate 60-120112(B) N/H

BODY PART

REACTIVITY 0

FLAMMABILITY 1 PERSONAL PROTECTION E

0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE

FOR FURTHER INFORMATION CONSULT MSDS

MATERIAL SAFETY DATA SHEET SODIUM FORMATE

Revision Date: February 9, 1999

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	SODIUM FORMATE
Chemical Family:	ORGANIC ACID SALT
Trade Name:	FORMATE
Formula:	HCOONa

MANUFACTURER:
Perstorp Polyols, Inc.
600 Matzinger Road
Toledo, Ohio 43612
(419) 729-5448
800-537-0280

EMERGENCY TELEPHONE NUMBERS:
Transportation:
CHEMTREC 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component, wt % (CAS Registry No.)	Exposure Limits
Sodium Formate, 100% (141-53-7)	None established

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

	HMIS
Health	0
Flammability	1
Reactivity	0

POTENTIAL HEALTH EFFECTS

Inhalation (breathing):	No threshold limits have been established. Treat as nuisance dust. High concentrations may cause irritation.
Skin contact:	May cause irritation.
Eye contact:	High concentrations may cause irritation to the eyes.
Ingestion (swallowing):	Moderately toxic by ingestion.

CARCINOGENICITY

Sodium formate	Not listed as a carcinogen.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Skin contact:	Flush skin immediately with plenty of water for at least 15 minutes while removing contaminated clothing. Call a physician.
Eye contact:	Flush eyes immediately with plenty of water for at least 15 minutes. Call a physician.
Ingestion:	Drink large amounts of water. Call a physician. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flash Point: None LEL: NA UEL: NA

Extinguishing Media: Water Spray. Foam. Dry Chemical. Carbon Dioxide (CO_2).

Special Fire Fighting Procedures: Combustible when exposed to heat or flame.

Unusual Fire and Explosion Hazards: If in finely divided and suspended state, treat as flammable dust.

6. ACCIDENTAL RELEASE MEASURES

Spill, Leak, or Release: Collect material as a dry solid. Avoid creating excessive dust.

7. HANDLING AND STORAGE

Keep material dry. Sodium formate is slightly hygroscopic. Keep containers closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Use of a dust mask with this material is recommended as the dust may be irritating to respiratory tract. Appropriate protective clothing should be used as available: impervious type gloves, safety glasses.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	Decomposes at 360 °C. (680 °F)
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Evaporation Rate	Not applicable
Water Solubility	970 g/kg at 20 °C
Odor	None
Form	Crystalline powder
Color	White
Specific Gravity	1.919
Melting Point	253 °C. (488 °F)

10. REACTIVITY

Instability:	Stable.
Conditions to Avoid:	High dust concentrations.
Incompatibility:	None.
Decomposition:	Decomposes with heat. Thermal decomposition may produce hydrogen and sodium monoxide.

11. TOXICOLOGICAL INFORMATION

Mouse - oral - LD50: 11,200 mg/kg (SAX).
Dog - oral - LDLo (lowest published lethal dose): 4,000 mg/kg (SAX).

12. DISPOSAL CONSIDERATIONS

Dispose in accordance with Federal, State, and local regulations.

13. TRANSPORTATION INFORMATION

DOT/IMO
Sodium formate is not a hazardous material under current Department of Transportation regulations.

14. REGULATORY INFORMATION

SARA TITLE III HAZARD CLASSIFICATIONS

Acute	No
Chronic	No
Fire	No
Reactivity	No
Pressure	No

LISTS:

TSCA Registry (sodium formate)	Yes
SARA Extremely Hazardous Substance	No
CERCLA Hazardous Material	No

15. OTHER INFORMATION

Reason for issue or revision: Section 14 - added TSCA Registry.

Prepared by:	A. Sloma
Title:	Safety, Health, Env. Manager
Approval Date:	February 9, 1999

To the best of our knowledge, the information contained herein is accurate. However, Perstorp Polyols, Inc. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

Celanese
CHEMICALS

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name: Sodium formate
MSDS number: 165
Material number: 45000005

Celanese Ltd.
1601 W. LBJ Freeway
P.O. Box 819005
Dallas, TX 75381-9005
United States
972 443 4000

Celanese Canada, Inc.
P.O. Box 99 Station Main
Edmonton, Alberta,
Canada T5J 2H7
780 471 0425

Transportation emergency phone numbers:
In USA, call 800 424 9300
Outside USA, call 703 527 3887, collect calls accepted
In Canada, call 780 477 8339.

Product Use: Intermediate in the production of formic acid and for sodium hydrosulfite (dithionite); also used in the dyeing of textiles, in leather tanning, and as a deicing chemical for streets and airport runways.

2. Composition / Information on Ingredients

Component & CAS Number	Weight %	OSHA hazard category:
SODIUM FORMATE 141-53-7	91 - 99.8	Hazardous
OTHER ORGANICS NONE	0 - 4	Hazardous

Water (CAS 7732-18-5), wt. %: 1

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

3. Hazards Identification

Emergency Overview:

DANGER!
Harmful if inhaled.
May cause respiratory tract, skin and eye irritation.

Product Description

Appearance:	White crystalline granules.
Odor:	Odorless.

Potential health effects

Routes of exposure: Skin, eyes, inhalation, ingestion.

Immediate effects:

Skin: May cause skin irritation. Symptoms of exposure may include: Crusting, scaling, weeping and itching of skin.

Eyes: May cause eye irritation. Symptoms of exposure may include: Eye irritation or burning sensation.

Inhalation: May cause respiratory tract irritation. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty.

Ingestion: May be harmful if swallowed. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea.

Delayed / long-term effects: See "Section 11 - Toxicological Information" for studies with experimental animals.

Carcinogenic: No evidence of carcinogenicity.

Mutagenic: Does not show mutatgenic potential in most in vitro tests.

Target Organ Effects: **Overexposure (prolonged or repeated exposure) may cause:**

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

Irritation of the respiratory tract
Irritation of the digestive tract
Local irritation at the site of exposure

Medical Conditions which may be Aggravated by Exposure:

Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:
Respiratory Tract
Skin
Eyes

For further information, see:
Section 4 - First Aid Measures
Scetion 5 - Fire Fighting Measures
Section 6 - Accidental Release Measures
Section 8 - Exposure Contols/Personal Protection
Section 9 - Physical and Chemical Properties
Section 10 - Stability and Reactivity

4. First Aid Measures

Skin:
Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Call a physician if irritation develops and persists. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:
If large quantities of this material are swallowed, call a physician immediately. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. Call a physician.

5. Fire Fighting Measures

NFPA: Health: 2 Flammability: 0 Reactivity: 0

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

Flammable properties:
Flash point (test method): Not Applicable

Flammable limits in air, % by volume:
Upper (%): Non-Combustible Solid
Lower (%): Non-Combustible Solid

Autoignition Temperature: Not applicable
Products of Combustion: Carbon Monoxide.

Extinguishing Media: Use alcohol type aqueous film forming foam for large fires. Use CO_2 or dry chemical for small fires.

Fire Fighting Environmental Concerns: Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.

Fire Fighting Instructions: Water spray should be used to cool fire-exposed structures and vessels. Water or foam may cause frothing. Water spray can be used to reduce the intensity of flames and to dilute spills to a non-flammable mixture. Keep personnel removed from and upwind of fire. If potential for exposure to vapors or products of combustion exists, wear full fire fighting turnout gear and NIOSH approved self-contained breathing apparatus. Oxidizing chemicals may accelerate the burning rate in a fire situation.

6. Accidental Release Measures

Spill or Leak Instructions:
See Section 8 for appropriate personal protective equipment. Contain spill with dikes of soil or nonflammable absorbent to minimize contaminated area. Avoid run-off into storm sewers and ditches leading to waterways. If required, notify state and local authorities. Place leaking containers in well-ventilated area. Clean up small spills by using a nonflammable absorbent or flushing sparingly with water. Contain larger spills with nonflammable diking or absorbent. Clean up by vacuuming or sweeping.

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Assess the spill situation, as the spill may not evolve large amounts of hazardous airborne contaminants in many outdoor spill situations. It may be advisable in some cases to simply monitor the situation until spilled product is removed.

For more information, see "Section 15 - Regulatory Information".

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

7. Handling and Storage

Handling: Use with adequate ventilation. Keep containers closed when not in use. Avoid breathing dust. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate affected clothing thoroughly before re-use. Destroy contaminated leather clothing.

This product may generate a static charge. Ground/bond equipment when transferring material to prevent static accumulation. Electrical equipment and circuits in all storage and handling must conform to requirements of National Electric Code (Article 500 and 501) for hazardous location. Dust from this material can form an explosive organic dust cloud. If compressed air is used to transfer this material, special safety design considerations and procedures must be utilized to prevent potential fires and explosions. Avoid allowing particles to free-fall.

Storage: Do not store with incompatible materials. See Section 10. Stability and Reactivity. Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor.

8. Exposure Controls / Personal Protection

Engineering Controls: General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred.

Protective Equipment A safety shower and eyebath should be readily available.

Skin Protection: Wear impervious clothing and gloves to prevent contact. Neoprene is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Eye/face protection: Wear chemical goggles when there is a reasonable chance of eye contact.

Respiratory Protection: Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended

equipment for an occupational exposure level. To estimate an occupational exposure level see Section 3, Section 8 and Section 11.

For concentrations > 1 and < 10 times the occupational exposure level: Use air-purifying respirator with a full facepiece and HEPA particulate filters.

For concentrations more than 10 times the occupational exposure level and less than the lower of either 100 times the occupational exposure level or the IDLH: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Exposure guidelines

Component & CAS Number	Weight %	ACGIH TWA	ACGIH STEL	ACGIH CEILING	OSHA TWA	OSHA STEL	OSHA CEILING
SODIUM FORMATE 141-53-7	91 - 99.8	-	-	-	-	-	-
OTHER ORGANICS NONE	0 - 4	-	-	-	-	-	-

Component & CAS Number	Weight %	1990 NIOSH IDLH (Recognized by OSHA)	1994 NIOSH IDLH
SODIUM FORMATE 141-53-7	91 - 99.8	-	-
OTHER ORGANICS NONE	0 - 4	-	-

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

9. Physical and Chemical Properties

Appearance:	White crystalline granules.
Odor:	Odorless.
pH:	7.5 - 8
Vapor density (Air=1 @ 20 deg C):	Sodium Formate: 2.35 Water: 0.62

Not applicable. Decomposes above melting point.

Melting point:	253 C (487 F)
Solubility in water @ 20 deg C:	97 %
Bulk density:	1 - 1.05 g/cm3 at 20 deg C
Molecular weight:	Sodium Formate - 68.0 Water - 18.0

10. Stability and Reactivity

Stability:	Stable.
Incompatibility:	Keep away from sulfuric acid, hydrochloric acid or other strong inorganic acids.
Hazardous Combustion or Decomposition Products:	Thermal decomposition products may include oxides of carbon.
Hazardous Polymerization:	Hazardous polymerization will not occur.

11. Toxicological Information

Component & CAS Number	Weight %	Component Toxicological Information:

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

SODIUM FORMATE 141-53-7	91 - 99.8	**Acute Exposure:** **Oral:** Practically nontoxic to animals. LD50: 11.2g/kg (mice). **Inhalation:** Slightly toxic to animals. LD50, >670mg/m3 (dust, rats, 4 hrs.). **Skin:** Essentially non-irritating to rabbit skin; no dermal toxicity information available. **Eye:** Moderately irritating to rabbit eyes. **Mutagenicity:** Not mutagenic in most in vitro and in vivo tests. **Carcinogenicity:** No information. **Reproduction:** No information. **Repeated Exposure:** No adverse effects were reported in rats exposed to 1% sodium formate in drinking water for 1.5 years.
OTHER ORGANICS NONE	0 - 4	

12. Ecological Information

Component & CAS Number	Weight %	Component Ecological Information:
SODIUM FORMATE 141-53-7	91 - 99.8	**Ecotoxicity:** Sodium formate exhibits low acute toxicity to aquatic species. Fathead minnow, 96-hr. LC50 >954ppm. Rainbow trout, 96-hr. LC50 >887ppm. Bluegill, 24-hr. LC50 = 5000ppm. Water flea (daphnid), 48-hr. LC50 = 1070ppm. Algae (Selenastrum capricornutum), 96-hr. EC50 = 790ppm. **Environmental Fate:** Field and greenhouse studies conducted in conjunction with its proposed use as an airport runway de-icer did not show significant effects on various terrestrial or aquatic systems. In water, this material will dissociate to sodium ion and formate ion which is readily biodegradable and has low bioaccumulation potential.
OTHER ORGANICS NONE	0 - 4	

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

13. Disposal Considerations

Dispose of spilled material in accordance with state and local regulations for waste that is non-hazardous by Federal definition. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste. See Section 9 - Physical and Chemical Properties.

14. Transport Information

US Department of Transportation

Shipping name: SODIUM FORMATE
Hazard Class: Not Regulated.

ICAO/IATA:

Proper Shipping Name: SODIUM FORMATE
Hazard Classification: Not Regulated.

IMDG:

Proper Shipping Name: SODIUM FORMATE
Hazard Class: Not Regulated.

Transport Canada

Proper Shipping Name: Not regulated by Canadian TDG

Trade Information

Schedule B Code (export): 2915.12.0000

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

15. Regulatory Information

U.S. STATE REGULATIONS

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

U.S. REGULATORY RULES

TSCA Inventory:
We certify that all components are either on the TSCA inventory or qualify for an exemption.

Environmental Regulations

SARA 311:

Acute health:	Yes
Chronic health:	No
Fire:	No
Sudden release of pressure:	No
Reactive:	No

INTERNATIONAL REGULATIONS

International chemical inventories:

Listed on the chemical inventories of the following countries or qualifies for an exemption:
AUSTRALIA,CHINA,CANADA,EUROPE,JAPAN,KOREA,PHILIPPINES

Canadian Regulations:

WHMIS Classification: Not a WHMIS controlled product.

16. Other Information

Prepared by: Product Stewardship Dept.

Hazard ratings This information is intended solely for the use of individuals trained in the NFPA and/or HMIS systems.

NFPA: Health: 2 Flammability: 0 Reactivity: 0
HMIS: Health: 2 Flammability: 0 Reactivity: 0

Product name:	SODIUM FORMATE
MSDS number:	165
Material number:	45000005
Published date:	03/23/2001

Note:

The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Celanese Ltd. makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards. Material safety data sheets are provided on the Internet by Celanese, Ltd. as a service to its customers. Possession of an Internet MSDS does not indicate that the possessor of the MSDS was a purchaser or user of the subject product.

MATERIAL SAFETY DATA SHEET

SODIUM HYDROXIDE 50%

17.124-G

SECTION I - IDENTIFICATION

New Supplier

MANUFACTURER'S NAME.....	Haviland Products Company
ADDRESS (STREET,CITY,STATE,ZIP)	421 Ann St., N.W., Grand Rapids, MI 49504
PHONE NUMBER.....	(616) 361-6691
EMERGENCY PHONE NUMBER.....	CHEMTREC (800) 424-9300
EFFECTIVE DATE.....	1/19/89
TRADE NAME.....	SODIUM HYDROXIDE 50%
CHEMICAL FAMILY.....	Miscellaneous Blend

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	OSHA/PEL	ACGIH/TLV (Units)	PROD. CAS #
Sodium Hydroxide (Caustic Soda) (50% by wt) **SEE NOTE UNDER "REFERENCES" AT END OF MSDS	2 mg/m³ TWA	2 mg/m³ TWA	1310-73-2

SECTION III - PHYSICAL DATA

BOILING POINT.....	293°F (145°C)
FREEZING POINT	60°F (15.6°C)
VAPOR PRESSURE (mm Hg).....	1.5 @ 20°C
VAPOR DENSITY (Air=1).....	No Information Available
SOLUBILITY IN H2O.....	Completely
APPEARANCE/ODOR.....	Clear, Colorless Liquid; Odorless
SPECIFIC GRAVITY (H2O=1).....	1.52
PH.....	Not Established

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT.....	Not Flammable
LOWER EXPLOSIVE LIMIT (% by Volume)	Not Applicable
UPPER EXPLOSIVE LIMIT (% by Volume)	Not Applicable
EXTINGUISH MEDIA.....	As for Surrounding Fires
SPECIAL FIRE FIGHTING PROCEDURES...	Wear NIOSH/MSHA approved self contained breathing apparatus and full protective equipment when this material is involved in a fire.
UNUSUAL FIRE HAZARD.....	In solution caustic can react with amphoteric metals generating hydrogen which is flammable and/or explosive if ignited.

SECTION V - HEALTH HAZARD DATA

CARCINOGENICITY.....	None
NTP.....	No
IARC.....	no
OVER EXPOSURE EFFECTS.....	Redness of Exposed Tissues with possible burns resulting in deep ulceration.
PRIMARY ROUTE(S) OF ENTRY.....	Skin Contact
FIRST AID PROCEDURES.....	If inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. In case of contact: Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Ingestion: Do not induce vomiting. If conscious, dilute by giving several glasses of water. Call a Physician Immediately.

EXPOSURE AGGRAVATED MEDICAL CONDITIONS None Currently Known

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY.....	Stable
CONDITIONS TO AVOID.....	Not Applicable
INCOMPATIBLE MATERIALS.....	Acids
DECOMPOSITION PRODUCTS.....	None Currently Known
HAZARDOUS POLYMERIZATION.....	Will Not Occur
POLYMERIZATION AVOID.....	Not Applicable

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL	Add non-reactive dry, absorbent such as diatomaceous earth. Shovel or sweep up and place in an approved DOT container and seal. Flush contaminated area and neutralize with dilute acid.
WASTE DISPOSAL METHOD.....	Dispose of spilled or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION.....	Supplied air or self contained breathing apparatus with full face piece.
VENTILATION.....	To maintain vapors below limits.
PROTECTIVE GLOVES.....	Rubber or other impervious materials.
EYE PROTECTION.....	Chemical splash proof goggles.
OTHER PROTECTIVE EQUIPMENT....	A safety shower and eye bath should be available. For operations where spills or splashing may occur, use an impervious body covering and boots.
HANDLING AND STORAGE.....	Store in cool, dry, well ventilated area. Keep containers closed when not in use.

SECTION IX - SPECIAL PRECAUTIONS

HAZARD CLASS.....	Corrosive Material
DOT SHIPPING NAME.....	SODIUM HYDROXIDE, LILQUID
UN NUMBER.....	UN1824
REPORTABLE QUANTITY (RQ).....	2000 lbs.

REFERENCES HMIS: H-3,F-0,R-1

SODHYDOX

NOTE Hazardous Component(s) subject to reporting under 40 CFR 372 (SARA Title III, Sec. 313).

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29CFR 1910. 1200. Standard must be consulted for specific requirements.

SODIUM HYDROXIDE 50%

QUICK IDENTIFIER
Common Name: (used on label and list)

Commercial & Rayon Grade

SECTION 1 -

Manufacturer's Name	Haviland Products Company		
Address	421 Ann Street N.W.	Emergency Telephone No.	CHEMTREC (800) 424-9300
City, State, and ZIP	Grand Rapids, MI 49504	Other Information Calls	(616) 361-6691
Signature of Person Responsible for Preparation (Optional)		Date Prepared	7/11/86

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Sodium Hydroxide (caustic soda)	$2mg/m^3$ TWA	$2mg/m^3$ TWA			1310-73-2

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point	293°F (145°C)	Specific Gravity (H_2O=1)	1.52	Vapor Pressure (mm Hg)	1.5 @ 20°C
	Vapor Density (Air = 1)	no data			
Solubility in Water	completely	Reactivity in Water	exothermic reaction		
Appearance and Odor	clear, colorless liquid odorless	Melting Point	60°F (15.6°C)		

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point F. C.	Method Used	non flammable	Flammable Limits in Air % by Volume	LEL Lower	NA*
				UEL Upper	NA
Auto-Ignition Temperature	will not burn	Extinguisher Media	As for surrounding fires		

Special Fire Fighting Procedures: Wear NIOSH/MSHA approved self-contained breathing apparatus and full protective equipment when this material is involved in a fire.

Unusual Fire and Explosion Hazards: In solution cautic can react with amphoteric metals generating hydrogen which is flammable and/or explosive if ignited.

*NA = Not applicable

SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable ☐ Stable ☒ — Conditions to Avoid: NA

Incompatability (Materials to Avoid): Acids

Hazardous Decomposition Products: none currently known

Hazardous Polymerization: May Occur ☐ Will Not Occur ☒ — Conditions to Avoid: NA

SECTION 6 – HEALTH HAZARDS

1. Acute: burns to exposed tissues resulting in deep ulceration

2. Chronic: none except those secondary to tissue damage

Signs and Symptoms of Exposure: redness of exposed tissues

Medical Conditions Generally Aggravated by Exposure: none currently known

Chemical Listed as Carcinogen or Potential Carcinogen — National Toxicology Program: Yes ☐ No ☒ — I.A.R.C. Monographs: Yes ☐ No ☒ — OSHA: Yes ☐ No ☒

Emergency and First Aid Procedures: * Designates primary route of entry

ROUTES OF ENTRY

1. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. Keep victim warm & calm. Contact physician.
2. Eyes: IMMEDIATELY flush with plenty of water for 15 minutes, holding eyelids apart. CONTACT PHYSICIAN IMMEDIATELY!!
3. Skin: Wash with plenty of water. Remove contaminated clothing and wash before reuse. If irritation persists, contact physician.
4. Ingestion: DO NOT INDUCE VOMITING!! If conscious, give large quantities of water to dilute. CONTACT PHYSICIAN IMMEDIATELY!!!

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Avoid contact with eyes & skin. Store in cool, dry, well-ventilated area. Keep containers closed when not in use.

Other Precautions: Emptied containers retain product residue.

Steps to be Taken in Case Material is Released or Spilled: Add non-reactive dry, absorbent such as diatomaceous earth. Shovel or sweep up and place in an approved DOT contriner and seal. Flush contaminated area and neutralize with dilute acid.

Waste Disposal Methods (Consult federal, state, and local regulations): Dispose of spilled or waste product, contaminated soil & other contaminated materials in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): supplied air or self-contained breathing apparatus with full facepiece.

Ventilation: to maintain vapors below TLV's — Local Exhaust: recommended — Mechanical (General): acceptable — Special: NA — Other: NA

Protective Gloves: rubber or other impervious material — Eye Protection: splash proof chemical goggles

Other Protective Clothing or Equipment: For operations where spills or splashing may occur, use an impervious body covering & boots. A safety shower & eyebath should be available

Work/Hygienic Practices: Wash thoroughly after handling.

IMPORTANT

Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Lab

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Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sodium Hydroxide Solution, 1.54N
Catalog Number: 2743042

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M01622
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: Causes severe burns.
Date of MSDS Preparation:
Day: 14
Month: 07
Year: 2001

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Hydroxide
CAS No.: 1310-73-2
TSCA CAS Number: 1310-73-2
Percent Range: 5.0 - 15.0
Percent Range Units: weight / volume
LD50: Oral rat LDLo = 500 mg/kg.
LC50: None reported
TLV: 2 mg/m^3
PEL: 2 mg/m^3
Hazard: Causes severe burns. Toxic.

Demineralized Water
CAS No.: 7732-18-5
TSCA CAS Number: 7732-18-5
Percent Range: > 90.0
Percent Range Units: volume / volume
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: No effects anticipated.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: None
CAUSES SEVERE BURNS

2 non sera

HMIS:
Health: 3
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 3
Flammability: 0
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: Causes severe burns
Skin Contact: Causes severe burns
Skin Absorption: None reported
Target Organs: None reported
Ingestion: Causes: severe burns vomiting rapid pulse and respirations shock collapse death
Target Organs: None reported
Inhalation: Causes: severe burns
Target Organs: None reported
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.
Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.
Clean-up Technique: Cover spilled material with a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a weak acid solution.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Product is regulated as a hazardous water pollutant. Product is regulated as RCRA hazardous waste.
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: 154

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: heat Keep away from: acids
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have a safety shower nearby. Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: heat Keep away from: acids/acid fumes
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: None
pH: >13
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Boiling Point: Not determined
Melting Point: Not applicable
Specific Gravity (water = 1): Not determined
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Miscible
Acid: Reacts with acid
Other: Not determined
Metal Corrosivity:
Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heat Evaporation Exposure to air.
Reactivity / Incompatibility: May react violently in contact with: strong acids Incompatible with: halogenated organic compounds tin aluminum zinc nitro compounds
Hazardous Decomposition: No hazardous decomposition products known.
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Sodium hydroxide: oral rat LDLo = 500 mg/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002
Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Sodium Hydroxide Solution
--
DOT Hazard Class: 8
DOT Subsidiary Risk: NA
DOT ID Number: UN1824
DOT Packing Group: II
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Sodium Hydroxide Solution
--
ICAO Hazard Class: 8
ICAO Subsidiary Risk: NA
ICAO ID Number: UN1824
ICAO Packing Group: II

I.M.O.:
I.M.O. Proper Shipping Name: Sodium Hydroxide Solution
--
I.M.O. Hazard Class: 8
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: UN1824
I.M.O. Packing Group: II

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
--
302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Sodium Hydroxide 1000 lbs.
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Sodium Hydroxide - RQ = 1000 lbs. (454 kgs.)
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.
C.P.S.C.: Not applicable
State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
Trade Secret Registry: Not applicable
National Inventories:
U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Standard solution
References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. In-house information. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

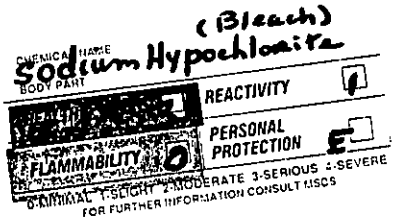
HACH COMPANY ©2001

Issue Date: March 16, 1998

Sodium Hypochlorite

19-120328

Material Safety Data Sheet



SECTION 1 - EMERGENCY TELEPHONE

Alexander Chemical Corporation (business hours): 800/348-3827

Alexander Chemical Corporation (after business hours): 800/445-9458

CHEMTREC: 800/424-9300

SECTION 2 - MANUFACTURER INFORMATION

Alexander Chemical Corporation
Kingsbury Industrial Park
Kingsbury, Indiana 46345
800/348-3827

Alexander Chemical Corporation
2525 Cabot Drive
Lisle, Illinois 60532
800/445-9458

Alexander Chemical Corporation
6300 Trillium Trail
Mason, Michigan
517/676-3884

SECTION 3 - PRODUCT IDENTITY

Product name: Sodium hypochlorite.

Chemical name: Sodium hypochlorite.

Chemical formula: NaOCl.

CAS number: 007681-52-9.

Hazardous ingredients: Sodium Hypochlorite, 5.50 - 15.60 % by weight.

OSHA 29 CFR 1910.1200 evaluation: Hazardous.

SECTION 4 - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance and odor: Bright light yellow liquid with a pungent (chlorine) odor.

Boiling point: > 212 °F for 6.00 and 12.50 by weight, sodium hypochlorite.

Freezing point: 18.5 °F, 6.00 % by weight, sodium hypochlorite; -11 °F, 12.50 % by weight, sodium hypochlorite.

Specific gravity: 1.092, 6.00 % by weight, sodium hypochlorite; 1.1964, 12.50 % by weight, sodium hypochlorite.

pH: 12.5 - 13.5.

Solubility in water: Complete.

Vapor pressure: Vapor pressure of water plus vapor pressure of decomposition product.

Molecular weight: 74.44.

Percent volatile by volume: Variable - water vapor plus products of decomposition.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash point: Not applicable.

Flammable limits in air: Lower: Not applicable. Upper: Not applicable.

Autoignition temperature: Not applicable.

Fire and explosion hazards: Sodium hypochlorite decomposes with heat; decomposition products may cause containers to rupture or explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in a fire.

Fire-fighting procedures: Avoid fumes from spilled or exposed liquid, dilute with large quantities of water, ventilate, and be prepared to use respiratory protection if needed. Acid contamination will produce irritating fumes similar to chlorine gas.

SECTION 6 - REACTIVITY DATA

Stability: Solutions of sodium hypochlorite are fairly stable below 10 %. Stability decreases with concentration, heat, light, exposure, decrease in pH, and contamination with heavy metals, such as nickel, cobalt, copper and iron.

Incompatibility (conditions and materials to avoid): Avoid contamination with heavy metals, reducing agents, organics, ether, ammonia and acids.

Hazardous decomposition products: Hypochlorous acid, chlorine and hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend upon pH, temperature, and time, are sodium chloride, sodium chlorate and oxygen.

SECTION 7 - HEALTH HAZARD DATA

Eye contact: Severe irritation.

Direct contact: Irritant, reddening of skin, skin damage.

Ingestion: May cause irritation of membranes of the mouth, throat, and stomach pain and possible ulceration.

Inhalation: Fumes are very irritating to mucous membranes.

Acute effects of overexposure: Irritating effects increase with strength of solution and time of exposure.

Chronic effects of overexposure: Constant irritant to eyes and throat.

SECTION 8 - FIRST AID

Inhalation: Remove victim to fresh air. If not breathing, perform artificial respiration. Administer oxygen until victim breathes easily. Keep warm and at rest. Get medical attention.

Direct contact: Flush immediately with water for at least fifteen (15) minutes, while removing contaminated clothing. Get medical attention, if irritation persists. Never attempt chemical neutralization. Wash clothing before re-use. Destroy contaminated shoes.

Direct eye contact: Flush immediately with water for at least fifteen (15) minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

Ingestion: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give large quantities of water or milk. If vomiting occurs spontaneously, keep airway clear and give more water or milk. Get medical attention.

SECTION 9 - STORAGE, HANDLING AND USE

Precautions to be taken in handling and storage: Store in vented, closed, clean, non-corrosive containers in a cool, dry location, away from direct sunlight and not adjacent to products which may react with the sodium hypochlorite if spillage occurs.

Steps to be taken in case material is released or spilled: Flush with water to dilute if possible Avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb sodium hypochlorite. Reduce with agents such as bisulfites or ferrous salt solutions - some heat will be produced. Keep on alkaline side. Main decomposition product is sodium chloride. Do not allow spilled material to enter sewers or streams.

Waste disposal methods: Dispose of spilled material in accordance with all local, state and federal regulations.

SECTION 10 - EXPOSURE CONTROL INFORMATION

Ventilation: Provide general and local exhaust ventilation. No special ventilation required unless sodium hypochlorite is exposed to decomposition conditions, i.e. spills or acidic conditions.

Respiratory protection: Use NIOSH approved respirators in accordance with 29 CFR 1910.132 and 1910.134.

Skin protection: Use rubber or plastic gloves. Use rubber apron, etc. to protect body from any splashing conditions. Use rubber protective shoes if spills occur. Safety showers should be available in storage and handling area.

Eye protection: Carefully fitted gas-tight chemical goggles, with approved impact resistant lenses. Eyewash fountains recommended in all storage and handling areas. Do not wear contact lenses.

SECTION 11 - REGULATORY INFORMATION

Federal EPA pesticide regulations applicable and registration as a pesticide required when used for disinfection and sanitation purposes.

S.A.R.A. Title III:

Section 302: Hazardous substance.

Section 311 and 312 hazard categories: Acute.

C.E.R.C.L.A. reportable quantity: 100 pounds.

T.S.C.A.: Sodium hypochlorite is listed.

D.O.T.:

Proper shipping name: Hypochlorite solutions.

Hazard class: 8.

Identification number: UN 1791.

Packing group: III.

N.F.P.A. ratings: Health = 3, Flammability = 0, Reactivity = 1.

Other information:

Ingestion LD_{50} : Five (5) grams per kilogram body weight.

Aquatic toxicity: Not established, but if not diluted may seriously affect aquatic life.

19-328-C
New product

Cardinal Chemical Corp.

MATERIAL SAFETY DATA SHEET
SODIUM HYPOCHLORITE

Lemont & Parker Roads
P.O. Box 248
Lemont, IL 60439
(708)257-9330

CHEMICAL NAME
BODY PART BLEACH
REACTIVITY 1
PERSONAL PROTECTION E
CHEMICAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

I. PRODUCT IDENTIFICATION

MANUFACTURER'S NAME
Cardinal Chemical Corporation
P. O. Box 248, Lemont, Il. 60439

REGULAR TELEPHONE No. (708) 257-9330

EMERGENCY TELEPHONE No. (708) 257-9330

CHEMICAL NAME *Sodium Hypochlorite*

TRADE NAME AND SYNONYMS *Javel Water Bleach, Soda Bleach*

CHEMICAL FAMILY *Oxidizing Agent (Hypochlorite)*

FORMULA *NaOCl*

CAS No. *7681-52-9*

MOLECULAR WEIGHT *74.45*

SHIPPING NAME AND HAZARD CLASS – (DOT)

A. "Hypochlorite solution containing more than 7% available chlorine by weight." – Corrosive Material

B. "Hypochlorite solution containing not more than 7% available chlorine by weight." – ORM-B

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT

Sodium hypochlorite is manufactured only in solution form. "Household bleach" contains not more than 7% available chlorine (= 6.67 wt. %NaOCl) with about 0.3 to 0.5% excess NaOH for stability control. Industrial bleach contains from 7% -15% available chlorine (6.67 - 13.06 weight % NaOCl) with about 0.05 to 0.85% excess NaOH for stability control.

III. PHYSICAL DATA

BOILING POINT *110° C for 15% NaOCl*

SPECIFIC GRAVITY (H_2O = 1) *50 gpl - 1.08*
100 gpl - 1.14
140 gpl - 1.21

VAPOR PRESSURE *v.p. of water plus decomposition product v.p.*

VAPOR DENSITY *NA*

% VOLATILE BY VOLUME *Variable–Water vapor plus products of decomposition.*

SOLUBILITY IN WATER *Complete*

EVAPORATION RATE *NA*

COLOR *Light Yellow-Green*

pH *Approximately 12*

ODOR *Pungent like chlorine*

IV. FIRE AND EXPLOSION DATA

FLASHPOINT *Nonflammable*

SPECIAL FIRE FIGHTING PROCEDURES *Avoid fumes from spilled or exposed liquid, dilute copiously, ventilate, and be prepared to use respiratory protection if needed. Acid contamination will produce very irritating fumes similar to chlorine gas.*

UNUSUAL FIRE AND EXPLOSION HAZARDS *Bleach decomposes when heated; decomposition products may cause containers to rupture or explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in a fire.*

V. HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA

INHALATION *Fumes from spills are very irritating to mucous membranes. Very little hazard from properly stored solution.*

SKIN CONTACT *Irritant, reddening of skin, skin damage.*

EYE CONTACT *Severe irritation.*

INGESTION *Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration. LD_{50} (oral, rat) for 5.25% NaOCl is approximately 13g/kg body weight and for 12.5% NaOCl is approximately 5g/kg body weight.*

EFFECTS OF OVEREXPOSURE	
ACUTE	*Irritating effects increase with strength of solution and time of exposure.*
CHRONIC	*Constant irritant to eyes, throat.*
EMERGENCY AND FIRST AID PROCEDURES	
EYES	*Copious eye wash with water for at least 15 minutes. Consult an eye specialist immediately.*
INHALATION	*Remove person to fresh air.*
INGESTION	*If accidentally swallowed, drink water, milk, and obtain medical attention.* **DO NOT USE BAKING SODA OR ACIDIC ANTIDOTES.**

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	*Solutions of sodium hypochlorite are fairly stable in concentrations below 1%. Stability decreases with concentration, heat, light exposure, decrease in pH, and contamination with heavy metals, such as, nickel, cobalt, copper, and iron.*
COMPATIBILITY	*Avoid contamination with heavy metals (act as catalysts), reducing agents, organics, ether, ammonia, acids.*
HAZARDOUS DECOMPOSITION PRODUCTS	*Hypochlorous acid (HOCl), chlorine, hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend upon pH, temperature and time, are sodium chloride, sodium chlorate and oxygen.*

VII. DISPOSAL, SPILL OR LEAK PROCEDURES

AQUATIC TOXICITY (e.g., 96 HR. TLM)	*Not established, but if not dilute may seriously affect aquatic life. Do not allow spilled material to enter sewers or streams.*
WASTE DISPOSAL METHOD	*Reduce with chemicals listed below. Keep on alkaline side and dilute with copious quantities of water. Main end product is salt water. (NaCl)*
HANDLING SPILLS	*Flush with water to dilute as much as possible, avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb hypochlorite.*
NEUTRALIZING CHEMICALS	*Reducing agents such as bisulfites or ferrous salt solutions; some heat will be produced.*

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS	*No special ventilation required unless bleach is exposed to decomposition condition; i.e., spills or acidic conditions.*
SPECIFIC PERSONAL PROTECTIVE EQUIPMENT	
RESPIRATORY	*When fumes are present use NIOSH approved respirator with acid type canister.*
EYES	*Use goggles when dispensing solutions stronger than household bleach (7%).*
GLOVES	*Use rubber or plastic gloves when exposed to solutions stronger than household bleach (7%).*
OTHER	*Use rubber apron, etc. to protect body from any splashing conditions. Use rubber protective shoes if spills occur. Safety showers and eyewash fountains should be available in storage and handling area.*

IX. SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS	*Normal handling of household bottled bleach requires safety requirements as stated on the labels. Full protection should be provided when handling bulk shipments of concentrated, industrial bleach solutions.*
PROPER HANDLING AND STORAGE REQUIREMENTS	*Store in vented, closed, clean, non-corrosive containers in a cool, dry location, away from direct sunlight and not adjacent to chemicals which may react with the bleach if spillage occurs. If shipped, must comply with DOT, etc. shipping regulations. If closed containers become heated, the containers should be vented to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohols, ethers.*
NATIONAL REGULATORY CONCERNS.	
FEDERAL	*EPA Pesticide regulations applicable and registration as a pesticide required when used for disinfection purposes.* *THIS PRODUCT IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT (TSCA) INVENTORY OF CHEMICAL SUBSTANCES.*

PREPARED BY: THE CHLORINE INSTITUTE, NEW YORK, BASED ON THE ACCIDENT PREVENTION EXPERIENCE OF ITS MEMBERS. THE INSTITUTE AND ITS MEMBERS MAKE NO GUARANTEE, JOINTLY OR SEVERALLY, IN CONNECTION WITH THE ABOVE INFORMATION. REGULATORY REFERENCES APPLY IN THE U.S.A. ONLY.

DATE: October 1989

MATERIAL SAFETY DATA SHEET

SODIUM HYPOCHLORITE

High-Po-Chlor, Inc. 3773 E. Morgan Rd. Ypsilanti, MI. 48197

EMERGENCY TELEPHONE No. (313) 4341710

I. PRODUCT IDENTIFICATION

CHEMICAL NAME *Sodium Hypochlorite*

TRADE NAME AND SYNONYMS *Soda Bleach*

CHEMICAL FAMILY *Oxidizing Agent (Hypochlorite)*

FORMULA *NaOCL*

CAS No. *7681-52-9*

MOLECULAR WEIGHT *74.45*

SHIPPING NAME AND HAZARD CLASS-(DOT)

A. "Hypochlorite solution containing more than 7% available chlorine by weight."-Corrosive Material

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT

Sodium Hydroxide	*CAS# 1310-73-2*	*16.4%*
Sodium Chloride	*CAS# 7647-14-5*	*13.1%*
Water	*CAS# 7732-18-5*	*70.5%*

Industrial bleach contains 7% - 15% available (6.67 - 13.06 weight % NaOCL) with about 0.05 - 0.85% excess NaOH for stability control.

RECEIVED

DATE 3/1/82

INITIALS

III. PHYSICAL DATA

BOILING POINT *110° C for 15% NaOCL*

SPECIFIC GRAVITY (H_2O=1)
50 gpl - 1.08
100 gpl - 1.14
140 gpl - 1.21

VAPOR PRESSURE *v.p. of water plus decomposition product v.p.*

% VOLATILE BY VOLUME *Variable-water vapor plus products of decomposition.*

VAPOR DENSITY *NA*

EVAPORATION RATE *NA*

COLOR *Light Yellow-Green*

ODOR *Pungent like chlorine*

pH *Approximately 12*

SOLUBILITY IN WATER *Complete*

IV. FIRE AND EXPLOSION DATA

FLASHPOINT *Nonflammable*

SPECIAL FIRE FIGHTING PROCEDURES *Avoid fumes from spilled or exposed liquid, dilute copiously, ventilate, and be prepared to use respiratory protection if needed. Acid contamination will produce very irritating fumes similar to chlorine.*

UNUSUAL FIRE AND EXPLOSION HAZARDS *Bleach decomposes when heated; decomposition products may cause containers to rupture or explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in fire.*

V. HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA

INHALATION *Fumes from spills are very irritating to mucous membranes. Very little hazard from properly stored solution.*

SKIN CONTACT *Irritant, reddening of skin, skin damage.*

EYE CONTACT *Severe irritation*

INGESTION *Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration. LD_{50} (oral, rat) for 5.25% NaOCL is approximately 13g/kg body weight and for 12.5% NaOCL is approximately 5g/kg body weight.*

EFFECTS OF OVEREXPOSURE

ACUTE *Irritating effects increase with strength of solution and time of exposure.*

CHRONIC *Constant irritant to eyes, throat.*

EMERGENCY AND FIRST AID PROCEDURES

EYES *Copious eye wash with water for at least 15 minutes. Consult an eye specialist immediately.*

INHALATION *Remove person to fresh air.*

INGESTION *If accidently swallowed, drink water, milk and obtain medical attention.* DO NOT USE BAKING SODA OR ACIDIC ANTIDOTES.

Not listed as a potential carcinogen. NTP ACIGH

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY	*Solutions of Sodium Hypochlorite are fairly stable in concentrations below 1%. Stability decreases with concentration, heat, light exposure, decrease in pH, and contamination with heavy metals, such as, nickel, cobalt, copper, and iron.*
COMPATIBILITY	*Avoid contamination with heavy metals (act as catalysts) reducing agents, organics, ether, ammonia, acids.*
HAZARDOUS DECOMPOSITION PRODUCTS	*Hypochlorous acid (HOCL), chlorine, hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend upon pH, temperature and time, are sodium chloride, sodium chlorate, and oxygen.*

VII. DISPOSAL, SPILL OR LEAK PROCEDURES

AQUATIC TOXICITY (E.G., 96 HR. TLM)	*Not established, but if not dilute may seriously affect aquatic life. Do not allow spilled material to enter sewers or streams.*
WASTE DISPOSAL METHOD	*Reduce with chemicals listed below. Keep on alkaline side and dilute with copious quantities of water. Main end product is salt water. (NaCL)*
HANDLING SPILLS	*Flush with water to dilute as much as possible, avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb hypochlorite.*
NEUTRALIZING CHEMICALS	*Reducing agents such as bisulfites or ferrous salt solutions; some heat will be produced.*

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS	*No special ventilation required unless bleach is exposed to decomposition conditions; i.e., spills or acidic conditions.*
SPECIFIC PERSONAL PROTECTIVE EQUIPMENT	
RESPIRATORY	*When fumes are present use NIOSH approved respirator with acid type canister.*
EYES	*Use goggles when dispensing solutions stronger than household bleach. (7%)*
GLOVES	*Use rubber or plastic gloves when exposed to solutions stronger than household bleach. (7%)*
OTHER	*Use rubber apron, etc. to protect body from any splashing conditions. Use rubber protective shoes if spills occur. Safety showers and eyewash fountains should be available in storage and handling areas.*

IX. SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS	*Normal handling of household bottled bleach requires safety requirements as stated on the labels. Full protection should be provided when handling bulk shipments of concentrated, industrial bleach solutions.*
PROPER HANDLING AND STORAGE REQUIREMENTS	*Store in vented, closed, clean, non-corrosive containers in a cool, dry location, away from direct sunlight and adjacent to chemicals which may react with the bleach if spillage occurs. If shipped, must comply with DOT, etc. shipping regulations. If closed containers become heated, the containers should be vented to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohols, ethers.*
NATIONAL REGULATORY CONCERNS	*EPA Pesticide regulations applicable and registration as a pesticide required when used for disinfection purposes.*

THIS PRODUCT IS LISTED ON THE TOXIC SUBSTANCES CONTROL (TSCA) INVENTORY OF CHEMICAL SUBSTANCES.

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865 NH

M A T E R I A L S A F E T Y D A T A S H E E T

24-HOUR EMERGENCY TELEPHONE -- (908) 859-2151

CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

S4226 M02 SODIUM LACTATE (60% SYRUP) PAGE: 1

EFFECTIVE: 01/04/94 ISSUED: 01/15/94

J.T.BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: SODIUM LACTATE (60% SYRUP)
COMMON SYNONYMS: LACOLIN; LACTIC ACID, MONOSODIUM SALT
CHEMICAL FAMILY: AQUEOUS SOLUTIONS
FORMULA: C3H5O3NA
FORMULA WT.: 112.06
CAS NO.: 72-17-3
NIOSH/RTECS NO.: OD568000
PRODUCT USE: LABORATORY REAGENT
PRODUCT CODES: V034,5260

PRECAUTIONARY LABELING

BAKER SAF-T-DATA* SYSTEM

HEALTH	-	0	NONE
FLAMMABILITY	-	0	NONE
REACTIVITY	-	0	NONE
CONTACT	-	1	SLIGHT

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES; LAB COAT

U.S. PRECAUTIONARY LABELING

DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.

INTERNATIONAL LABELING

AVOID CONTACT WITH EYES. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF WATER. KEEP CONTAINER TIGHTLY CLOSED.

SAF-T-DATA* STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

CONTINUED ON PAGE: 2

SECTION II - COMPONENTS

COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
SODIUM LACTATE	72-17-3	60	N/E	N/E
WATER	7732-18-5	40	N/E	N/E

SECTION III - PHYSICAL DATA

BOILING POINT: 113 C (235 F)
(AT 760 MM HG)

VAPOR PRESSURE (MMHG): N/A

MELTING POINT: 17 C (62 F)
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): N/A

SPECIFIC GRAVITY: 1.31
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H20): COMPLETE (100%)

% VOLATILES BY VOLUME: 100
(21 C)

PH: N/A

ODOR THRESHOLD (P.P.M.): N/A

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: COLORLESS LIQUID. ODORLESS.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): N/A

AUTOIGNITION TEMPERATURE: N/A

FLAMMABLE LIMITS: UPPER - N/A LOWER - N/A

FIRE EXTINQUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.

CONTINUED ON PAGE: 3

SECTION IV - FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

UNUSUAL FIRE & EXPLOSION HAZARDS
NONE IDENTIFIED.

TOXIC GASES PRODUCED
CARBON MONOXIDE, CARBON DIOXIDE

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT
NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE
NONE IDENTIFIED.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV/TWA): NOT ESTABLISHED

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): NOT ESTABLISHED

TOXICITY OF COMPONENTS

INTRAPERITONEAL RAT LD50 FOR SODIUM LACTATE	2000	MG/KG
INTRAPERITONEAL MOUSE LD50 FOR WATER	190	G/KG
INTRAVENOUS MOUSE LD50 FOR WATER	25	G/KG

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

CARCINOGENICITY
NONE IDENTIFIED.

REPRODUCTIVE EFFECTS
NONE IDENTIFIED.

CONTINUED ON PAGE: 4

SECTION V - HEALTH HAZARD DATA (CONTINUED)

EFFECTS OF OVEREXPOSUR

INHALATION: NONE IDENTIFIED

SKIN CONTACT: NONE IDENTIFIED

EYE CONTACT: NONE IDENTIFIED

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: NONE IDENTIFIED

CHRONIC EFFECTS: NONE IDENTIFIED

TARGET ORGANS
NONE IDENTIFIED

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY
NONE INDICATED

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: IF SWALLOWED AND THE PERSON IS CONSCIOUS, IMMEDIATELY GIVE LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.

INHALATION: IF A PERSON BREATHES IN LARGE AMOUNTS, MOVE THE EXPOSED PERSON TO FRESH AIR.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH PLENTY OF SOAP AND WATER FOR AT LEAST 15 MINUTES.

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: NO CHRONIC: NO FLAMMABILITY: NO PRESSURE: NO REACTIVITY: NO

EXTREMELY HAZARDOUS SUBSTANCE: NO

CONTINUED ON PAGE: 5

SECTION V - HEALTH HAZARD DATA (CONTINUED)

CERCLA HAZARDOUS SUBSTANCE: NO
SARA 313 TOXIC CHEMICALS: NO
TSCA INVENTORY: NO

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE DOCUMENTED

INCOMPATIBLES: NONE IDENTIFIED

DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

SECTION VII - SPILL & DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SUITABLE PROTECTIVE CLOTHING. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP VAPOR AND MIST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, USE AN APPROPRIATE RESPIRATOR OR DUST MASK.

EYE/SKIN PROTECTION: SAFETY GOGGLES, UNIFORM, APRON, PROPER GLOVES ARE RECOMMENDED.

CONTINUED ON PAGE: 6

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA* STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA.

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)
MARINE POLLUTANTS: NO

AIR (I.C.A.O.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)

U.S. CUSTOMS HARMONIZATION NUMBER: 29181100004

NOTE: WHEN HANDLING LIQUID PRODUCTS, SECONDARY PROTECTIVE CONTAINERS MUST BE USED FOR CARRYING.
-N/A = NOT APPLICABLE, OR NOT AVAILABLE;
N/E = NOT ESTABLISHED.-
THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.
EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES

CONTINUED ON PAGE: 7

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ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL.
BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.
THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET.
NOTE: CHEMTREC, CANUTEC, AND NATIONAL RESPONSE CENTER EMERGENCY TELEPHONE NUMBERS ARE TO BE USED ONLY IN THE EVENT OF CHEMICAL EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT INVOLVING CHEMICALS. ALL NON-EMERGENCY QUESTIONS SHOULD BE DIRECTED TO CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.

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Sodium Lactate -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
Please refer to RTECS for specific information.
Other Studies:
None.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
No information available.
Environmental Fate:
No information reported.
Physical/Chemical:
No information available.
Other:
Not available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: Not listed.
RCRA D-Series Chronic Toxicity Reference Levels: Not listed.
RCRA F-Series: Not listed.
RCRA P-Series: Not listed.
RCRA U-Series: Not listed.
Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: FLAMMABLE LIQUIDS, CORROSIVE, N.O.S. (SODIUM BIS(TRIMETHYLSILYL)AMIDE/ TETRAHYDROFURAN)
Hazard Class: 3
UN Number: UN2924
Packing Group: II
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

FEDERAL
TSCA
CAS# 72-17-3 is listed on the TSCA Inventory.
CAS# 7732-18-5 is listed on the TSCA Inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
Not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
INTERNATIONAL
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.
Canada
CAS# 72-17-3 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
CAS# 72-17-3 is not listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits:

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:
No additional information available.
MSDS Creation Date: 10/12/1995 Revision #2 Date: 3/04/1996

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

WWW_104(e)_018417

**** MATERIAL SAFETY DATA SHEET ****

Sodium Lactate
21355

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Sodium Lactate
Catalog Numbers:
S326 500, S326-500, S326500
Synonyms:
2-Hydroxypropanoic Acid Monosodium Salt; Lactic Acid Sodium Salt.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For Information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
72-17-3	Sodium Lactate	60	200-772-0
7732-18-5	Water	40	231-791-2

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: Colorless to yellow liquid.
Caution! The toxicological properties of this material have not been fully investigated. May cause eye and skin irritation.
Target Organs: None.

Potential Health Effects
Eye:
May cause eye irritation.
Skin:
May cause skin irritation.
Ingestion:
The toxicological properties of this substance have not been fully investigated.
Inhalation:
The toxicological properties of this substance have not been fully investigated.
Chronic:
No information found.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid.
Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion:
If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Notes to Physician:
Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media:
Use extinguishing media most appropriate for the surrounding fire.
Autoignition Temperature: Not available.
Flash Point: Not available.
NFPA Rating: Not published.
Explosion Limits, Lower: N/A
Upper: N/A

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.
Storage:
Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium Lactate	none listed	none listed	none listed
Water	none listed	none listed	none listed

OSHA Vacated PELs:
Sodium Lactate:
No OSHA Vacated PELs are listed for this chemical.
Water:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.
Skin:
Wear appropriate gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to minimize contact with skin.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: Colorless to yellow liquid.
Odor: None reported.
pH: Neutral (aq. sol.)
Vapor Pressure: 14 mm Hg @ 20 C
Vapor Density: 0.7
Evaporation Rate: 1 (ether=1)
Viscosity: Not available.
Boiling Point: 284 F
Freezing/Melting Point: 63 F
Decomposition Temperature: 284 F
Solubility: Soluble in water.
Specific Gravity/Density: 1.3 (water=1)
Molecular Formula: C3H5NaO3
Molecular Weight: 112.023

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
High temperatures.
Incompatibilities with Other Materials:
No information available.
Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 72-17-3: OD5680000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 7732-18-5: Oral, rat: LD50 = 90 mL/kg.
CAS# 7732-18-5: Oral, rat: LD50 = 90 mL/kg.
Carcinogenicity:

Sodium Lactate

WWW_104(e)_018418

Material Safety Data Sheet

CALABRIAN CORPORATION

SODIUM METABISULFITE

19-120415 New H/

Sodium Metabisulfite

CHEMICAL NAME

REACTIVITY 0

PERSONAL PROTECTION F

FLAMMABILITY 0

0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE

FOR FURTHER INFORMATION CONSULT MSDS

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Sodium Metabisulfite
Chemical Formula: $Na_2S_2O_5$
CAS Number: 007681-57-4
Other Designations: Sodium Pyrosulfite, Disodium Pyrosulfite, Pyrosulfurous Acid, Disodium Salt, Sodium Disulphite.
General Use: Food and pharmaceutical preservative, waste water dechlorinating agent, lab reagent.
Manufacturer: Calabrian Chemical Corporation
5500 Hwy. 366
Port Neches, Texas 77651
Tel: 409 / 727-1471
Fax: 409 / 727-5803
Emergency No. 800 / 424-9300
CHEMTREC

Section 2 - Composition / Information on Ingredients

Composition	TWA	STEL	IDLH	CAS Number	% wt or vol
Sodium Metabisulfite	5 mg/m³	*	*	007681-57-4	98 %
Sodium Sulfite	*	*	*	007757-83-7	1 %
Sodium Sulfate	*	*	*	007757-82-6	1 %

* none established.

Section 3 - Hazards Identification

***** Emergency Overview *****

Warning Statement: None
Hazard Rating: Health = 2, Fire = 0, Reactivity = 0, PPE - Sec. 8 F
Primary Entry Routes: Inhalation
Target Organs: Respiratory system, eyes, skin
Acute Effects: Acute effects to exposure of sodium metabisulfite includes eye and mucous membrane irritation. Decomposition of Sodium Metabisulfite (and solutions) may release toxic and hazardous fumes of sulfur oxides, including sulfur dioxide. Acute poisoning from sulfur dioxide is rare because the gas is easily detected. It is so irritating that contact cannot be tolerated. Symptoms include coughing, hoarseness, sneezing, tearing, and breathing difficulty. However, workers who cannot escape exposure may suffer severe pulmonary damage which can be fatal.

Inhalation: Irritant
Eye: Irritant
Skin: Irritant
Ingestion: Not likely to occur
Carcinogenicity: IARC, NTP, and OSHA do not list Sodium Metabisulfate as a carcinogen.
Chronic Effects: Prolonged or repeated exposure may cause dermatitis, and sensitization reactions.

Medical Conditions Aggravated by Long-Term Exposure: Capable of provoking bronchospasm in sulfite-sensitive individuals who have asthma.

Section 4 - First Aid Measures

Exposure Route	Symptom	Treatment
Inhalation:	Sore throat, shortness of breath coughing, and congestion.	Remove from exposure to fresh air. Seek medical attention in severe cases or if recovery is not rapid.

Route	Symptom	Treatment
Eye Contact:	Irritation to eyes and mucous membranes.	Irrigate with water until no evidence of chemical remains. Obtain medical attention.
Skin Contact:	Irritation, itching, dermatitis	Wash with soap and drench with water. Remove contaminated clothing and wash before reuse.
Ingestion:	Irritation to mucous membranes.	Give large quantities of water or milk immediately. Obtain medical attention.

After first aid, get appropriate medical attention.

Note to physician: Exposure may aggravate acute or chronic asthma, emphysema and bronchitis.

Special Precautions/Procedures: None indicated.

Section 5 - Fire-Fighting Measures

Flash Point: Not combustible.
Flash Point Method: Not Applicable.
Burning Rate: Not Applicable.
Autoignition Temperature: Not Applicable.
LEL: Not Applicable.
UEL: Not Applicable.
Flammability Classification: Not Flammable.
Extinguishing Media: Use extinguishing agent appropriate for surrounding fire conditions.
Unusual Fire or Explosion Hazards: None indicated.
Hazardous Combustion Products: May release hazardous gas.
Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.
Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

Section 6 - Accidental Release Measures

Spill / Leak Procedures: Wear appropriate PPE - See Section 8.
Small Spills / Leaks: Spills can be neutralized with an alkaline material such as caustic soda. Leaks may be located by spraying the area with ammonium hydroxide solution which forms a white fume in the presence of sulfur dioxide.
Large Spills / Leaks: Large spills should be handled according to a predetermined plan.
Containment: For large spills, dike far ahead of contaminated runoff for later disposal.

Section 7 - Handling and Storage

Handling Precautions: Avoid contact with product. Do not breath dust or vapor.
Storage Requirements: Avoid heat or moisture. Store in areas, away from heat and moisture and protected from physical damage. Segregate from acids and oxidizers.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA limits (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at the source.

Administrative Controls

Respiratory Protection: Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear a SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

Protective Clothing / Equipment: Wear protective gloves, boots, and clothing when necessary to prevent excessive skin contact. Wear protective eyeglasses or goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

Safety Stations: Make emergency eyewash stations, showers, and washing facilities available in the work area.

Contaminated Equipment: Remove this material from personal protective equipment as needed.

Comments: Do not eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before food or beverage consumption.

Section 9 - Physical and Chemical Properties

Physical State:	Solid crystal	**Water Solubility:**	45 % @ 20° C
Appearance:	White	**Other Solubilities:**	NA
Odor Threshold:	pungent SO_2 odor	**Boiling Point:**	
Vapor Pressure:		**Freezing Point:**	
Vapor Density (Air=1):		**Melting Point:**	150 °C
Formula Weight:	190.11	**Evaporation Rate:**	Normal.
Density:	NA	**pH:**	Acidic.
Specific Gravity (H_2O=1):	1.5	**% Volatile:**	NA

Section 10 - Stability & Reactivity

Stability: Stable under normal conditions.

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities: In the presence of water, or acid, Sodium Metabisulfite (and solutions) may release toxic and hazardous fumes of sulfur oxides, including sulfur dioxide. Acute poisoning from sulfur dioxide is rare because the gas is easily detected. It is so irritating that contact cannot be tolerated. Symptoms include coughing, hoarseness, sneezing, tearing, and breathing difficulty. However, workers who cannot escape high accidental exposure may suffer severe pulmonary damage which can be fatal. Contact with powdered potassium, sodium metals, alkali, and oxidizing agents produce violent reactions. Reacts with water and steam to form corrosive sulfurous acid. Reacts with chlorates to form unstable chlorine dioxide.

Conditions to Avoid: Avoid excessive heat, or open flame, and moisture.

Hazardous Decomposition Products: May release hazardous sulfur dioxide gas.

Section 11 - Toxicological Information

Eye Effects (rabbit): Not available.

Acute Inhalation Effects (rat): Not available.

Skin Effects (rabbit): Non-corrosive.

Acute Oral Effects (rat): LD_{50} = 115 mg/kg

Carcinogenicity: IARC, NTP, and OSHA do not list Sodium Metabisulfite as a carcinogen.

Chronic Effects: Prolonged or repeated exposure may cause dermatitis, and sensitization reactions. Exposure to asthmatic, atopic and sulfite sensitive individuals may result in severe bronchoconstriction and reduced levels in forced expiratory volume. Decomposition of sodium metabisulfite (and solutions) may release toxic and hazardous fumes of sulfur oxides, including sulfur dioxide, which may caus permanent pulmonary impairments from acute and chronic exposure. The Immediately Dangerous to Life or Health (IDLH) level for SO_2 is 100 ppm.

Section 12 - Ecological Information

Ecotoxicity: Sodium Metabisulfite is a non hazardous solid commonly used as a waste water dechlorinating agent. High concentrations will contribute to elevated chemical oxygen demand in aquatic environments.

Environmental Fate

Environmental Transport: Soluble in water.

Environmental Degradation: Rapid biological decomposition.

Soil Absorption/Mobility: Slight.

Section 13 - Disposal Considerations

Disposal: Waste determinations typically consider Sodium Metabisulfite contaminated materials to be non-hazardous.

Disposal Regulatory Requirements: Follow applicable Federal, state and local regulations.

Container Cleaning and Disposal: Follow applicable Federal, state and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name:	Sodium Metabisulfite, non-regulated material
Shipping Symbols:	NA
Hazard Class:	NA
Subsidiary Hazard:	NA
ID No.:	NA
Packing Group:	NA
Label:	NA
Special Provisions:	NA

Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Classification (40 CFR 261): Not listed.

RCRA Hazardous Waste Number (40 CFR 261): Not listed.

CERCLA Hazardous Substance (40 CFR 302.4): Not listed.

CERCLA Reportable Quantity (RQ): NA

SARA Title III: Section 302 Extremely Hazardous Substance: Not listed.
Section 313 Toxic Chemical: Not listed.

FIFRA: Not regulated.

TSCA: Inventory listed chemical; PAIR Reportable;
Not listed in Toxic Substances Chemical Index

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000): Not listed.

OSHA Specifically Regulated Substance: Not listed.

Other Regulations:

FDA: Regulated when used as a food preservative.

Section 16 - Other Information

The information herein is believed to be reliable. However, no warranty, expressed or implied, is made as to its accuracy or completeness and none is made as to the fitness of this material for any purpose. The manufacturer shall not be liable for damages to person or property resulting from its use. Nothing herein shall be construed as a recommendation for use in violation of any patent.

MORTON THIOKOL, INC.

Alfa Products $NaBO_3 \cdot 4H_2O$

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Sodium perborate, reagent

CHEMICAL NATURE: Inorganic salt

% ACTIVITY: 97+%

CHEMICAL NAME Sodium Perborate
BODY PART
REACTIVITY
PERSONAL PROTECTION
0-MINIMAL 1-SLIGHT 2-MODERATE 3-SERIOUS 4-SEVERE
FOR FURTHER INFORMATION CONSULT MSDS

Ld

CAS 7632-04-4

I. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	dec. > 60°C	FREEZE POINT	No data
SPECIFIC GRAVITY	No data	VAPOR PRESSURE AT 20°C.	No data
VAPOR DENSITY	No data	SOLUBILITY IN H_2O	Yes
PER CENT VOLATILES BY WEIGHT	Nonvolatile	IONIC NATURE	Yes
APPEARANCE AND ODOR	White crystalline powder, odorless		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Sodium perborate	97+	Not establish

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	No data	AUTOIGNITION TEMPERATURE		No data	
FLAMMABLE LIMITS IN AIR, % by volume		LOWER		UPPER	

EXTINGUISHING MEDIA	Use water, carbon dioxide, dry chemical extinguishing agents, dry sand, or dry ground dolomite.
SPECIAL FIRE FIGHTING PROCEDURES	No special firefighting procedures needed, use normal procedures whic include wearing NIOSH/MSHA approved self-contained breathing apparatu flame and chemical resistant clothing; hats, boots and gloves. If without risk remove material from fire area. Cool containers with water from maximum distance.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Toxic fumes may be emitted if thermally decomposed.

MORTON THIOKOL, INC.

... Andover Street, Danvers, Massachusetts 01923

WWW_104(e)_018423

THE BURDEN OF SAFE USE OF OUR MATERIALS MUST REST ENTIRELY WITH THE USER. WE CANNOT ASSUME RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ANY INFORMATION SUPPLIED BY US CONCERNING THE HAZARDS OR RECOMMENDED USE OF THE CHEMICALS.

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	Not established
EFFECTS OF OVEREXPOSURE	Boron poisoning causes depression of the circulation, persistant vomiting and diarrhea, shock and coma.
EMERGENCY AND FIRST AID PROCEDURES	Remove from exposure. Eyes: Flush with copious amounts of water f at least 15 minutes. Skin: Remove any contaminated clothing. Flo skin with large volumes of water for 15 minutes. Ingestion/ inhala tion: Seek prompt, competent medical attention.

V. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	Heat, sparks, open flames
UNSTABLE	STABLE		
	X		
INCOMPATIBILITY (materials to avoid)		Heavy metals and their salts	
HAZARDOUS DECOMPOSITION PRODUCTS		BO_4, Na_2O	
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID	
May Occur	Will not Occur		
	X		

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Wearing full protective clothing and respiratory protection (see se tion VII), eliminate all sources of ignition. Cover spill with dry sand or dry vermiculite, mix well and carefully transfer to a well ~~marked container. Close tightly and submit or retain for disposal~~
WASTE DISPOSAL METHOD	Consult state, local, and federal regulations for proper disposal o sodium salts.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)	For ordinary use, wear a NIOSH/MSHA approved dust mask. Emergency, wear a self-contained breathing apparatus.			
VENTILATION	Local Exhaust	Acceptable	SPECIAL	
	Mechanical		OTHER	
PROTECTIVE GLOVES	Rubber		EYE PROTECTION	OSHA approved safety goggles
OTHER PROTECTIVE EQUIPMENT	Lab coat and apron, flame & chemical resistant coveralls, eyewash capable of sustained flushing, safety drench shower and hygienic facilities for washing.			

VIII. SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING	NONE
OTHER HANDLING AND STORAGE CONDITIONS	Keep container tightly closed. Store in a cool, dry, well-ventil ated area. Wash thoroughly after use.

4/19/85

BURLINGTON CHEMICAL CO., INC.
MATERIAL SAFETY DATA SHEET

[COPYRIGHT: 1984 - BURLINGTON CHEMICAL, INC.] EMERGENCY #: (910) 584-0111

SECTION I

PRODUCT NAME/NUMBER: SODIUM PERCARBONATE
CHEMICAL NAME AND SYNONYMS: PCS; Sodium Percarbonate; Sodium Carbonate Peroxyhydrate

PROCESSOR'S NAME: BURLINGTON CHEMICAL CO., INC.
ADDRESS: P.O. BOX 111, 615 HUFFMAN MILL ROAD, BURLINGTON, NC 27215

DOT PROPER SHIPPING/HAZARD NAME (49 CFR 172.101): Non-regulated
DOT ID# (49 CFR 172.101): Non-regulated
DOT HAZARD CLASS (49 CFR 172.101): Non-regulated

HAZARD PER 29 CFR 1910.1200: Irritant; Not flammable but damp material decomposes exothermically and may cause combustion of organic material.

HEALTH (BLUE)	FLAMMABILITY (RED):	REACTIVITY (YELLOW):	
NFPA: No data	NFPA: No data	NFPA: No data	
HMIS: 1	HMIS: 0	HMIS: 1	HMIS: PP = F

CAS #: 15630-89-4

GENERIC DESCRIPTION: Inorganic peroxygen compound

EMERGENCY OVERVIEW:
* A white granular solid that is an irritant to the eyes, skin, and respiratory tract.
* Not flammable, but damp material decomposes exothermically and may cause combustion of organic material.
* Contamination may cause decomposition.

continued on page 2

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	FORMULA	CASRN	PERCENT
Sodium Carbonate Peroxyhydrate	$2Na_2CO_3.3H_2O_2$	15630-89-4	85
Sodium Carbonate	Na_2CO_3	497-19-8	15

SECTION III - HEALTH HAZARD DATA

OCCUPATIONAL EXPOSURE LIMITS: ACGIH - 10 mg/m3 8 hr TWA for particulates not otherwise classified.
OSHA - 15 mg/m3 8 hr TWA PEL for particulates not otherwise classified.

EFFECTS OF OVEREXPOSURE:

EYES: Causes damage to the eyes. Effects may be delayed.
SKIN: Slightly irritating to the skin.
INGESTION: Harmful if swallowed.
INHALATION: Inhalation of dust may cause irritation to mucous membranes and the respiratory tract.

CHRONIC: Not listed as a carcinogen by ACGIH, IARC, NTP, OSHA.

TOXICOLOGICAL INFORMATION:

ACUTE TOXICITY:

INGESTION: LD50 1034 mg/kg - rat-sexes combined.
INHALATION: Excessive exposure may result in irritation to mucous membrane and respiratory tract.
SKIN CONTACT: LD50 >2000 mg/kg - dermal, rabbit.
EYE CONTACT: Causes damage to the eyes. Effects may be delayed.

CHRONIC TOXICITY:

CARCINOGENICITY: Not recognized as a carcinogen by ACGIH, IARC, NTP, OSHA.
MUTAGENICITY: Contains the peroxygen group which in vitro was shown to be mutagenic without metabolic activation, and generally not mutagenic with metabolic activation. In vivo, no effect has been observed after oral administration.

continued on page 3

SECTION III - HEALTH HAZARD DATA

EMERGENCY FIRST AID PROCEDURES:

EYES: Immediately flush eyes with copious amounts of water. Get medical attention.
SKIN: Brush off. Remove contaminated clothing. Wash with soap and water.
INGESTION: Drink large quantities of water. Do not induce vomiting. Get medical attention.
INHALATION: Remove to fresh air. Get medical attention if needed.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT, °F: Non-flammable.

EXPLOSIVE LIMITS IN AIR,%: Not applicable.

AUTO-IGNITION TEMPERATURE, °F: Not applicable.

EXTINGUISHING MEDIA: Use water only.

SPECIAL FIREFIGHTING PROCEDURES: Personnel should wear normal protective equipment (full bunker gear) and positive-pressure, self-contained breathing apparatus. If safe to do so, remove unaffected product to a safe area.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Damp material may decompose exothermically and ignite combustibles. Storage vessels involved in a fire may vent gas or rupture due to internal pressure. Oxygen release due to exothermic decomposition may support combustion.

SECTION V - PHYSICAL DATA

PHYSICAL STATE: Solid
APPEARANCE: White granular solid
ODOR: None
SOLUBILITY IN WATER: 140 g/L @ 75°F
BULK DENSITY: 1.0-1.2 g/cc
MELTING POINT: Not applicable-can decompose above 55°C

continued on page 4

SECTION VI - REACTIVITY DATA

STABILITY: Stable.
CONDITIONS TO AVOID: Heat or contamination may cause decomposition. Contact with aqueous or moist conditions with acids or reducing agents can lead to spontaneous release of oxygen.

INCOMPATIBILITY (MATERIALS TO AVOID): Avoid contact with acids, alkalis, and reducing agents. Avoid contact with decomposition catalysts, such as the majority of metals and their salts. Avoid contact with combustible and flammable material.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition produces heat and oxygen.

HAZARDOUS POLYMERIZATION: Does not polymerize.
CONDITIONS TO AVOID: No data.

SECTION VII - SPILL, LEAK & DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Shovel product or sweep material into plastic bags or vented containers for disposal. Do not return spilled or contaminated material to inventory. Wash down area with water. Prevent runoff from entering into storm sewers and ditches.

WASTE DISPOSAL PROCEDURES: Dispose of in approved waste facility operated by an authorized contractor and in compliance with federal, state, and local regulations.

ECOLOGICAL INFORMATION:

GENERAL:

DEGRADATION: Decomposes readily to sodium carbonate and hydrogen peroxide. The latter quickly decomposes to water and oxygen.

AQUATIC TOXICITY:

ACUTE FISH:
(Pimephales promelas): LC50(96h) = 70.7 mg/L

ACUTE DAPHNIA:
(Daphnia pulex): LC50(48h) = 4.9 mg/L

continued on page 5

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Wear a NIOSH approved respirator for toxic dust with TLV >0.05 mg/m3 when exposed to irritating or excessive quantities of the dust.

ENGINEERING CONTROLS: Provide ventilation in work areas to keep dust below the following applicable limits:
ACGIH - 10 mg/m3 8 hr TWA for particulates not otherwise classified.
OSHA - 15 mg/m3 8 hr TWA PEL for particulates not otherwise classified.

HANDS AND SKIN PROTECTION: PVC or rubber gloves, suitable coveralls.

EYE PROTECTION: Safety goggles.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store bags in a cool, dry, ventilated area. Store separately from organics and reducing materials. Avoid contamination which may lead to decomposition. Provide eye wash stations in areas where material is handling.

OTHER PRECAUTIONS: No data.

SECTION X - OTHER REGULATORY INFORMATION

TSCA INVENTORY LIST: Yes

CERCLA HAZARDOUS SUBSTANCE: No REPORTABLE QUANTITY: None.

SARA, TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE: No THRESHOLD PLANNING QUANTITY: None

SECTION 311 HAZARDOUS CHEMICAL: No

SECTION 313 TOXIC CHEMICAL: No

continued on page 6

APPROVED BY: D. KEVIN DULL, CORPORATE SAFETY DIRECTOR

DATE: September 15, 1994
SUPERCEDES: May 26, 1992

25-10-IXDP-000-00000

ALL TERMS AND ABBREVIATIONS HAVE BEEN DEFINED IN VARIOUS GOVERNMENT PUBLICATIONS, OR ARE STANDARD CHEMICAL TERMS USED BY IUPAC.

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LABEL INFORMATION SECTION

HAZARD WARNINGS:

Warning! Causes eye damage - effects may be delayed. May cause skin irritation. Inhalation of dust may cause irritation to mucous membranes and respiratory tract. Damp product decomposes exothermically and may cause combustion of organic material. Contamination may cause decomposition.

PRECAUTION MEASURES:

Do not contaminate. Damp product in contact with combustible materials may cause fires. Product spills should be swept into plastic containers for disposal. Do not return spilled product to original container. Keep product in a dry, cool place. Avoid contamination, particularly with metal fines and organic materials and store separately from organics and reducing materials. Contamination can promote product decomposition, which releases heat and oxygen gas.

FIRST AID:

EYES: Immediately flush eyes with copious amounts of water. Get medical attention. SKIN: Brush off. Remove contaminated clothing. Wash with soap and water. INGESTION: Drink large quantities of water. Do not induce vomiting. Get medical attention. INHALATION: Remove to fresh air. Get medical attention if needed.

Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

Mallinckrodt provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. Individuals receiving this information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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New

24-165

Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061.

SODIUM PEROXIDE

PRODUCT IDENTIFICATION:

Synonyms: Disodium dioxide; disodium peroxide

Formula CAS No.: 1313-60-6

Molecular Weight: 77.98

Chemical Formula: Na_2O_2

Hazardous Ingredients: None.

PRECAUTIONARY MEASURES

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CAUSES SEVERE BURNS. HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes, on skin, or on clothing.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Keep from contact with clothing and other combustible materials.
Remove and wash contaminated clothing promptly.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Oxidizer

SECTION 1 Physical Data

Appearance: White to pale yellow granules.

Odor: Odorless.

Solubility: Reacts violently with water.

Boiling Point: 657°C (1215°F) Decomposes.

Melting Point: 460°C (860°F) Decomposes.

Specific gravity: 2.81

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Explosion:
Contact with combustible, organic, or oxidizable substances may cause extremely violent combustion. May react explosively in contact with large amounts of water.

Fire Extinguishing Media:
Dry chemical. Do Not use carbon dioxide.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage. Water reactive.

Hazardous Decomposition Products:
Emits oxygen when heated to decomposition which may increase a fire hazard.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Moisture, organic and oxidizable substances, acetic acid, acetic anhydride, aluminum, aluminum plus carbon dioxide, ammonium persulfate, aniline, antimony, arsenic, benzene, boron nitride, calcium carbide, charcoal, dextrose plus potassium nitrate, diethyl ether, glycerine, hexamethylene, tetramine, hydrogen sulfide, magnesium, magnesium plus carbon dioxide, manganese dioxide, organic matter, phosphorus, potassium selenium monochloride, silver chloride plus charcoal, sodium, sulfur monochloride, tin, and zinc.

SECTION 4 Leak/Spill Disposal Information

Clean-up personnel should wear protective clothing and respiratory equipment suitable for toxic or corrosive fluids or vapors. Do not save for reclammation. Cover with double volume of sand-soda ash mixture (90%-10%). Mix thoroughly and break up any lumps of peroxide. Collected waste may be transferred to a closed, preferably metal, container and sent to a RCRA-approved waste disposal facility. As an alternate, with a plastic scoop, add mixture slowly to a large amount of water with stirring. Neutralize with dilute sulfuric acid. When settled decant the sulfate solution into the drain with excess water. The sand can be sent an approved waste facility.

Ensure compliance with local, state and federal regulations.

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 2 Other: Water reactive

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
May be corrosive to the respiratory tract. Symptoms may include sore throat, shortness of breath, labored breathing, and coughing.

Ingestion:
Corrosive. May cause burns in mouth, esophagus and gastrointestinal tract. Vomiting, diarrhea, and gastritis may occur.

Skin Contact:
Corrosive. May cause redness, pain, and serious skin burns.

Eye Contact:
Corrosive. May cause redness, pain, blurred vision and damage from corrosive effects.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, do NOT induce vomiting. Give large quantities of milk or water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Exposure:
Remove any contaminated clothing. Wipe off excess from skin. Wash skin with plenty of water for at least 15 minutes. Get medical attention promptly.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

No LD50/LC50 information found relating to normal routes of occupational exposure.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
A local exhaust system which captures the contaminant at its source is recommended to prevent dispersion of the contaminant into the workroom air.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Protect from moisture. Separate from combustible, organic, or any other readily oxidizable materials.

****

IUMAN

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SECTION I - PRODUCT IDENTIFICATION

Product Name: Sodium Phosphate, Dibasic, 12-Hydrate
Formula: $Na_2HPO_4 \cdot 12H_2O$
Formula Wt: 358.14
CAS No.: 10039-32-4
NIOSH/RTECS No.: TC5725000
Common Synonyms: Disodium Hydrogen Phosphate 12-H_2O; Phosphoric Acid Disodium Salt 12H 2O
Product Codes: 3822

PRECAUTIONARY LABELLING

AMKEE SAF-T-DATA™ System

HEALTH	FLAMMABILITY	REACTIVITY	CONTACT
1	0	1	2
SLIGHT	NONE	SLIGHT	MODERATE

Laboratory Protective Equipment

Precautionary Label Statements

WARNING!
CAUSES IRRITATION
Avoid contact with eyes, skin, clothing.
Keep in tightly closed container. Wash thoroughly after handling.

SECTION II - HAZARDOUS COMPONENTS

Component	%	CAS No.
Sodium Phosphate, Dibasic, 12-Hydrate	90-100	10039-32-4

SECTION III - PHYSICAL DATA

Boiling Point: N/A
Vapor Pressure(mmHg): N/A
Melting Point: N/A
Vapor Density(air=1): 4.9

Continued on Page: 2

J. T. Baker Chemical Co.
222 Red School Lane Phillipsburg, N.J. 08865
24-Hour Emergency Telephone -- (201) 859-2151
Chemtrec # (800) 424-9300
National Response Center # (800) 424-8802
MATERIAL SAFETY DATA SHEET

SECTION VI - REACTIVITY DATA (Continued)

Decomposition Products: oxides of phosphorus, oxides

SECTION VII - SPILL AND DISPOSAL PROCEDURES

Steps to be taken in the event of a spill or discharge
Wear self-contained breathing apparatus and full protective clothing. With clean shovel, carefully place material into clean, dry container and cover; remove from area. Flush spill area with water.

Disposal Procedure
Dispose in accordance with all applicable federal, state, and local environmental regulations.

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

Ventilation: Use adequate general or local exhaust ventilation to keep fume and dust levels as low as possible.

Respiratory Protection: None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask.

Eye/Skin Protection: Safety glasses with sideshields, uniform, proper gloves are recommended.

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA™ Storage Color Code: Orange

Special Precautions
Keep container tightly closed. Suitable for any general chemical storage area.

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

Proper Shipping Name: Sodium phosphate, dibasic
Hazard Class: ORM-E
UN/NA: NA9147
Labels: NONE
Reportable Quantity: 5000 LBS.

INTERNATIONAL (I.M.O.)

Proper Shipping Name: Chemicals, n.o.s.

Continued on Page: 4

SECTION III - PHYSICAL DATA (Continued)

Specific Gravity: 1.52 (H_2O=1) Evaporation Rate: N/A (Butyl Acetate=1)

Solubility(H_2O): Moderate (1 to 10 %) % Volatiles by Volume: 0

Appearance & Odor: Translucent crystals.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

Fire Extinguishing Media
Use extinguishing media appropriate for surrounding fire.

Special Fire-Fighting Procedures
Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode.
Move exposed containers from fire area, if it can be done without risk.
Use water to keep fire-exposed containers cool.

Unusual Fire & Explosion Hazards
Closed containers exposed to heat may explode.

Toxic Gases Produced
phosphorus oxide

SECTION V - HEALTH HAZARD DATA

Toxicity: LD_{50} (ipr-mouse)(mg/kg) - 430

Effects of Overexposure
Contact with skin or eyes may cause irritation.
Dust may irritate nose and throat.
Ingestion may cause nausea and vomiting.
Prolonged exposure may cause dermatitis.

Emergency and First Aid Procedures
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Flush skin with water.

SECTION VI - REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will not occur

Continued on Page: 3

N/A = Not Applicable or Not Available

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

-- LAST PAGE --

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N/H

Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061.

SODIUM PHOSPHATE, DIBASIC, ANHYDROUS

PRODUCT IDENTIFICATION:

Synonyms: Disodium phosphate; DSP

Formula CAS No.: 7558-79-4

Molecular Weight: 141.96

Chemical Formula: Na_2HPO_4

Hazardous Ingredients: Not applicable.

PRECAUTIONARY MEASURES

CAUTION! MAY CAUSE IRRITATION TO SKIN AND EYES.

Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.

EMERGENCY/FIRST AID

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes.
SEE SECTION 5.

DOT Hazard Class: ORM-E

SECTION 1 Physical Data

Appearance: White granular powder. Hygroscopic.

Odor: Odorless.

Solubility: Soluble in water.

Boiling Point: Not applicable.

Melting Point: 240°C (646°F) converts to $Na_4P_2O_7$

Specific Gravity: No information found.

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
When heated to decomposition, can emit highly toxic fumes of oxides of phosphorus and sodium.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Acids.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel may require respiratory protection from dust. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility. Flush spill area with plenty of water.

Reportable Quantity (RQ)(CWA/CERCLA) : 5000 lbs.

Ensure compliance with local, state and federal regulations.

WWW_104(e)_018436

SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation of dust may cause mild irritation to the mucous membranes of respiratory tract.

Ingestion:
Material is essentially non-toxic, but can cause irritation to the mucous membranes because of alkalinity.

Skin Contact:
May cause mild irritation.

Eye Contact:
May cause irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
If swallowed, give three glasses of milk or water to dilute and get immediate medical attention.

Skin Exposure:
Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes. If irritation develops, get medical attention.

C. TOXICITY DATA (RTECS, 1982)

No LD50/LC50 information found relating to normal routes of occupational exposure. Skin rabbit 500 mg/24H mild. Eye rabbit 500 mg/24H mild.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-dreach facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

***

MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

SODIUM PHOSPHATE MONOBASIC

PRODUCT IDENTIFICATION:

Synonyms: Sodium phosphate monobasic monohydrate; sodium biphosphate; sodium acid phosphate; phosphoric acid, monosodium salt, monohydrate

Formula CAS No.: 10049-21-5 (Hydrate)

TSCA CAS No.: 7558-80-7 (Anhydrous)

Molecular Weight: 137.99

Chemical Formula: $NaH_2PO_4 H_2O$

Hazardous Ingredients: Not applicable.

PRECAUTIONARY MEASURES

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

EMERGENCY/FIRST AID

SEE SECTION 5.

DOT Hazard Class: Not Regulated

SECTION 1 Physical Data

Appearance: White crystalline powder.

Odor: Odorless.

Solubility: 59.9 g/100g @ 0°C (32°F)

Boiling Point: Decomposes @ 204°C (399°F)

Melting Point: Loses water @ 100°C (212°F)

Specific Gravity: 2.04

Vapor Density (Air = 1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
Use protective clothing and breathing equipment appropriate for the surrounding fire.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
When heated to decomposition, it emits highly toxic fumes of phosphorous oxides.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
No incompatibility data found.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel may require respiratory protection from dust.

Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

Disposal: Whatever cannot be saved for reclamation may be delivered to an approved waste disposal facility.
Small amounts of residue may be flushed to sewer with plenty of water.

Ensure compliance with local, state and federal regulations.

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
May cause mild irritation to the mucous membranes.

Ingestion:
May cause mild irritation and redness to the G.I. tract.

Skin Contact:
Contact may cause slight irritation.

Eye Contact:
Contact may cause slight irritation.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
No information found.

B. FIRST AID

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Exposure:
Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Exposure:
Wash thoroughly with running water. Get medical advice if irritation develops.

C. TOXICITY DATA (RTECS, 1986)

No LD50/LC50 information found relating to normal routes of occupational exposure.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Safety glasses. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

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SOPHM

WWW_104(e)_018439

MATERIAL SAFETY DATA SHEET

Sesqui™ Sodium Sesquicarbonate

MSDS Ref. No.: 533-96-0
Date Approved: 01/26/2004
Revision No.: 6

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the Canada's Workplace Hazardous Materials Information System (WHMIS) and, the EC Directive, 2001/58/EC.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sesqui™ Sodium Sesquicarbonate

SYNONYMS: Trisodium Hydrogendicarbonate Sesqui

GENERAL USE: Hard surface cleanser ingredient, industrial cleaner ingredient, bath salt ingredient, water softener, diaper rinse ingredient, swimming pool, flue gas desulfurization, pH adjustment in chemical processes, water treatment, leather tanning, food additive, food and dairy plant sanitizers.

This chemical is certified to ANSI/NSF Standard 60, Drinking Water Chemicals-Health Effects (as packaged in the original, unopened container). The maximum dosage level for this chemical is 100 mg/L

MANUFACTURER

FMC Wyoming Corporation
Alkali Chemicals Division
1735 Market Street
Philadelphia, PA 19103
(215) 299-6000 (General Information)

EMERGENCY TELEPHONE NUMBERS

(800) 424-9300 (CHEMTREC - U.S.)
(303) 595-9048 (Medical - Call Collect)

(307) 872-2452 (Plant - Green River, WY)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- White, odorless, needle-shaped particles.
- Product is non-combustible.
- Reacts with acids to release carbon dioxide gas and heat.

POTENTIAL HEALTH EFFECTS: Direct contact with the product causes irritation of the eyes and continuous contact may cause skin irritation (red, dry, cracked skin). Excessive levels of airborne dust may irritate the mucous membranes and upper respiratory tract.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sodium Sesquicarbonate	533-96-0	100	208-580-9	Not classified as hazardous

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Drink plenty of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

NOTES TO MEDICAL DOCTOR: Internal toxicity is low. Irritant effects may occur. Treatment is symptomatic and supportive.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Water, water fog, carbon dioxide (CO_2), dry chemical

FIRE / EXPLOSION HAZARDS: None

FIRE FIGHTING PROCEDURES: None

FLAMMABLE LIMITS: Not applicable

HAZARDOUS COMBUSTION PRODUCTS: Fumes of sodium oxide.

SENSITIVITY TO IMPACT: None

SENSITIVITY TO STATIC DISCHARGE: None

6. ACCIDENTAL RELEASE MEASURES

COMMENTS: PERSONAL PRECAUTIONS: Refer to Section 8 "Exposure Controls / Personal Protection".

CONTAINMENT: Prevent large quantities of this product from contacting vegetation or waterways; large spills could kill vegetation and fish.

CLEAN-UP: This product, if spilled, can be recovered and re-used if contamination does not present a problem. Vacuum or sweep up the material. If the spilled product is unusable due to contamination, consult state or federal environmental agencies for acceptable disposal procedures and locations. See Section 13 "Disposal Considerations".

NOTIFICATION REQUIREMENTS: Federal regulations do not require notification for spills of this product. State and local regulations may contain different requirements; consult local authorities.

7. HANDLING AND STORAGE

HANDLING: Use air conveying/mechanical systems for bulk transfer to storage. For manual handling of bulk transfer use mechanical ventilation to remove airborne dust from railcar, ship or truck. Use approved respiratory protection when ventilation systems are not available. Selection of respirators is based on the dust cloud generated.

STORAGE: Store in a cool dry area, away from acids.

COMMENTS: Use appropriate protective equipment if dust is generated or contact with eyes or skin is expected. If ventilation is inadequate or not available, use dust respirator and eye protection.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Where possible, provide general mechanical and/or local exhaust ventilation to prevent release of airborne dust into the work environment.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Appropriate eye and face protection equipment (ANSI Z87 approved) should be selected for the particular use intended for this material. Safety glasses with side shields are recommended.

RESPIRATORY: Whenever dust in the worker's breathing zone cannot be controlled with ventilation or other engineering means, workers should wear respirators or dust masks approved by

NIOSH/MSHA, EU CEN or comparable certification organization to protect them against airborne dust.

PROTECTIVE CLOTHING: Dry product is generally non-irritating to intact skin. However, this product can be irritating where skin has been damaged and can create skin irritation after long exposures when moisture is present. Under such conditions, gloves and long-sleeved clothing are recommended to minimize skin contact.

COMMENTS:

ADDITIONAL EXPOSURE GUIDELINES:

Federal guidelines treat the ingredient(s) in this product as a nuisance dust, as no product-specific guidelines have been issued for exposure. As with all nuisance dusts, worker breating zone concentrations should be measured by validated sampling and analytical methods. The following limits (OSHA and MSHA) apply to this material:

Particulates Not Otherwise Regulated:
OSHA (PEL / TWA): 15 mg/m^3 (total dust); 5 mg/m^3 (resp fraction)
MSHA (PEL / TWA): 10 mg/m^3 (total dust)

The information noted above provides general guidance for handling this product. Specific work environments and material handling practices will dictate the selection and use of personal protection equipment (PPE).

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Odorless
APPEARANCE:	White, needle-shaped particles.
AUTOIGNITION TEMPERATURE:	Not applicable
BOILING POINT:	Not applicable
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	0.74 g/mL
EVAPORATION RATE:	Not applicable (Butyl Acetate = 1)
FLASH POINT:	Not applicable
MELTING POINT:	Decomposes on heating with release of carbon dioxide gas.
ODOR THRESHOLD:	Not available
OXIDIZING PROPERTIES:	Not applicable
PERCENT VOLATILE:	Not applicable

pH:	9.9 (1% solution)
SOLUBILITY IN WATER:	17.1 % @ 25 °C 21.5 % @ 50 °C (as Sesqui)
SPECIFIC GRAVITY:	2.12 (H_2O=1)
VAPOR DENSITY:	Not applicable (Air = 1)
VAPOR PRESSURE:	Not applicable

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Contact with acids except under controlled conditions.
STABILITY:	Stable
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Aluminum powder, strong acids, fluorine, molten lithium. Reacts with acids with release of large volumes of carbon dioxide gas and heat.
HAZARDOUS DECOMPOSITION PRODUCTS:	None

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Irritant (rabbit) [Toxicology 23:281, 1982]

SKIN EFFECTS: Non-irritating (rabbit) [FMC Study I98-2239]

DERMAL LD_{50}: No data available for the product.

ORAL LD_{50}: > 2,000 mg/kg (rat) [FMC Study I98-2238]

INHALATION LC_{50}: > 5.03 mg/l (4 h) (rat) [FMC Study I98-2261]

SENSITIZATION: (Skin) Non-sensitizing (guinea pig) [FMC Study I98-2262]

ACUTE EFFECTS FROM OVEREXPOSURE: May cause irritation of eyes. Dusts and mists may be irritating to the skin, mucous membranes and upper respiratory tract. No significant acute toxicological effects expected.

CHRONIC EFFECTS FROM OVEREXPOSURE: Repeated contact may cause red, dry, cracked skin. May cause irritation of the respiratory airways, mucous membranes and eyes.

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	(ACGIH) Not listed

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No data available for the product.

CHEMICAL FATE INFORMATION: Biodegradability does not apply to inorganic substances.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: When this product is discarded or disposed of, as purchased, it is neither a characteristic nor a listed hazardous waste according to US Federal RCRA regulations (40 CFR 261). As a non-hazardous waste the material may be disposed of in a landfill in accordance with government regulations; check local or state regulations for applicable requirements prior to disposal. Any processing, usage, alteration, chemical additions to, or contamination of, the product may alter the disposal requirements. Under Federal regulations, it is the generator's responsibility to determine if a waste is a hazardous waste.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PROPER SHIPPING NAME:	Not regulated
PRIMARY HAZARD CLASS / DIVISION:	Not applicable
UN/NA NUMBER:	None
LABEL(S):	Not applicable
PLACARD(S):	Not applicable
MARKING(S):	Not applicable
ADDITIONAL INFORMATION:	Hazardous Substance/RQ: Not applicable 49 STCC Number: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

ADDITIONAL INFORMATION: Not regulated

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) / INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

ADDITIONAL INFORMATION: Not regulated

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15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Immediate (Acute) Health Hazard

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:
None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):
Not listed as a hazardous substance

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):
Listed

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):
Waste Number: Refer to Section 13 "Disposal Considerations" for RCRA status.

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

Product Identification Number: Not applicable
Hazard Classification / Division: Not applicable
Ingredient Disclosure List: Listed

COMMENTS:

CLEAN WATER ACT (CWA) - SECTION 307 / 311
Not listed as a hazardous pollutant (40 CFR 116), nor as a toxic pollutant (40 CFR 401.15)

CLEAN AIR ACT (CAA) - SECTION 112
Not regulated under the chemical accident prevention provisoins (40 CFR 68)

16. OTHER INFORMATION

HMIS

Health	1
Flammability	0
Physical Hazard	0
Personal Protection (PPE)	B

Protection = B (Safety glasses and gloves)

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

NFPA

Health	1
Flammability	0
Reactivity	0
Special	None

No special requirements

NFPA = National Fire Protection Association

Degree of Hazard Code:
4 = Extreme
3 = High
2 = Moderate
1 = Slight

0 = Insignificant

REVISION SUMMARY:
Changes in information are as follows:
New Format, as well as text changes and/or updates to one or more Sections of this MSDS.

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sodium silicofluoride

MATERIAL SAFETY DATA SHEET

PRODUCT CODE:

Section I - GENERAL INFORMATION

SUPPLIER NAME: BROWNING CHEMICAL CORPORATION
ADDRESS: 330 MADISON AVENUE
CITY: NEW YORK
STATE: NEW YORK ZIP: 10017
TELEPHONE NO. 212-867-0600:

TRADE NAME : SSF
CHEMICAL FAMILY: INORGANIC SALT
FORMULA : Na_2SiF_6

"FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT (800-424-9300)":

HAZARD RATING (H.M.I.S.)
HEALTH : 3
FIRE : 0
REACTIVITY: 0
SPECIAL :

HAZARD RATING SCALE
0 = MINIMAL
1 = SLIGHT
2 = MODERATE
3 = DEFINITE
4 = SERIOUS

RECEIVED
DATE 1/22/86
INITIALS

DATE PREPARED: 11/25/85

Section II - HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (Chemical and common name(s)	OSHA PEL	ACGIH TLV	OTHER TYPE LIMITS
sodium silicofluoride		TWA 2.5 mg/m³ on Fluorine cosntent	2.5 mg/m³ on Fluorine content

Section III - PHYSICAL & CHEMICAL CHARACTERISTICS

BOILING POINT: NA
MELTING POINT: NA
SPECIFIC GRAVITY: 2.679
SOLUBILITY IN WATER:
APPEARANCE AND ODOR: FINE WHITE ODORLESS POWDER

VAPOR PRESSURE (mm Hg): NA
VAPOR DENSITY (AIR=1) : NA
REACTIVITY IN WATER: AT 17 deg C 0.652% by weight

OTHER: DECOMPOSES AT APPROX. 932 deg C

Section IV - FIRE & EXPLOSION DATA

FLASH POINT: NON FLAMMABLE METHODS USED:
FLAMMABLE LIMITS: LEL: UEL:
AUTO-IGNITION TEMPERATURE:
EXTINGUISHER MEDIA: COMPATIBLE WITH ALL EXTINGUISHING MEDIA.

SPECIAL FIRE FIGHTING PROCEDURES:

UNUSUAL FIRE AND EXPLOSION HAZARDS: EMITS FLUORIDE VAPORS IF HEATED TO DECOMPOSITION TEMPERATURES.

STABILITY UNSTABLE: STABLE: X
CONDITIONS TO AVOID:

INCOMPATABILITY
MATERIALS TO AVOID: ACIDS AND ACID VAPORS

HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN FLUORIDE GAS AND OTHER FLUORIDE COMPOUNDS

HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: X

CONDITIONS TO AVOID:

Section VI - HEALTH HAZARDS

1. ACUTE:

2. CHRONIC:

SIGNS & SYMPTOMS OF EXPOSURE: IF INHALED WILL CAUSE COUGHING OR DIFFICULTY IN BREATHING. IF SWALLOWED WILL CAUSE NAUSEA, VOMITING OR LOSS OF CONSCIOUSNESS. WILL BURN SKIN AND EYES.
CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN
OSHA YES: NO: X NATIONAL TOXICOLOGY PROGRAM YES: NO
I.A.R.C. MONOGRAPHS YES: NO: X

EMERGENCY FIRST AID PROCEDURES: GET MEDICAL ATTENTION
INHALATION: REMOVE TO FRESH AIR. IF BREATHING STOPPED, GIVE ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULT, GIVE OXYGEN.

EYES: FLUSH THOROUGHLY WITH WATER.

SKIN: WASH WITH SOAP AND WATER. IF SKIN REDDENS, SEE A DOCTOR.

INGESTION: POISONOUS IF SWALLOWED. IF VICTIM CONSCIOUS, ADMINISTER WATER O MILK. IF UNCONSCIOUS OR HAVING CONVULSIONS, KEEP WARM TILL DOCT ARRIVES.

Section VII - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING & STORAGE: STORE IN CLOSED CONTAINER IN COOL DRY AREA.

OTHER PRECAUTIONS:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: SWEEP UP, WEARI PROTECTIVE CLOTHING, AND STORE IN SUITABLE WASTE DRUM. FLUSH AREA.

WASTE DISPOSAL METHODS (Consult federal, state, and local regulations):

Section VIII - SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

RESPIRATORY PROTECTION (specify type): NIOSH/MSHA APPROVED RESPIRATOR

VENTILATION:
LOCAL EXHAUST: YES (TO CONTROL DUSTING)
MECHANICAL :
SPECIAL :
OTHER :

PROTECTIVE GLOVES: YES

EYE PROTECTION: GOGGLES

OTHER PROTECTIVE CLOTHING/EQUIPMENT:

WORK/HYGIENIC PRACTICES: STORE IN COOL DRY AREA

Section XI - TRANSPORTATION DATA

PROPER SHIPPING NAME: SODIUM SILICOFLUORIDE RQ: -----
DOT/HAZARD CLASS: POISON UN: 2674
LABEL REQUIREMENT: ST. ANDREWS CROSS PLACARD: ST. ANDREWS CROS

All information, recommendations, and suggestions contained herein regarding this product are based on data obtained from the manufacturer and/or recognized technical sources. However BROWNING CHEMICAL CORPORATION makes no warranty, express or implied as to its accuracy or completeness, and none is made as to the use of this product by others which is beyond our control. It is the users responsibility to determine the safety, toxicity and suitability for his own application and use, handling and disposal of the product. The information in this MSDS relates only to the product designated herein and does not relate to the use in combination, mixture, process or otherwise with any other material.

MATERIAL SAFETY DATA SHEET

Section I - Material Identification and Use

Chemical Name:	Sodium Sulphate, Anhydrous		
Chemical Formula:	Na_2SO_4		
Manufacturer's Name:	Francana Minerals Division of Agassiz Resources Ltd.		
Address:	P.O. Box 168 Cabri, Sask. Canada SON OJO	P.O. Box 40 Metiskow Alta. Canada TOB 3AO	P.O. Box 129 Alsask, Sask. Canada SOL OAO
Emergency Telephone Number :	(306)587-2605	(403)857-3768	(306)968-2409
Supplier's Name:	Agassiz Resources Ltd. Francana Minerals Division		
Head Office Address:	300 Bank of Canada Building Regina, Saskatchewan S4P OM8		
Telephone Number:	306-359-0094		
Chemical Family:	Inorganic alkali metal sulphate		
Molecular Weight:	142.04		
Trade Name and Synonyms:	Saltcake, detergent grade sodium sulphate, disodium sulphate, sodium sulphate anhydrous, sulphuric acid disodium salt.		
Chemical Abstract Service Number (CAS):	7757-82-6		
Material Use:	Primary chemical and chemical additive.		

Section II - Hazardous Ingredients of Material

Not applicable.
Material is not a controlled product and does not contain any ingredients that have to be disclosed on a MSDS further to the requirements of the Hazardous Products Act and Regulations.

Section III - Physical Data for Material

Physical State:	Solid
Odor and appearance:	white crystalline granules, odorless
Odor threshold:	not applicable
Specific gravity:	1.3
Vapor pressure:	none
Vapor density (Air=1):	not applicable
Evaporation rate:	not applicable
Boiling point:	decomposes at 1100°C
Melting point:	888°C
Freezing point:	not applicable
pH:	1% solution has pH of 8.0
Density:	Bulk 1.18 - 2.68 g/cc
Coefficient of water/ oil distribution:	not applicable
Solubility in water (20°):	1 part in about 3.6 parts

Section IV - Fire and Explosion Hazard of Material

Conditions of flammability:	- non-flammable
Means of extinction:	-any means suitable for extinguishing surroundi fire
Flashpoint and method of determination:	- not applicable
Upper explosion limit (% by volume):	- not applicable
Lower explosion limit (% by volume):	- not applicable
Auto-ignition temperature:	- none
Flammability classification:	- not applicable

Section V - Reactivity Data

Chemical stability:	-chemically stable
Incompatibility to other substances:	-aluminum
Reactivity and under what conditions:	-violent explosions will occur when sodium sulphate is melted with aluminum or magnesium(at 1100°C)
Hazardous decomposition products:	-when heated to decomposition it emits toxic oxides of sulfur and sodium oxide

Section VI - Toxicological Properties

Routes of entry:

inhalation:	-can cause slight irritation of respiratory passages
skin contact:	-can cause minor irritation
skin absorption:	- insignificant
eye contact:	-can cause irritation
ingestion:	-slowly absorbed from the alimentary tract. Because of osmotic activity, it will draw water into the lumen of the bowel and, in sufficient quantity, may cause purging and fluid loss

Effects of overexposure:

Acute:	- can cause irritation of the eyes and respirator passages. Ingestion may cause diarrhea.
Chronic:	- no long term effects are expected (source: Kelada and Euinton, Journal of Occupational Medicine, 12, 812, 1978)

Toxicity:

LD50:	-oral mouse 5,989 mg/kg
LC50:	-no available data
Carcinogenicity, mutagenicity, teratogencity:	-sodium sulfate is not included on the IARC,NTP, ACGIH lists or on NIOSH's subfile. Reproductive effects cited in RTECS from injectable doses of 60 mg/kg in mice.

Irritancy and sensitization of material: - sodium sulphate is not known to cause sensitization. It can cause minor irritation to skin and mucous membranes.

Synergistic materials: - no available information.

Section VII - Preventive Measures

Engineering Controls: - In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal protective equipment:

Respiratory: - in unusually dusty conditions, a nuisance dust/mist respirator may be worn

Skin protection: - protective rubber gloves may be needed

Eye protection: - safety glasses or goggles are recommended in unusually dusty conditions. Maintain a quick-drench eyewash if eye over exposure is perceived.

Hygienic practices to be followed: - normal

Work practices to be followed: - normal

Other handling and storage requirements: - keep dry otherwise will cake, highly hygroscopic

Special shipping information: - no U.N. number is assigned. Sodium sulphate is not listed in schedule II of the Transportation of Dangerous Goods regulation.

Spill or Leak Control: - normal procedures

Spill Clean-up: - shovel up dry chemical for use or disposal. Sweep up and maximize recovery. Flush residue with water if environmental regulations permit. Small amounts are not injurious to soil.

Neutralizing chemicals: - not required

Waste Disposal Method: - deliver to an approved waste disposal facility. Ensure compliance with local, state and federal regulations.

Section VIII - First Aid Measures

Inhalation: - not expected to require first aid measures

Ingestion: - give several glasses of water to drink to dilute. If large amounts were swallowed (>15g) get medical advice.

Skin exposure: - wash exposed area with soap and water

Eye exposure: - wash thoroughly with running water. Get medical advice if irritation persists.

Section IX - Preparation Date of MSDS

Prepared by: - Occupational Health and Safety Branch Saskatchewan Department of Human Resources, Labour and Employment.

Preparation date: - December 1987

Note: Agassiz Resources Ltd., Francana Minerals Division does not assume responsibility for use of this product under abnormal conditions which could alter its naturally passive state by transformation to a higher degree of reactivity and any serious consequences of such useage.

ANHYDROUS SODIUM SULPHATE

METISKOW (ALSUL), ALBERTA, CANADA

TYPICAL ANALYSIS

CHEMICAL

	%
Na_2SO_4	99.0
Na_2CO_3	0.67
$NaHCO_3$	0.09
NaCl	0.10
H_2O	0.02
Insolubles (aqueous)	0.02
$CaSO_4$	0.03
$MgSO_4$	0.02

Loss on Ignition 1007 ppm

pH (5% Aqueous Solution): 9.4 to 10.6

PHYSICAL

Tyler Std. Mesh No	%	% Cumulative
+ 20	0.11	
+ 60	12.22	12.33
+ 100	26.54	38.87
+ 150	19.75	58.62
+ 200	17.38	76.00
+ 270	9.40	85.40
- 270	14.60	100.00

Bulk Density	Untamped (poured)	80.3 lbs./cu. ft.
	Light tamped	89.1 lbs./cu. ft.
	Heavy tamped	93.9 lbs./cu. ft.

Color: White, fine granular crystalline

Angle of Repose: Approx. 35° from horizontal, depending on sizing.

PRIOR CHEMICAL CORPORATION
420 Lexington Avenue • New York, NY 10170
Phone: 212-972-9811 TWX:7105813945

9/89

MATERIAL SAFETY DATA SHEET

PRIOR CHEM. CORP. 09-000119

New

SECTION I - PRODUCT IDENTIFICATION AND PHYSICAL DATA

CHEMICAL NAME: Sodium Sulfate Anhydrous COMMON NAME: Salt Cake/Sulfur Acid/Disodium Salt

CHEMICAL FORMULA: Na_2SO_4 (CAS: 7767-82-6)

APPEARANCE AND ODOR: White crystals. Odorless.

HAZARDOUS COMPONENTS OF MIXTURE: Sodium sulfate is a compound, not a mixture.

VAPOR PRESSURE: Effectively Zero at 20°C MELTING POINT: 888°C

FLASH POINT: No Flash Point FLAMMABLE LIMITS: Not Flammable

OTHER CHARACTERISTICS: 99% Na_2SO_4 Soluble in water.

SECTION II - FIRE, EXPLOSION, AND PHYSICAL HAZARD DATA

FIRE AND EXPLOSION HAZARDS: Not Flammable

REACTIVITY DATA: Stable material.

EXTINGUISHING MEDIA: Not Flammable

SPECIAL FIRE FIGHTING PROCEDURES: Not Flammable

OTHER PHYSICAL HAZARDS: None

RECEIVED
DATE 12-27-85
INITIALS jo

SECTION III - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep up and return to container. Small quantities may be washed away with water.

WASTE DISPOSAL METHOD: Follow state and local regulations.

DATE OF ISSUE: 7/25/85	REVIEWED BY: W. E. Panus
SUPERSEDES: 8/16/84	TITLE: Head of Analytical Chemistry

SECTION IV - HEALTH HAZARD DATA

EXPOSURE LIMIT VALUE(S): Neither OSHA nor ACGIH list a threshold limit value for sodium sulfate, but Poote recommends that exposure not exceed $5mg/m^3$, the ACGIH limit for nuisance dust.

PRIMARY ROUTE(S) OF EXPOSURE: Inhalation or eye contact.

SIGNS AND SYMPTOMS OF OVEREXPOSURE: None.

EFFECTS OF OVEREXPOSURE: Poote is not aware of any health hazards associated with exposure to sodium sulfate other than throat or eye irritation due to excessive dust levels.

POTENTIAL FOR CARCINOGENICITY: Sodium sulfate is not listed as a carcinogen or potential carcinogen by the National Toxicology Program of the U.S. Public Health Service, nor has it been found to be a carcinogen or potential carcinogen by OSHA or the International Agency for Research on Cancer. Poote is not aware of any data indicating that sodium sulfate produces cancer.

EMERGENCY/FIRST AID PROCEDURES:

On contact with skin, practice proper hygiene.

On contact with eyes, flush eyes thoroughly with potable water for 15 minutes.

On inhalation, if respiratory distress persists, seek medical attention.

SECTION V - SPECIAL PROTECTION AND PRECAUTIONS

VENTILATION AND ENGINEERING CONTROLS: Engineering controls (e.g. mechanical exhaust) should be in place to minimize employee exposures to sodium sulfate dust.

PERSONAL PROTECTIVE EQUIPMENT: Under conditions in which sodium sulfate dust levels exceed $5mg/m^3$, NIOSH-approved dust respirators and dust goggles should be worn.

SAFE HANDLING, USE AND STORAGE: Do not store in areas where there could be contact with rain or ground water.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE: Clean area throughly and wear personal protective equipment to avoid inhalation of dust.

OTHER: None.

ADDITIONAL INFORMATION REGARDING THIS MATERIAL AND APPROPRIATE EMERGENCY PROCEDURES MAY BE OBTAINED FROM:

Prior Chemical Corporation
420 Lexington Avenue
New York, NY 10170
212-972-9811

The data in this Material Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data that Foote Mineral believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside our control, we make no warranties, expressed or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents. Any use of these data and information must be determined by the user to be in accordance with Federal, state and local laws and regulations.

MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name : Sodium Hydrosulfide
Internal Part No. : NA

Manufacturer Information
Solvay Quimica y Minera, S.A. de C.V.
Carr. a Garcia km.8.5
Garcia, N.L.
México
Phone #: (52-81) 81-50-29-29
Emergency #: (52-81) 81-50-29-00

Supplier Information
Solvay Quimica y Minera S.A. de C.V.
Carr. a García km.8.5
García, N.L.
México
Phone #: (52-81) 81-50-29-29
Emergency #: (52-81) 81-50-29-00

Synonyms : Sodium sulfhydrate, Sodium hydrosulfide, Sodium bisulfide.

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Components	% Wt.
16721-80-5	Sodium Hydrosulfide	70
7732-18-5	Water	30

Component Information / Information on Non-Hazardous Components
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Section 3 - HAZARDOUS IDENTIFICATION

Emergency Overview

DANGER! Avoid contact with any acids or acidic materials. Forms poisonous gas, hydrogen sulfide (rotten egg odor), which also can cause fires and EXPLOSIONS. Breathing this gas can cause immediate death. Do not get in eyes, on skin, or on clothing. May cause severe burns and permanent damage. Do no breathe dust or mists from solutions. Use only with adequate ventilation. Do not swallow. Wash thoroughly after handling. Do not eat, drink or smoke in work area.

Potential Health Effects

Eyes

Corrosive. Product can cause severe eye damage. Symptoms may include tearing, burning, redness, pain and blurred vision. Prolonged exposure may cause permanent damage or blindness.

Skin

Product is a severe skin irritant. Corrosive to skin. Prolonged contact may cause hives.

Ingestion

Corrosive. May be fatal if swallowed. May cause burns to the mouth and throat. Symptoms may include vomiting, nausea, diarrhea, and abdominal pain.

Inhalation

This product is irritating to the respiratory system. Symptoms may include coughing, sore throat, and shortness of breath. Prolonged exposure could lead to a build-up of fluid in the lungs, headaches, and dizziness.

Section 4 - FIRST AID MEASURES

Eyes

Immediately flush the contaminated eye with plenty of water for 15 minutes, keeping the eyelids wide open. If irritation persists, seek medical attention immediately.

Skin

If irritation occurs, wash gently and thoroughly with water and non-abrasive soap. Completely decontaminate clothing, shoes, and leather goods before reuse. If irritation persists, seek medical advice.

Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Immediately give large amounts of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical advice immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If victim does not breath, give artificial respiration, preferentially mouth to mouth. If breathing is difficult, give oxygen If symptoms persist, obtain medical advice immediately.

Notes to Physician

Provide general supportive measures. Consult nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact. Amyl nitrite, although controversial, has been recommended as an antidote for hydrogen sulfide exposure.

Section 5 - FIRE FIGHTING MEASURES

Flash Point	Method Used
Not applicable	Not applicable

UFL	LFL	Auto Ignition
Not available	Not available	Not available

Flammability Classification	Rate of Burning
Not available	Not available

Specific Fire Hazards

Contact with acid and excessive heat liberates poisonous hydrogen sulfide gas. It may react with amphoteric metals such as aluminum, zinc and tin generating hydrogen gas which is flammable or explosive, if burns.

Extinguishing media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel.

Fire Fighting Equipment / Instructions

Firefighters must wear NIOSH approved, pressure demand, self-contained breathing apparatus with full face piece for possible exposure to hazardous gases. Move container from fire area, if this is without risk. Fight fire from safe distance.

NFPA Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	
HMIS Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	**Personal Protection:** J

Section 6 - ACCIDENTAL RELEASE MEASUREMENTS

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Immediately evacuate the area. Remove sources of ignition. Provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area. Dike area to contain spill. Recover spilled material on adsorbents, such as sand or vermiculite, and place in covered containers for reclamation or disposal. Spilled material should be reclaimed if possible. Product must not come in contact with acids. After all visible traces have been removed, thoroughly wet vacuum the area. Do not flush to sewer.

Section 7 - HANDLING AND STORAGE

Precautions to be taken during handling and storage:

Store away from strong oxidizing agents. Do not allow contact with acids and excessive heat. Will liberate poisonous, flammable hydrogen sulfide gas. Do not store in zinc, aluminum or copper containers. Wear respiratory protection whenever exposure to vapor is likely. Wear appropriate personal protective equipment. Store in a cool, dry, well-ventilated place. Store only in closed, properly labeled containers. Keep container closed when not in use.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

OSHA: No occupational exposure limits have been established by OSHA for this product. The OSHA exposure limit for hydrogen sulfide is 10 ppm TWA, 15 ppm STEL, 29 CFR 1910.1000, Rev.3/1/89; the currently enforceable 1971 limit is 20 ppm ceiling.

Respiratory Protection

If exposure of hydrogen sulfide gas could exceed the exposure limits, use NIOSH approved full face airline and/or self-contained breathing apparatus operated in a positive pressure demand mode. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

Ventilation

Use local exhaust or general room/dilution ventilation as appropriate to control employee exposures in the work place.

Eye and Face Protection

Close fitting chemical safety goggles with faceshield

Protective gloves

Impervious or rubber gloves.

Other protective equipment

Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132 (general requirements), .133 (eye and face protection), and .138(hand protection).

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Color:	Yellow	**Odor :**	Rotten egg, Sulfur
Physical State :	Solid (hygroscopic flakes)	**pH :**	Strongly alkaline
Vapor pressure :	Unknown	**Vapor density :**	Not applicable
Boiling Point :	328 °F	**Freezing point :**	126 °F
Melting Point :	Range 95 to 131 °F	**Solubility (H2O) :**	4.2 to 5.0 lb/gal @ 68 °F
Specific Gravity:	1.5 (water = 1)	**Particle size :**	Not applicable
Softening Point :	Not applicable	**Evaporation rate:**	Not applicable
Viscosity :	Not available	**Bulk density :**	0.75 g/c.c.
Molecular weight:	56.06		

Additional properties

The data provided in this section is to be used for safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Section 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical stability

Stable

Incompatibility

Avoid contact with strong oxidizing agents and acids. Solutions attack zinc, copper, aluminum and alloys of these metals. Keep containers closed to avoid caking. Avoid heat, flames, sparks and other sources of ignition.

Hazardous decomposition products

Oxides of sulfur. Oxides of sodium. Hydrogen sulfide

Hazardous Polymerization

Will not occur

Section 11 - TOXICOLOGICAL INFORMATION

Acute Inhalation LC50
Unknown
Acute dermal LD50
178 mg/kg (rabbit) High toxicity.
Skin irritation
Corrosive.
Eye Irritation
Corrosive.
Acute Oral LD50
58.5 mg/kg. (rat) High toxicity.
Chronic effects/Carcinogenicity:
This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.
Medical conditions aggravated
None known.

Effects of overexposure
Inhalation: Irritation of mucous membranes, eyes, and respiratory tract is possible following exposure to the decomposition product, hydrogen sulfide gas, which is potentially lethal.
Ingestion: Gastric acidity would convert material to hydrogen sulfide gas which is potentially lethal. Material is quite corrosive and would produce burns of the stomach lining capable of causing severe injury and death.
Eye/Skin: May cause irritating and severe burns to the skin. Material is considered corrosive and has the capability of being absorbed through the skin producing the toxicity typical of hydrogen sulfide poisoning. This product has similar effects as alkalis following direct exposure to the eye and can cause irreversible damage, including blindness.
Chronic: The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures.

Section 12 - Ecological Information

Ecotoxicity

Toxic to aquatic life. Fish, LC_{50} (Lethal Concentration):

1.1 mg/l (bluegill sunfish) (96 hour) – moderately toxic.

1.4 mg/l (water flea) (48 hour) – moderately toxic.

49.12 mg/l (marine alga) (96 hour EC_{50}) – slightly toxic.

Environmental Fate
No information available.

Section 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD

Dispose of in an approved hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant Federal, State, or local laws/regulations regarding disposal.

Section 14 - TRANSPORTATION INFORMATION

USA DOT DESCRIPTION:
Proper Shipping Name
Sodium Hydrosulfide
Technical Name
Sodium Hydrosulfide
Hazard Class
8 (Corrosive)
Identification Number
UN2949
Packing Group
II

Section 15 - REGULATORY INFORMATION

US Federal Regulation

General Product Information
This chemical is listed on the TSCA inventory of existing chemicals.
Sara Title III:
SARA (311, 312) Hazard Class:
Acute Health Hazard. Reactive Hazard.
SARA (313) Chemicals:
Not listed.
SARA Section 302:
Not listed as an Extremely Hazardous Substance.
Hazard Rating System (HMIS/NFPA):
NFPA: Health 3, Flammability 1, Reactivity 1 (based on sodium sulfide)

Section 16 - OTHER INFORMATION

Other Information

Reasonable care has been taken in preparation of this information, but Solvay Quimica y Minera makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Solvay Quimica y Minera makes no representations and assumes no liability for any direct, incidental, or consequential damages resulting from its use.

Key / Legend

EPA = Environmental Protection Agency; TSCA = toxic substance control act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration.

END OF MSDS - SODIUM HYDROSULFIDE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name : Sodium Sulphide
Internal Part No. : NA

Manufacturer Information
Solvay Química y Minera S.A. de C.V.
Carr. a García Km.8.5
García, N.L.
México
Phone #: (52-81) 81-50-29-29
Emergency #: (52-81) 81-50-29-00

Supplier Information
Solvay Químicas y Minera S.A. de C.V.
Carr. a García Km.8.5
García, N.L.
México
Phone #: (52-81) 81-50-29-29
Emergency #: (52-81) 81-50-29-00

Synonyms : Disodium monosulphide, Disodium sulphide, Sodium monosulphide, sodium sulphide nonahydrate.

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Components	% Wt.
1313-82-2	Sodium Sulfide	60
7732-18-5	Water	40

Component Information / Information on Non-Hazardous Components
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Section 3 - HAZARDOUS IDENTIFICATION

Emergency Overview

DANGER! Avoid contact with any acids or acidic materials. Forms poisonous gas, hydrogen sulfide (rotten egg odor), which also can cause fires and explosions. Excessive heat also liberates hydrogen sulfide. Breathing this gas can cause immediate death. Do not get in eyes, on skin, or on clothing. May cause severe burns and permanent damage. Do not breathe dust or mists from solutions. Use only with adequate ventilation. Do not swallow. Wash thoroughly after handling. Do not eat, drink or smoke in work area.

Potential Health Effects

Eyes

Corrosive. Product can cause severe eye damage. Symptoms may include tearing, burning, redness, pain and blurred vision. Prolonged exposure may cause permanent damage or blindness.

Skin

Product is a severe skin irritant. Corrosive to skin. Prolonged contact may cause hives.

Ingestion

Corrosive. May be fatal if swallowed. May cause burns to the mouth and throat. Symptoms may include vomiting, nausea, diarrhea, and abdominal pain.

Inhalation

This product is irritating to the respiratory system. Symptoms may include coughing, sore throat, and shortness of breath. Prolonged exposure could lead to a build-up of fluid in the lungs, headaches, and dizziness. Sodium sulphide paralyses the sense of smell at 100 ppm or higher. Overexposure could lead to memory loss, paralysis of the facial muscles, nerve damage or death.

Section 4 - FIRST AID MEASURES

Eyes

Immediately flush the contaminated eye with plenty of water for 15 minutes, keeping the eyelids wide open. If irritation persists, seek medical attention immediately.

Skin

If irritation occurs, wash gently and thoroughly with water and non-abrasive soap. Completely decontaminate clothing, shoes, and leather goods before reuse. If irritation persists, seek medical advice.

Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Immediately give large amounts of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical advice immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If victim does not breath, give artificial respiration, preferentially mouth to mouth. If breathing is difficult, give oxygen If symptoms persist, obtain medical advice immediately.

Notes to Physician

Provide general supportive measures. Consult nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact. Amyl nitrite, although controversial, has been recommended as an antidote for hydrogen sulfide exposure.

Section 5 - FIRE FIGHTING MEASURES

Flash Point	Method Used
Not applicable	Not applicable

UFL	LFL	Auto Ignition
Not available	Not available	Not available

Flammability Classification	Rate of Burning
Not available	Not available

Specific Fire Hazards

Contact with acid and excessive heat liberates poisonous hydrogen sulfide gas. It may react with amphoteric metals such as aluminum, zinc and tin generating hydrogen gas which is flammable or explosive, if burns.

Extinguishing media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel.

Fire Fighting Equipment / Instructions

Firefighters must wear NIOSH approved, pressure demand, self-contained breathing apparatus with full face piece for possible exposure to hazardous gases. Move container from fire area, if this is without risk. Fight fire from safe distance.

NFPA Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	
HMIS Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	**Personal Protection:** J

Section 6 - ACCIDENTAL RELEASE MEASUREMENTS

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Immediately evacuate the area. Remove sources of ignition. Provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area. Dike area to contain spill. Recover spilled material on adsorbents, such as sand or vermiculite, and place in covered containers for reclamation or disposal. Spilled material should be reclaimed if possible. Product must not come in contact with acids. After all visible traces have been removed, thoroughly wet vacuum the area. Do not flush to sewer.

Section 7 - HANDLING AND STORAGE

Precautions to be taken during handling and storage:

Store away from strong oxidizing agents. Do not allow contact with acids and excessive heat. Will liberate poisonous, flammable hydrogen sulfide gas. Do not store in zinc, aluminum or copper containers. Wear respiratory protection whenever exposure to vapor is likely. Wear appropriate personal protective equipment. Store in a cool, dry, well-ventilated place. Store only in closed, properly labeled containers. Keep container closed when not in use.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

OSHA: No occupational exposure limits have been established by OSHA for this product. However an exposure limit of 1 mg/m3 is recommended. The OSHA exposure limit for hydrogen sulfide is 10 ppm TWA, 15 ppm STEL, 29 CFR 1910.1000, Rev.3/1/89; the currently enforceable 1971 limit is 20 ppm ceiling.

Respiratory Protection

If exposure of hydrogen sulfide gas could exceed the exposure limits, use NIOSH approved full face airline and/or self-contained breathing apparatus operated in a positive pressure demand mode. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

Ventilation

Use local exhaust or general room/dilution ventilation as appropriate to control employee exposures in the work place.

Eye and Face Protection

Close fitting chemical safety goggles with faceshield.

Protective gloves

Impervious or rubber gloves.

Other protective equipment

Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132 (general requirements), .133 (eye and face protection), and .138(hand protection).

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Color:	Yellow	**Odor :**	Rotten egg, Sulfur
Physical State :	Solid (hygroscopic flakes)	**pH :**	Strongly alkaline
Vapor pressure :	Unknown	**Vapor density :**	Not applicable
Boiling Point :	Range 329 - 346 °F	**Freezing point :**	Not applicable
Melting Point :	122 °F	**Solubility (H2O) :**	1.6 lb/gal @ 77 °F
Specific Gravity:	1.43 at 61 °F (water = 1)	**Particle size :**	Not applicable
Softening Point :	Not applicable	**Evaporation rate:**	Not applicable
Viscosity :	Not applicable	**Bulk density :**	40 lbs/cu. ft.
Molecular weight:	78.04		

Additional properties

The data provided in this section is to be used for safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Section 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical stability

Stable

Incompatibility

Avoid contact with strong oxidizing agents and acids. Solutions attack zinc, copper, aluminum and alloys of these metals. Keep containers closed to avoid caking. Avoid heat, flames, sparks and other sources of ignition.

Hazardous decomposition products

Oxides of sulfur. Oxides of sodium. Hydrogen sulfide

Hazardous Polymerization

Will not occur

Section 11 - TOXICOLOGICAL INFORMATION

Acute Inhalation LC50

1500 mg/m3 (18 minute duration for hydrogen sulfide gas)

Acute dermal LD50

200 mg/kg (rabbit) High toxicity.

Skin irritation

Corrosive.

Eye Irritation

Corrosive.

Acute Oral LD50

200 mg/kg. (rat) High toxicity.

Chronic effects/Carcinogenicity:

This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

Medical conditions aggravated

None known.

Effects of overexposure

Inhalation: Irritation of mucous membranes, eyes, and respiratory tract is possible following exposure to the decomposition product, hydrogen sulfide gas, which is potentially lethal.

Ingestion: Gastric acidity would convert material to hydrogen sulfide gas which is potentially lethal. Material is quite corrosive and would produce burns of the stomach lining capable of causing severe injury and death.

Eye/Skin: May cause irritating and severe burns to the skin. Material is considered corrosive and has the capability of being absorbed through the skin producing the toxicity typical of hydrogen sulfide poisoning. This product has similar effects as alkalis following direct exposure to the eye and can cause irreversible damage, including blindness.

Chronic: The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures.

Section 12 - Ecological Information

Ecotoxicity

Aquatic toxicity classification: Fish, LC 50, TLM: 48 hours-61 ppm (bluegill sunfish)

Fish, Brachydanio rerio, LC 50, 96 hours, 0.55 mg/l
Crustaceans, Daphnia magna, EC 50, 48 hours, 0.69 mg/l
Algae, Selenastrum capricornutum, EC 50, biomass, 72 hours, 1.8 mg/l
Algae, Selenastrum capricornutum, EC 50, growth rate, 72 hours, 9.8 mg/l
Bacteria, Pseudomonas putida, LOEC, growth, 16 hour, 6.6 mg/l

Environmental Fate
No information available.

Section 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD

Dispose of in an approved hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant Federal, State, or local laws/regulations regarding disposal.

Section 14 - TRANSPORTATION INFORMATION

USA DOT DESCRIPTION:
Proper Shipping Name
Sodium Sulfide, Hydrated
Technical Name
Sodium Sulfide
Hazard Class
8 (Corrosive)
Identification Number
UN 1849
Packing Group
II

Section 15 - REGULATORY INFORMATION

US Federal Regulation

General Product Information

This chemical is listed on the TSCA inventory of existing chemicals.

Sara Title III:

SARA (311, 312) Hazard Class:

Acute Health Hazard. Reactive Hazard.

SARA (313) Chemicals:

Not listed.

SARA Section 302:

Not listed as an Extremely Hazardous Substance.

Hazard Rating System (HMIS/NFPA):

NFPA: Health 3, Flammability 1, Reactivity 1

Section 16 - OTHER INFORMATION

Other Information

Reasonable care has been taken in preparation of this information, but Solvay Quimica y Minera makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Solvay Quimica y Minera makes no representations and assumes no liability for any direct, incidental, or consequential damages resulting from its use.

Key / Legend

EPA = Environmental Protection Agency; TSCA = toxic substance control act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration.

END OF MSDS - SODIUM SULFIDE, FLAKE (HYDRATED)

9-19-03 17-120113

CHEMICAL PRODUCTS CORPORATION

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

NAME: **Sodium Sulfide, Hydrated**

SYNONYMS: Sodium Sulfide Flake; Sodium Sulfide.

MANUFACTURER: Chemical Products Corporation (CPC)
P.O. Box 2470
102 Old Mill Road, S.E.
Cartersville, Georgia 30120-1692
Telephone: Day, 770-382-2144; Night, 770-382-2212

24-hour Emergency Phone Number: CHEMTREC 800-424-9300

2. INFORMATION ON INGREDIENTS

COMPONENT	CAS #	EXPOSURE LIMITS	% BY WT
Sodium Sulfide	1313-82-2	No ACGIH TLV or OSHA PEL established for Sodium Sulfide For Hydrogen Sulfide gas: OSHA PEL - 20 ppm. ACGIH TLV-TWA - 10 ppm	60 - 63%
Water	7732-18-5		37 - 40%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING! Corrosive. May cause permanent eye damage. Product is highly alkaline and is corrosive to eyes, skin, and mucous membranes..

POTENTIAL HEALTH EFFECTS: Dust from this product is a powerful systemic poison, causing headache, dizziness, and unconsciousness. It is highly corrosive to eyes and skin.

Routes of Entry: Skin contact with possible absorption through skin, inhalation of dust, and possible ingestion.

Human Effects: High alkalinity makes this product corrosive to mucous membranes - chemical burns result from contact. Dust causes irritation to the conjunctiva and cornea of the eye and to respiratory passages. In acute over-exposure, victim experiences headache, nausea, dizziness, confusion, and weakness of the extremities, followed by a precipitous lapse into unconsciousness.
Acute Inhalation: Severe respiratory distress, confusion, weakness of the extremities, unconsciousness, pulmonary edema, asphyxiation and possible central respiratory paralysis leading to death.

Chronic Inhalation: Extreme irritation to respiratory passages.

Acute Skin Contact: Painful chemical burns. Systemic posioning by sulfide causes headache, nausea, dizziness, confusion, weakness of the extremities, and possible unconsciousness.

Chronic Skin Contact: Extreme irritation to skin.

Acute Eye Contact: Alkali burns to conjunctiva and cornea with possible irreversible destruction of tissue.

Chronic Eye Contact: Extreme irritation to the eyes caused by dusts; corneal opacity.

Acute Ingestion: Destruction of the lining of the esophagus and stomach. Rapid breathing, confusion, unconsciousness, paralysis of respiratory muscles leading to death.

Chronic Ingestion: Headache, nausea, dizziness, confusion, and painful alkali burns to the esophagus.

Carcinogenicity: NTP..... Not listed.
IARC..... Not listed.
OSHA... Not regulated.

Medical Conditions Aggravated by Exposure: None are known.

4. FIRST AID MEASURES

Ingestion: Have victim drink as much milk or water as possible. Do not induce vomiting. If vomiting occurs, give more liquids. Never give anything by mouth to an unconscious person. Get immediate medical assistance.

Inhalation: Remove from contaminated atmosphere. Begin artificial respiration immediately if necessary. Begin CPR immediately if necessary. Administer oxygen if it is available.

Eye Contact: Flush with large quantities of water for at least 15 minutes. Always seek medical attention.

Skin Contact: Flush with large quantities of water. Wash with soap and water if available.

5. FIRE FIGHTING MEASURES

Flashpoint: Non-flammable; dust can be flammable if heated.

Flammability: Finely divided dust forms combustible mixtures with air. Dry grinding of these flakes can result in fires in the grinding equipment.

Autoignition: Not applicable.

General Hazard: Poison, flammable hydrogen sulfide gas will be evolved from this product on exposure to acid or excessive heat. If this product burns, toxic sulfur oxide gases are produced.

Fire Fighting Instructions: Firefighters should wear self-contained breathing apparatus. Do not use carbon dioxide fire extinguishers because toxic hydrogen sulfide gas may be liberated from this product.

Fire Fighting Equipment: Use water in flooding quantities. A heavy fog of water may be effective in knocking down vapors.

Hazardous Combustion Products: Poisonous sulfur dioxide gas will be generated if dust from this product burns.

6. ACCIDENTAL RELEASE MEASURES

Small Spill: Keep dry and away from acid. Scoop up and store in sealed containers. Dispose of in accordance with local, state, or federal regulations.

Large Spill: Keep dry and away from acid. Recover as much of the solid as possible. If the material is dissolved in water, mix the solution with excess oxidizing agent such as hydrogen peroxide or sodium hypochlorite to oxidize the sulfide and eliminate the danger of hydrogen sulfide evolution.

7. HANDLING AND STORAGE

Storage Temperature: As cool as practical, never above 80 Deg. C. (176 Deg. F.

Storage Pressure: Atmospheric.

General: Poison hydrogen sulfide gas will be present if this product contacts acid. KEEP AWAY FROM ACID.
–Do not store in contact with copper, zinc, or aluminum.
–Keep containers closed to avoid slow reaction with air (oxygen and carbon dioxide).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Adequate ventilation is required to remove the toxic and corrosive dust which may be present. Safety shower and eyewash fountain should always be available in the work area.

Respiratory Protection: Use self-contained breathing apparatus or supplied-air respirator if the PEL for hydrogen sulfide might be exceeded.

Skin Protection: Cover all exposed skin to protect it from dust and small particles.

Eye Protection: Chemical safety goggles and safety shield for protection from dust and small particles.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid.

Vapor Pressure: Not applicable.

Specific Gravity: About 1.69

Solubility in Water: 25 grams per 100 ml of water at 10 Deg. C. (50 Deg. F.)

pH: Highly alkaline.

Boiling Point: About 145 Deg. C. (293 Deg. F.

Melting Point: About 91 Deg. C. (195 Deg. F.)

Vapor Density: Not applicable.

Evaporation Rate: Not applicable.

Odor: "Rotten egg" odor.

Appearance: Yellow to orange waxy-looking solid.

10. STABILITY AND REACTIVITY

Chemical Stability: Contact with acids liberates poisonous, flammable hydrogen sulfide. Mixing with strong oxidizers causes a violent reaction.

Incompatibility: Acids and strong oxidizers.

Hazardous Decomposition Products: Very high temperatures will decompose this product to form poisonous hydrogen sulfide gas.

Hazardous Polymerization: Does not occur.

11. TOXICOLOGICAL INFORMATION

Eye: Corrosive due to product's alkalinity.

Skin: Corrosive to skin due to product's alkalinity. May be toxic when absorbed through intact skin; no data available.

Ingestion: TOXIC - Human Oral LD_{LO} reported to be 50 mg/kg for anhydrous sodium sulfide. Equivalent to 80 mg/kg for this product.

Inhalation: TOXIC - Hydrogen sulfide inhalation is assumed. Human LC_{LO} is 600 ppm for 30 minutes for hydrogen sulfide; equivalent to 2200 ppm respirable dust from this product.

Sub-chronic: Irritation to the conjunctiva and cornea of the eye from vapors.

Chronic/Carcinogenic: Not a known carcinogen. Chronic acute exposures to dust may cause neurologic deficits like those in survivors of other severe asphixiant poisonings.

Teratogenic: Not known.

Reproductive: Not known.

Mutagenic: Not known.

12. ECOLOGICAL INFORMATION

TOXICITY: Only the strength of this product contributes to its environmental toxicity. Dilution yields only naturally-occurring chemical species. In water containing 3.2 mg/l of sodium sulfide, trout overturned in 2 hours at pH 9.0 and in 10 minutes at pH 7.8.

DISTRIBUTION: All components of this product are found naturally in all ecosystems.

CHEMICAL FATE: With dilution, the sulfide will be readily incorporated into the preexisting natural sulfur cycle.

13. WASTE MANAGEMENT INFORMATION

Waste containing sulfide may be hazardous and may require disposal in an approved hazardous waste landfill. Sulfide can be oxidized with dilute hydrogen peroxide or any other oxidizing agent to non-hazardous sulfate; care should be taken as the reaction may be violent. Waste with a pH of 12.5 or above is hazardous because of its corrosivity.

14. TRANSPORT INFORMATION

D.O.T. Shipping Name..... : Sodium sulfide, hydrated.

Technical Shipping Name..... : Sodium sulfide, flake.

D.O.T. Hazard Class..... : 8 - Corrosive. Packing Group II.

U.N./N.A. Number..... : UN 1849.

Product R.Q. (lbs)..... : None

D.O.T. Label..... : CORROSIVE.

D.O.T. Placard..... : CORROSIVE.

Freight Class Bulk..... : Inorganic chemical.

Freight Class Package..... : Inorganic chemical.

Product Label..... : Sodium Sulfide, Hydrated.

15. REGULATORY INFORMATION

OSHA Status..... : This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. It is classified as toxic based on ingestion information and corrosive based on its alkalinity.

TSCA Status.. : Listed on TSCA Inventory.

CERCLA Reportable Quantity.. : None.

SARA Title III:

Section 302, Extremely Hazardous Substances.... : None.
Section 311/312, Hazard Categories..... : Category 1 (Acute Hazard).
Section 313, Toxics Release Inventory..... : None.

RCRA Status.....: If discarded in its purchased form, this product would be a hazardous waste because of its sulfide content and alkalinity. Under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing or derived from this product should be classified as a hazardous waste under 40 CFR 261.20-24.

16. OTHER INFORMATION

NFPA Rating (National Fire Protection Association):

Health -3 (Materials which on short exposure could cause serious temporary or residual injury).

Fire -1 (Materials which will burn in air when exposed to a temperature of 1500 Deg. F.

Reactivity -1 (Materials which are normally stable but which can become unstable at elevated temperature and pressure).

Special - NA

Reason for Issue.....: Revision of hazard information to conform to ANSI Z129.1 - 2000.

Prepared by..... : Jerry A. Cook.

Title..... : Technical Director.

Approval Date..... : August, 2001

Supercedes Date..... : October, 1995.

MSDS Number..... : 49

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Mallinckrodt
Material Safety Data

Emergency Phone Number: 314-982-5000

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Mallinckrodt, Inc., Science Products Division, P.O. Box M, Paris, KY 43061.

SODIUM SULFIDE

PRODUCT IDENTIFICATION:

Synonyms: Sodium sulfide nonhydrate; Sodium monosulfide

Formula CAS No.: 1313-84-4 (Hydrated)

TSCA CAS No.: 1313-82-2 (Anhydrous)

Molecular Weight: 240.18

Chemical Formula: $Na_2S.9H_2O$

Hazardous Ingredients: None.

PRECAUTIONARY MEASURES

DANGER! MAY BE FATAL IF SWALLOWED OR INHALED.
CORROSIVE. CAUSES BURNS.

Do not get in eyes.
Avoid breathing gas.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use only with adequate ventilation.

EMERGENCY/FIRST AID

If swallowed, give several glasses of water or milk to drink. Vomiting may occur spontaneously, but DO NOT INDUCE! Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

DOT Hazard Class: Corrosive Material

SECTION 1 Physical Data

Appearance: White crystals.

Odor: Sulfide odor.

Solubility: 200 g in 100 g of water.

Boiling Point: Not applicable.

Melting Point: ca. 50°C(ca. 122°F)

Density: 1.43

Vapor Density (Air=1): No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Darkens on exposure to air or light. Sodium hydroxide forms in aqueous solutions.

Hazardous Decomposition Products:
Hydrogen sulfide at room temperature, oxides of sulfur and sodium under fire conditions.

Hazardous Polymerization:
This substance does not polymerize.

Incompatibilities:
Acids, oxidants.

SECTION 4 Leak/Spill Disposal Information

Ventilate area of leak or spill. Clean-up personnel require protective clothing and respiratory protection from dust.

Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust.

Disposal: Whatever cannot be saved for reclamation may be disposed in a RCRA approved hazardous waste facility. Do not contact with acids. Do not handle with bare hands.

Ensure compliance with local, state and federal regulations.

NFPA Ratings: Health: 2 Flammability: 1 Reactivity: 0

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Hazard is highly toxic (50-100 ppm in air) hydrogen sulfide which may accumulate in confined spaces due to the decomposition of sodium sulfide or from its reaction with acids. Symptoms include painful conjunctivitis, headache, nausea, dizziness, coughing and, in extreme cases, pulmonary edema and possible death.

Ingestion:
Corrosive, toxic. Sodium sulfide is a strong base and can cause severe burns on the mucous membrane. Hydrolysis by gastric fluids releases toxic hydrogen sulfide. The symptoms and effects are similar to those under inhalation, above.

Skin Contact:
Irritant. Contact with skin can produce serious caustic burns with painful inflamation and possible destruction of tissue.

Eye Contact:
Irritant. Inflamation, tearing and pain may be expected. Severe contact can cause destruction of tissue.

Chronic Exposure:
No information found.

Aggrevation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
Give several glasses of water or milk, if available, to drink. Vomiting may occur spontaneously, but DO NOT INDUCE! Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1982)

No LD50/LC50 information found relating to normal routes of occupational exposure.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
None established.

Ventilation System:
A local exhaust system which captures the contaminant at its source is recommended to prevent dispersion of the contaminant into the workroom air.

Personal Respirators: (NIOSH Approved)
For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Keep in a tightly closed container. Protect container from physical damage. Store in an explosion-proof refrigerator. Isolate from acids and alkalies.

WWW_104(e)_018482

Sodium Sulfite

Sodium Sulfite

Material Safety Data Sheet

Chemical: Sodium Sulfite

NFPA: H=2 F=0 I= 1 S=None
HMIS: H=2 F=0 R=1 PPE= Supplied by user; dependent on conditions

MSDS Number: sodsulf-1003
Effective Date: 6 October 2003
Issued by: Solvay Chemicals, Inc. Regulatory Affairs Department

Not valid three years after effective date or after issuance of superseding MSDS, whichever is earlier. French or Spanish translations of this MSDS may be available. Check www.solvaychemicals.us or call Solvay Chemicals, Inc. to verify the latest version or translation availability.

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1. Company and Product Identification

1.1 Product Name: Sodium Sulfite, Anhydrous
Chemical Name: Inorganic sodium compounds
Synonyms: Anhydrous sodium sulfite
Chemical Formula: Na_2SO_3
Molecular Weight: 126.04
CAS Number: 7757-83-7
EINECS Number: 231-821-4
Grade/Trade Names: industrial grade, technical grade, food grade, photographic grade

1.2 Recommended Uses: Pulp and paper, photography, food preservatives, boiler water treatment, dechlorination, reducing agent, dyes, bleaching.

1.3 Supplier: Solvay Chemicals, Inc.
PO BOX 27328 Houston, TX 77227-7328
3333 Richmond Ave. Houston, Texas 77098

1.4 Emergency Telephone Numbers
Emergencies (USA): 1-800-424-9300 (CHEMTREC®)
Transportation Emergencies (INTERNATIONAL/MARITIME): 1-703-527-3887 (CHEMTREC®)
Transportation Emergencies (CANADA): 1-613-996-6666 (CANUTEC)
Transportation Emergencies (MEXICO-SETIQ): 01-800-00-214-00 (MEX. REPUBLIC)
525-559-1588 (Mexico City and metro area)

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Solvay Chemicals
Interox, Fluorides & Minerals

SOLVAY

Sodium Sulfite

Material Safety Data Sheet

2. Composition/Information on Ingredients

INGREDIENTS	FORMULA	WT. PERCENT	CAS #
Sodium Sulfite	Na_2SO_3	99	7757-83-7
Sodium Sulfate	Na_2SO_4	1	7757-82-6

3. Hazards Identification

Emergency Overview: Sulfite-sensitive individuals may experience a severe allergic reaction.

3.1 Route of Entry: Inhalation: Yes Skin: Yes Ingestion: Yes

3.2 Potential Effects of exposure: May cause irritation.

Inhalation (dust): May cause mild irritation.

Eyes (dust): May cause mild irritation.

Skin contact: May cause mild irritation with prolonged exposure.

Ingestion: Oral exposure or swallowing may produce gastrointestinal upset, nausea or vomiting. Ingestion may be fatal. Sulfite sensitive individuals may experience a severe allergic reaction.

Carcinogenicity: See section 11.3

4. First Aid Measures

4.1 Inhalation:

- Remove the patient to fresh air.
- If breathing has stopped or patient experiences difficulty in breathing, administer artificial respiration.

Eyes:

- Remove contact lenses. Gently flush the eyes and surrounding areas with lukewarm water for 15 minutes.
- If irritation persists, seek medical attention.

Skin:

- Remove contaminated clothing.
- Wipe material from the skin. Rinse the affected area with large amounts of water for 15 minutes.
- If irritation persists, seek medical attention.

Ingestion:

If the subject is completely conscious: Give 8-12 ounces of water and seek medical attention.

If the subject is unconscious: Remove any evidence of the substance from the patient's mouth. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

4.2 Medical Treatment/Notes to Physician: Breathing of dust may aggravate asthma or other pulmonary diseases.

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Sodium Sulfite

Material Safety Data Sheet

5. Fire-Fighting Measures

5.1 **Flash point:** Non-combustible

5.2 **Auto-ignition Temperature:** Not applicable.

5.3 **Flammability Limits:** Not applicable.

5.4 **Unusual Fire and Explosion Hazards:** Non-combustible. Generates hazardous SO_2 during decomposition.

5.5 **Common Extinguishing Methods:** In case of fire in close proximity, all means of extinguishing are acceptable.

5.6 **Fire Fighting Procedures:** Wear NIOSH-approved self-contained breathing apparatus. Use water spray to keep containers cool and to knock down fumes.

6. Accidental Release Measures

6.1 **Precautions:** Avoid excessive dust.

6.2 **Cleanup methods:**
- Clean up uncontaminated material and recycle into process.
- Place unusable material into a closed, labeled container compatible with the product.

6.3 **Precautions for protection of the environment:**
- Sweep up residual material.
- Do not flush to drain.
- Prevent material from entering public sewer systems or any waterways.
- Dispose of waste in accordance with applicable federal, state, and local environmental laws and regulations.

7. Handling and Storage

7.1 **Handling:**
- Avoid prolonged or repeated contact with the skin or eyes.
- Do not wear contact lenses without proper eye protection when using this product.
- Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or using the rest room.
- Avoid prolonged or repeated breathing of dusts.
- Use vacuum or wet mop to clean up dust.

7.2 **Storage:**
- Keep in a closed, properly labeled container in a dry area away from acids.
- Protect from physical damage.

7.3 **Specific Uses:** See Section 1.2

7.4 **Packaging:**
- Bulk rail car & truck.
- Paper+PE.
- Woven plastic material + PE coating.
- Woven plastic material + PE.

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8. Exposure Controls/Personal Protection

8.1 Exposure Limit Values:

Exposure Limit Values	TLV® ACGIH®-USA (2002)	OSHA PEL
Sodium Sulfite	Not listed	Nuisance Dust-5mg/m³ (Respirable Fraction), 15 mg/m³ (Total Dust).
Sulfur Dioxide Gas	TWA-2 ppm STEL-5 ppm IDLH-100ppm	

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.

8.2 Occupational Exposure Controls:

8.2.1 Ventilation: In places with the possibility for creating dust in excess of exposure limits, ventilation should be provided.

8.2.2 Respiratory protection: In case of significant or accidental dust emissions, a NIOSH/MSHA approved respirator should be worn. If SO_2 is present, (see section 10), use an NIOSH-approved air supplied positive pressure respirator or acid gas canister.

8.2.3 Hand protection: Cotton gloves are adequate for routine handling of dry product. For solutions, wear acid impervious gloves.

8.2.4 Eye protection: Wear chemical safety goggles. Do not wear contact lenses without proper eye protection.

8.2.5 Skin protection: Wear boots, apron, long sleeves and other protective clothing suitable for use to prevent contact with the skin.

8.3 Other precautions: An eyewash and safety shower should be nearby and ready for use. Use good hygiene practices when handling this product including changing work clothes after use. Do not eat, drink or smoke in areas where this material is handled. Persons with allergic symptoms should seek advice from medical personnel as to whether exposure to the substance should be curtailed or eliminated.

9. Physical and Chemical Properties

9.1 Appearance: Granular solid
Color: White
Odor: Odorless

9.2 Important Health, Safety and Environmental information:
pH: 9.6-9.8 (1% solution)

Change of state:
Melting point: Decomposes at approximately 600°C (1112°F)
Boiling point: Not Applicable
Decompositon Temperature: Approximately 600°C (1112°F)

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Flash Point: Not applicable

Flammability (solid, gas): Not applicable

Explosive Properties: Not applicable

Oxidizing Properties: Decomposition releases oxides of sulfur

Vapor Pressure: No data

Relative Density:
Specific gravity: 2.63 @ 20°C (68°F)
(H_2O=1)

Solubility:
Water: 27g Sodium Sulfite in 100g water @ 20°C (68°F)
Fat: Not applicable

Partition coefficient: Not applicable
P (n-octanol/water)

Viscosity: No data

Vapor Density (air=1): Not applicable

Evaporation Rate: No data

Surface Tension: Not applicable

9.3 Other Information: Bulk Density: 95-100 lbs/ft^3 (1522-1602 kg/m^3).

10. Stability and Reactivity

Stability: Stable at ambient temperatures and atmospheric pressure.

10.1 Conditions to avoid:
- High temperatures
- Moisture.

10.2 Materials and substances to avoid:
- Contact with strong oxidizers cause vigorous exothermic reactions.
- Contact with acids will release SO_2.

10.3 Hazardous decomposition products: Oxides of sulfur and sulfur dioxide gas.

10.4 Hazardous Polymerization: Not applicable

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Sodium Sulfite

Material Safety Data Sheet

11. Toxicological Information

11.1 Acute toxicity:

Oral: LD_{50} - 820 mg/kg species: mouse

11.2 Chronic toxicity: Can cause allergic reactions (headaches, difficulty in breathing, rapid heart rate and anaphylaxis) to susceptible individuals.

11.3 Carcinogenic Designation: None

12. Ecological Information

12.1 Acute ecotoxicity:

- 96 hour LC_{50}, Goldfish: 100 mg/l.
- 24, 48, 96 hour TLm Mosquito fish: 2,600 ppm..
- BOD (Biological Oxygen Demand) = 0.12 LB/LB instantaneous.

12.2 Chronic ecotoxicity: No data

12.3 Mobility: No data

12.4 Degradation

Abiotic: No data

Biotic: No data

12.5 Potential for bioaccumulation: Not expected to occur

12.6 Other adverse effects / comments: Sodium sulfite is an oxygen scavenger when introduced to water.

13. Disposal Considerations

13.1 Waste treatment: Sodium sulfite is not a listed hazardous waste under 40 CFR 261. However, state and local regulations for waste disposal may be more restrictive. Spilled product should be disposed of in an EPA approved disposal facility in accordance with applicable national, state and local environmental laws and regulations.

13.2 Packaging treatment: To avoid treatments, use dedicated containers where possible. Rinse the empty containers and treat the effluent in the same way as waste. Consult current federal, state and local regulations regarding the proper disposal of emptied containers.

13.3 RCRA Hazardous Waste: Not Listed

14. Transport Information

Mode	DOT	IMDG	IATA
Proper Shipping Name	Not a regulated hazardous material	Not a regulated hazardous material	Not a regulated hazardous material
Emergency Info	It is recommended that ERG guide # 111 be used for all non DOT regulated material.		
STCC #	28-123-80		

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15. Regulatory Information

National Regulations (US)

TSCA Inventory 8(b): Yes

SARA Title III Sec. 302/303 Extremely Hazardous Substances (40 CFR355): No

SARA Title III Sec. 311/312 (40 CFR 370:
Hazard: Category Acute & chronic health hazard
Threshold planning quantity: 10,000 lbs

SARA Title III Sec. 313 Toxic Chemical Emissions Reporting (40 CFR 372): No

CERCLA Hazardous Substance (40CFR Part 302): No

State Component Listing: None identified

National Regulations (Canada)

Canadian NDSL/DSL Registration: DSL

WHMIS Classification: D2B - Material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the ***Controlled Products Regulations*** and the MSDS contains all the information required by the ***Controlled Products Regulations.***

Labeling according to Directive 1999/45/EC.

Symbols	None	
Phrases R	22	Harmful if swallowed.
	36/38	Irritating to eyes and skin.
	40	Possibility of irreversible effects.
Phrases S	22	Do not breathe dust.
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.
	36	Wear suitable protective clothing.

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16. Other Information

The NSF International recommends that the maximum usage level is 22 mg/l for potable water treatment, unless usage is ozone reduction. To reduce ozone, this product may be used at a stoichiometric ratio of 1 to 1, or a ratio of 215 mg/l of sodium sulfite to 100 mg/l of ozone. Residual sodium sulfite levels shall not exceed 100 ppb in the finished water.

This product is not for food or drug use unless material is labeled "food grade". For food grade product, the following applies:

1. Effective August 8, 1987, the FDA has banned the use of "Sulfiting Agents" or "Sulfites" on fruits and vegetables intended to be served raw or sold raw to consumers.
2. Effective January 9, 1987, the FDA is requiring when a sulfite is present in a dedtectable amount in a finished food, regardless of whether it has been directly or indirectly added via one or more of the food ingredients, it must be declared on the label. The regulation defines a "detectable amount" of sulfite to be 10 ppm.
3. Sulfiting agents or sulfites are not to be used on foods or meats recognized as a source of Vitamin B1.

16.1 Ratings:

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
Health = 2 Flammability = 0 Instability = 1 Special = None

HMIS (HAZARDOUS MATERIAL INFORMATION SYSTEM)
Health = 2 Fire = 0 Reactivity = 1 PPE = Supplied by User; dependent on local conditions

16.2 Other Information:

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product).

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16.3 Reason for revision:

Supersedes edition: Solvay Minerals MSDS #003 dated 06/26/03
Purpose of revision: Change Company name and MSDS format

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MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name : Sodium Tetrasulfide
Chemical Formula : Na2S4
Internal Part No. : NA

Manufacturer Information
Solvay & CPC Barium Strontium Monterrey
Carr. a Garcia km.8.5
Garcia, N.L.
México
Phone #: (52-81) 81-20-29-29
Emergency #: (52-81) 81-50-29-00

Supplier Information
Solvay & CPC Barium Strontium Monterrey
Carr. a García km.8.5
García, N.L.
México
Phone #: (52-81) 81-50-29-29
Emergency #: (52-81) 81-50-29-00

Synonyms : Sodium Tetrasulfide, Sulfur Compounds

Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Components	% Wt.
12034-39-8	Sodium Tetrasulfide	34
7732-18-5	Water	66

Component Information / Information on Non-Hazardous Components
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Section 3 - HAZARDOUS IDENTIFICATION

Emergency Overview

DANGER Contact with acid and excessive heat liberates poisonous hydrogen sulfide gas. It causes severe burns to eyes and skin. Corrosive

Label Information

Avoid contact with any acids. Forms a poisonous gas, hydrogen sulfide (rotten egg odor), which also can cause fires and explosions. Breathing this gas can cause immediate death. Do not get in eyes, on skin, or on clothing. May cause severe burns and permanent damage. Do not breathe vapors or mists from solutions. Use only with adequate ventilation. Ventilation must be sufficient to minimize employee exposure to this product. Do not swallow. Wash thoroughly after handling. Do not eat, drink or smoke in work area.

Potential Health Effects

Eyes

Corrosive. Product can cause severe eye damage. Symptoms may include tearing, burning, redness, pain and blurred vision. Prolonged exposure may cause permanent damage or blindness.

Skin

Product is a severe skin irritant. Corrosive to skin. Prolonged contact may cause hives.

Ingestion

Corrosive. May be fatal if swallowed. May cause burns to the mouth and throat. Symptoms may include vomiting, nausea, diarrhea, and abdominal pain.

Inhalation

This product is irritating to the respiratory system. Symptoms may include coughing, sore throat, and shortness of breath. Prolonged exposure could lead to a build-up of fluid in the lungs, headaches, and dizziness.

Section 4 - FIRST AID MEASURES

Eyes

Immediately flush the contaminated eye with plenty of water for 15 minutes, keeping the eyelids wide open. If irritation persists, seek medical attention immediately.

Skin

If irritation occurs, wash gently and thoroughly with water and non-abrasive soap. Completely decontaminate clothing, shoes, and leather goods before reuse. If irritation persists, seek medical advice.

Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Immediately give large amounts of water. If vomiting occurs naturally, rinse mouth and repeat administration of water. Obtain medical advice immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If victim does not breath, give artificial respiration, preferentially mouth to mouth. If breathing is difficult, give oxygen If symptoms persist, obtain medical advice immediately.

Notes to Physician

Provide general supportive measures. Consult nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact. Amyl nitrite, although controversial, has been recommended as an antidote for hydrogen sulfide exposure.

Section 5 - FIRE FIGHTING MEASURES

Flash Point	Method Used
Not applicable (non-flammable in solution)	Not applicable

UFL	LFL	Auto Ignition
Not available	Not available	Not available

Flammability Classification	Rate of Burning
Not available	Not available

Specific Fire Hazards

Contact with acid and excessive heat liberates poisonous hydrogen sulfide gas. It may react with amphoteric metals such as aluminum, zinc and tin generating hydrogen gas which is flammable or explosive, if burns.

Extinguishing media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel.

Fire Fighting Equipment / Instructions

Firefighters must wear NIOSH approved, pressure demand, self-contained breathing apparatus with full face piece for possible exposure to hazardous gases. Move container from fire area, if this is without risk. Fight fire from safe distance.

NFPA Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	
HMIS Ratings:	**Fire:** 1	**Health:** 3	**Reactivity:** 1	**Personal Protection:** J

Section 6 - ACCIDENTAL RELEASE MEASUREMENTS

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Immediately evacuate the area. Remove sources of ignition. Provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area. Dike area to contain spill. Recover spilled material on adsorbents, such as sand or vermiculite, and place in covered containers for reclamation or disposal. Spilled material should be reclaimed if possible. Product must not come in contact with acids. After all visible traces have been removed, thoroughly wet vacuum the area. Do not flush to sewer.

Section 7 - HANDLING AND STORAGE

Precautions to be taken during handling and storage:

Store away from strong oxidizing agents. Do not allow contact with acids and excessive heat. Will liberate poisonous, flammable hydrogen sulfide gas. Do not store in zinc, aluminum or copper containers. Wear respiratory protection whenever exposure to vapor is likely. Wear appropriate personal protective equipment. Store in a cool, dry, well-ventilated place. Store only in closed, properly labeled containers. Keep container closed when not in use.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

OSHA: No occupational exposure limits have been established by OSHA for this product. The OSHA exposure limit for hydrogen sulfide is 10 ppm TWA, 15 ppm STEL, 29 CFR 1910.1000, Rev.3/1/89; the currently enforceable 1971 limit is 20 ppm ceiling.

Respiratory Protection

If exposure of hydrogen sulfide gas could exceed the exposure limits, use NIOSH approved full face airline and/or self-contained breathing apparatus operated in a positive pressure demand mode. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

Ventilation

Use local exhaust or general room/dilution ventilation as appropriate to control employee exposures in the work place.

Eye and Face Protection

Close fitting chemical safety goggles with faceshield

Protective gloves

Impervious or rubber gloves.

Other protective equipment

Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132 (general requirements), .133 (eye and face protection), and .138(hand protection).

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Color:	Dark Red	**Odor :**	Rotten egg, Sulfur
Physical State :	Slightly Viscous Liquid	**pH :**	Strongly alkaline
Vapor pressure :	Unknown	**Vapor density :**	Not applicable
Boiling Point :	235.4 °F 34% solution	**Freezing point :**	-29.74° F (Eutectic 34.3%)
Melting Point :	-29.74° F (Eutectic 34.3%)	**Solubility (H2O) :**	Infinite
Specific Gravity:	1.268 at 59° F (water = 1)	**Particle size :**	Not applicable
Softening Point :	Not applicable	**Evaporation rate:**	Approx. 1 (water=1)
Viscosity :	Slight	**Bulk density :**	10.56 lbs/gal @ 77°F
Molecular weight:	174.23		

Additional properties

The data provided in this section is to be used for safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Section 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical stability

Stable

Incompatibility

Avoid contact with strong oxidizing agents and acids. Solutions attack zinc, copper, aluminum and alloys of these metals. Avoid heat, flames, sparks and other sources of ignition.

Hazardous decomposition products

Oxides of sulfur. Oxides of sodium. Hydrogen sulfide

Hazardous Polymerization

Will not occur

Section 11 - TOXICOLOGICAL INFORMATION

Acute Inhalation LC50

Unknown

Acute dermal LD50

>900 mg/kg and <1350 mg/kg. (rabbit) Moderate toxicity.

Skin irritation

Corrosive.

Eye Irritation

Corrosive.

Acute Oral LD50

350 mg/kg. (rat) High toxicity.

Chronic effects/Carcinogenicity:

This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

Medical conditions aggravated

None known.

Effects of overexposure

Inhalation: Irritation of mucous membranes, eyes, and respiratory tract is possible following exposure to the decomposition product, hydrogen sulfide gas, which is potentially lethal.

Ingestion: Gastric acidity would convert material to hydrogen sulfide gas which is potentially lethal. Material is quite corrosive and would produce burns of the stomach lining capable of causing severe injury and death.

Eye/Skin: May cause irritating and severe burns to the skin. Material is considered corrosive and has the capability of being absorbed through the skin producing the toxicity

typical of hydrogen sulfide poisoning. This product has similar effects as alkalis following direct exposure to the eye and can cause irreversible damage, including blindness.
Chronic: The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures.

Section 12 - Ecological Information

Ecotoxicity
No information available.
Environmental Fate
No information available.

Section 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD
Dispose of in an approved hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant Federal, State, or local laws/regulations regarding disposal.

Section 14 - TRANSPORTATION INFORMATION

USA DOT DESCRIPTION:
Proper Shipping Name
Corrosive Liquid, Basic, Inorganic, NOS
Technical Name
Sodium Tetrasulfide
Hazard Class
8 (Corrosive)
Identification Number
UN3266
Packing Group
II

Section 15 - REGULATORY INFORMATION

US Federal Regulation

General Product Information
This chemical is listed on the TSCA inventory of existing chemicals.

Sara Title III:
SARA (311, 312) Hazard Class:
Acute Health Hazard. Reactive Hazard.
SARA (313) Chemicals:
Not listed.

SARA Section 302:
Not listed as an Extremely Hazardous Substance.
Hazard Rating System (HMIS/NFPA):
NFPA: Health 3, Flammability 1, Reactivity 1 (based on sodium sulfide)

Section 16 - OTHER INFORMATION

Other Information
Reasonable care has been taken in preparation of this information, but Solvay & CPC Barium Strontium Monterrey makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Solvay & CPC Barium Strontium Monterrey makes no representations and assumes no liability for any direct, incidental, or consequential damages resulting from its use.
Key / Legend
EPA = Environmental Protection Agency; TSCA = toxic substance control act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration.

END OF MSDS - SODIUM TETRASULFIDE SOLUTION

Sodium Tetrasulfide Solution

Material Safety Data Sheet

Chemical: Sodium Tetrasulfide

NFPA: H=3 F=1 I= 1 S=None
HMIS: H=3 F=1 R=1 PPE= Supplied by user; dependent on conditions

MSDS Number: Sodtetrasulfide-1103
Effective Date: 3 November 2003
Issued by: Solvay Chemicals, Inc. Regulatory Affairs Department

Not valid three years after effective date or after issuance of superseding MSDS, whichever is earlier. French or Spanish translations of this MSDS may be available. Check www.solvaychemicals.us or call Solvay Chemicals, Inc. to verify the latest version or translation availability.

Material Safety Data Sheets contain country specific regulatory information. Therefore, the MSDS's provided are for use only by customers of Solvay Chemicals, Inc. in North America. If you are located in a country other than Canada, Mexico or the United States, please contact the Solvay Group company in your country for MSDS information applicable to your location.

1. Company and Product Identification

1.1 Product Name: Sodium Tetrasulfide Solution
Chemical Name: Sodium tetrasulfide
Synonyms: Sodium tetrasulfide
Chemical Formula: Na_2S_4
Molecular Weight: 174.2
CAS Number: 12034-39-8
EINECS Number: 234-805-5
Grade/Trade Names: None

1.2 Recommended Uses: Leather treatment, dye and lubricant manufacture, flotation agents, dyes, wastewater treatment, metals finishing, ore beneficiation.

1.3 Supplier: Solvay Chemicals, Inc.
PO BOX 27328 Houston, TX 77227-7328
3333 Richmond Ave. Houston, Texas 77098

1.4 Emergency Telephone Numbers
Emergencies (USA): 1-800-424-9300 (CHEMTREC®)
Transportation Emergencies (INTERNATIONAL/MARITIME): 1-703-527-3887 (CHEMTREC®)
Transportation Emergencies (CANADA): 1-613-996-6666 (CANUTEC)
Transportation Emergencies (MEXICO-SETIQ): 01-800-00-214-00 (MEX. REPUBLIC)
525-559-1588 (Mexico City and metro area)

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

2. Composition/Information on Ingredients

INGREDIENTS	FORMULA	WT. PERCENT	CAS #
Sodium Tetrasulfide	Na_2S_4	34	12034-39-8
Water	H_2O	64	7732-18-5
Impurities	Not listed	2	Not listed

3. Hazards Identification

Emergency Overview:

- Corrosive product.
- Hazardous to human health and the aquatic environment.
- Contact causes burns to skin and eyes.
- If inhaled, may be harmful.
- Fire may produce irritating or poisonous gases.
- Dust may form explosive mixture with air. Keep away from heat, sparks and flame.

3.1 Route of Entry: Inhalation: Yes Skin: Yes Ingestion: Yes

3.2 Potential Effects of exposure:

- May be fatal if inhaled or swallowed.
- In humid or damp conditions, product will react with moisture in air to produce toxic hydrogen sulfide gas.
- Overexposure to hydrogen sulfide gas may cause memory loss, paralysis, nerve damage or death.

Inhalation:

- Causes respiratory tract irritation.
- Sodium Sulfide and hydrogen sulfide paralyzes the sense of smell.

Eyes:

- Product can cause severe eye damage-CORROSIVE.
- Prolonged contact may cause permanent damage or blindness.

Skin contact: Product can cause severe skin damage-CORROSIVE.

Ingestion:

- May be fatal if swallowed-CORROSIVE.
- May cause burns to the mouth and throat.
- Symptoms may include vomiting, nausea, diarrhea, and abdominal pain.

Carcinogenicity: See section 11.3.

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

4. First-Aid Measures

General Recommendations:

4.1 Inhalation:
- Remove the patient to fresh air.
- If breathing has stopped or patient experiences difficulty in breathing, administer artificial respiration and seek immediate medical attention.

Eyes:
- Immediately flush the contaminated eye with plenty of water for at least 15 minutes.
- Consult an ophthalmologist in all cases.

Skin:
- Remove contaminated clothing.
- Wipe material from the skin.
- Rinse the affected area with large amounts of water for at least 15 minutes.
- If irritation persists, seek medical attention.

Ingestion: DO NOT INDUCE VOMITING. Obtain medical advice immediately.

If the subject is completely conscious: Rinse mouth with fresh water.

If the subject is unconscious:
- NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
- Remove any residue of the substance from the patient's mouth.

4.2 Medical Treatment/Notes to Physician:
- In case of intense pain, inject an I.M. morphominetic analgesic drug before taking patient to hospital.
- See medical references for applicable antidotes.

5. Fire-Fighting Measures

5.1 Flash point: Not applicable.

5.2 Auto-ignition Temperature: Non-flammable in solution (see section 9.2).

5.3 Flammability Limits: Not applicable.

5.4 Unusual Fire and Explosion Hazards:
- CAUTION-Sodium Tetrasulfide Solution in contact with acids or excessive heat gives off flammable, poisonous hydrogen sulfide gas that may form an explosive mixture with air.
- Fire may produce toxic hydrogen sulfide gas.
- Keep product away from heat, sparks and flame.

5.5 Common Extinguishing Methods:
- Powder or Foam.
- Do not use carbon dioxide or water because it may promote generation of flammable, toxic hydrogen sulfide gas.

5.6 Fire Fighting Procedures:
- Wear full protective clothing including NIOSH/MSHA-approved self-contained breathing apparatus and chemically-resistant suits.
- Water sprayed on fire may be highly corrosive and toxic.

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

6. Accidental Release Measures

6.1 Precautions:

- Evacuate all non-essential personnel.
- Eliminate all sources of ignition and do not generate flames or sparks.
- Wear suitable protective clothing including a self-contained breathing apparatus or a supplied-air respirator.

6.2 Cleanup methods:

- Collect the product with suitable means avoiding dust formation.
- Contain the spill and deposit in a closed, labeled DOT-approved waste container.

6.3 Precautions for protection of the environment:

- Dispose of spilled material in an EPA-approved waste facility.
- Empty containers can have residues, gases and mists that are hazardous.

7. Handling and Storage

7.1 Handling: Carry out all operations in closed piping circuits and equipment.

7.2 Storage:

- Store in a cool, dry, well-ventilated area.
- Store away from other chemicals including acids, oxidizers, zinc, aluminum or copper.
- Product will corrode containers not made of iron or steel.
- Store away from all ignition sources and out of direct sunlight.
- Keep product in closed, dust-tight containers.

7.3 Specific Uses: See Section 1.2.

7.4 Packaging:

- Iron or steel drums.

8. Exposure Controls/Personal Protection

8.1 Exposure Limit Values:

Exposure Limit Values	TLV® ACGIH®-USA (2002)
Hydrogen sulfide	TLV-10 ppm, STEL-15 ppm, and IDLH-100 ppm
Sulfur dioxide	TLV-2 ppm, STEL-5 ppm and IDLH-100 ppm

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

8.2 Occupational Exposure Controls:

8.2.1 Ventilation: Material must be handled or transferred with adequate ventilation.

8.2.2 Respiratory protection:

- Use a NIOSH-approved mist or positive-pressure respirator, depending on mist concentration and presence of hydrogen sulfide gas.
- An air-supplied respirator is recommended for unknown concentrations of hydrogen sulfide gas.

8.2.3 Hand protection: Impervious protective chemical gloves (PVC, neoprene or rubber).

8.2.4 Eye protection:

- Chemical goggles unless a full face-piece respirator is also worn.
- Contact lenses are not recommended when handling this product.

8.2.5 Skin protection: Wear boots, apron, long sleeves and other protective clothing suitable for use conditions to prevent contact with the skin.

8.3 Other precautions:

- Chemical protective clothing in misty areas.
- An eyewash and safety shower should be nearby and ready for use.
- Use good hygiene practices when handling this product including changing work clothes after use.
- Do not eat, drink or smoke in areas where this material is handled.

9. Physical and Chemical Properties

9.1 Appearance: Slightly viscous liquid.
Color: Dark red.
Odor: Sulfurous (pungent "rotten egg" odor).

9.2 Important Health, Safety and Environmental information:
pH: 12.9 @ 10 g/l @ 20°C (68°F).

Change of state:
Melting point: -34°C (-29.74°F).
Boiling point: 113°C (235°F).
Decomposition Temperature: No data.

Flash Point: Not applicable.

Oxidizing Properties: Product will corrode containers not made of iron or steel.

Vapor Pressure: No data.

Relative Density:
Specific gravity: 1.268 @ 15°C (59°F).
(H_2O=1).

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Solubility:
Water: Infinite.

Partition coefficient: Not applicable.
P (n-octanol/water).

Viscosity: Slightly viscous liquid.

Vapor Density (air=1): No data.

Evaporation Rate (water=1): 1.

9.3 **Other Information:**
% Volatile: 66%.

10. Stability and Reactivity

Stability: Although stable at room temperatures, sodium tetrasulfide is unstable when heated and can explode with rapid heating or percussion.

10.1 **Conditions to avoid:** Product corrodes containers not made of iron or steel.

10.2 **Materials and substances to avoid:**
- Acids.
- Carbon dioxide.
- Oxidizing materials.
- Non-ferrous metals (aluminum-copper-zinc).

10.3 **Hazardous decomposition products:** Hydrogen sulfide gas (with acids) & sulfur dioxide gas (with oxidizers).

10.4 **Hazardous Polymerization:** Will not occur.

11. Toxicological Information

11.1 **Acute toxicity:**

Inhalation(Hydrogen Sulfide Gas): Mouse, LC_{50} = 1,500 mg/m³ (18 minute duration).

Oral: Rat LD_{50} = 96-208 mg/kg.

Dermal: Rabbit LD_{50}: >900 mg/kg & <1350 mg/kg.

Irritation: Rabbit, corrosive (eyes & skin).

Comments:
- Can cause coughing, sore throat, shortness of breath, nausea and pulmonary edema.
- Is toxic to the nervous system, and overexposure may cause memory loss, nerve damage, and death.

11.2 **Chronic toxicity:** No data.

11.3 **Carcinogenic Designation:** None.

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

12. Ecological Information

12.1 Acute ecotoxicity: No specific data available.

12.2 Chronic ecotoxicity: No specific data available.

12.3 Mobility: No specific data available.

12.4 Degradation:

Abiotic: No specific data available.

Biotic: No specific data available.

12.5 Potential for bioaccumulation: No specific data available.

12.6 Other adverse effects /Comments:

- Very toxic for aquatic organisms.
- Product fate highly dependent on environmental conditions: pH, temperature, oxidoreductive potential, and mineral and organic content of the medium.

13. Disposal Considerations

13.1 Waste treatment:

- Sodium tetrasulfide is considered hazardous to the environment.
- Spilled product should be disposed of in an EPA-approved disposal facility in accordance with applicable national, state and local environmental laws and regulations.

13.2 Packaging treatment:

- To avoid treatments, use dedicated containers.
- Rinse the empty containers and treat the effluent in the same way as waste.

13.3 RCRA Hazardous Waste: Listed as a hazardous waste (D002 & D003 per 40 CFR 261.22).

14. Transport Information

Mode	DOT	IMDG	IATA
UN Number	3266	3266	3266
Class (Subsidiary)	8	8	8
Proper Shipping Name	Corrosive Liquid, Basic, Inorganic, n.o.s.	Corrosive Liquid, Basic, Inorganic, n.o.s.	Corrosive Liquid, Basic, Inorganic, n.o.s.
Hazard label (Subsidiary)	8	Corrosive	Corrosive
Marine Pollutant	No	No	No
Placard (Subsidiary)	Corrosive	3266	3266
Packing Group	II	II	II
Reportable Quantity	None		
MFAG			
Emergency Info	ERG # 153:	EmS: 8-05	ERG Code: 8L
STCC #	28-123-82		

MSDS No. Sodtetrasulfide-1103 Revised 11-03-03
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Sodium Tetrasulfide Solution

Material Safety Data Sheet

15. Regulatory Information

National Regulations (US)

TSCA Inventory 8(b): Yes.

SARA Title III Sec. 302/303 Extremely Hazardous Substances (40 CFR 355): No.

SARA Title III Sec. 311/312 (40 CFR 370):
Hazard Category: Acute health hazard, Reactive hazard.
Threshold planning quantity: 10,000 lbs.

SARA Title III Sec. 313 Toxic Chemical Emissions Reporting (40 CFR 372): No.

CERCLA Hazardous Substance (40 CFR Part 302)
Listed: No.
Unlisted: Yes.
Characteristic: D001 (Ignitability), D003 (Reactivity).

State Component Listing: None identified.

National Regulations (Canada)

Canadian NDSL/DSL Registration: DSL.

WHMIS Classification: E Corrosive.
D1A-Very toxic materials.

This product has been classified in accordance with the hazard criteria of the ***Controlled Products Regulations***, and the MSDS contains all the information required by the ***Controlled Products Regulations***.

Sodium Sulfite Labeling according to Directive 1999/45/EC.

Symbols	C	Corrosive.
	N	Dangerous for the environment.
Phrases R	31	Contact with acids liberates toxic gas.
	34	Causes burns.
	50	Very toxic to aquatic organisms.
Phrases S	½	(Keep locked up and out of reach of children).
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.
	45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	61	Avoid release to the environment. Refer to special instructions/safety data sheets.

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Sodium Tetrasulfide Solution

Material Safety Data Sheet

16. Other Information

16.1 Ratings:

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
Health = 3 Flammability = 1 Instability = 1 Special = None

HMIS (HAZARDOUS MATERIAL INFORMATION SYSTEM)
Health = 3 Fire = 1 Reactivity = 1 PPE = Supplied by User, dependent on local conditions

16.2 Other Information:

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product)...

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16.3 Reason for revision:

Supersedes edition: Solvay Minerals, Inc. MSDS # 033 dated 06/26/03
Purpose of revision: Change Company name and MSDS format

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sodium Tetrasulfide Solution
PRODUCT ID: 0068
SYNONYMS: Sodium Tetrasulfide; Sulfur Compounds; Na_2S_4
ISSUE DATE: 09/17/1999
EDITION NO.: 7

PPG Industries, Inc.
One PPG Place, Pittsburgh, PA 15272, USA
24-hour Emergency Telephone Number: 1-304-843-1300
For Product Information (8am-5pm Eastern time):
1-800-243-6774 (C/A)

PREPARER: Product Safety, Chemicals

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material/CAS Number	Percent
Sodium Tetrasulfide 12034-39-8	34

(34% solution in water)

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! Contact with acid and excessive heat liberates poisonous hydrogen sulfide gas. Corrosive - Causes severe burns to eyes and skin.

Precautions: Avoid contact with any acids or acidic materials. Forms poisonous gas, hydrogen sulfide (rotten egg odor), which also can cause fires and explosions. Breathing this gas can cause immediate death. Do not get in eyes, on skin, or on clothing. May cause severe burns and permanent damage. Do not breathe vapors or mists from solutions. Use only with adequate ventilation. Ventilation must be sufficient to minimize employee exposure to this product. Do not swallow. Wash thoroughly after handling. Do not eat, drink or smoke in work area.

4. FIRST AID MEASURES

INHALATION: Hydrogen sulfide has a characteristic "rotten egg" odor. Move person to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

EYE/SKIN CONTACT: In case of contact, immediately flush eyes and skin with plenty of water (soap and water for skin) for at least 15 minutes, while removing contaminated clothing and shoes. Call a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

INGESTION: If swallowed, give at least 3-4 glasses of water. Then induce vomiting by placing a finger far back in the throat. Administer additional water. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. Do not attempt to induce vomiting or give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN:
Treat symptomatically. In cases where there is exposure to hydrogen sulfide, refer to attached PPG hydrogen sulfide MSDS.

5. FIRE FIGHTING MEASURES

FLASH POINT: Non-flammable (in solution)

EXTINGUISHING MEDIA: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Contact with all acids or excessive heat will liberate poisonous, flammable hydrogen sulfide gas. If hydrogen sulfide gas is liberated, the fire and explosion hazard should be handled in the same manner as with hydrogen sulfide (refer to attached PPG hydrogen sulfide MSDS). Fire-fighters must wear NIOSH approved, pressure demand, self-contained breathing apparatus with full face piece for possible exposure to hazardous gases.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Immediately evacuate the area. Remove sources of ignition. Provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area. Dike area to contain spill. Recover spilled material on adsorbents, such as sand or vermiculite, and place in covered containers for reclamation or disposal. Spilled material should be reclaimed if possible. Product must not come in contact with acids. After all visible traces have been removed, thoroughly wet vacuum the area. Do not flush to sewer.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORAGE:
Store away from strong oxidizing agents. Do not allow contact with acids and excessive heat. Will liberate poisonous, flammable hydrogen sulfide gas. Do not store in zinc, aluminum or copper containers. Wear respiratory protection whenever exposure to vapor is likely. Wear appropriate personal

protective equipment. Store in a cool, dry, well-ventilated place. Store only in closed, properly labeled containers. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:
8-hour Time Weighted Average (TWA); 15-minute Short-Term Exposure Limit (STEL)

OSHA: No occupational exposure limits have been established by OSHA for this product. The OSHA exposure limit for hydrogen sulfide is 10 ppm TWA, 15 ppm STEL, 29 CFR 1910.1000, Rev. 3/1/89; the currently enforceable 1971 limit is 20 ppm ceiling.

PPG (IPEL): No occupational exposure limits have been established by PPG for this product. The PPG IPEL for hydrogen sulfide is 10 ppm TWA, 15 ppm STEL.

RESPIRATORY PROTECTION: If exposure of hydrogen sulfide gas could exceed the exposure limits, use NIOSH approved full face airline and/or self-contained breathing apparatus operated in a positive pressure demand mode. The respiratory use limitations made by NIOSH or the manufacturer must be observed. Respiratory protection programs must be in accordance with 29 CFR 1910.134.

VENTILATION: Use local exhaust or general room/dilution ventilation as appropriate to control employee exposures in the work place.

EYE AND FACE PROTECTION: Close fitting chemical safety goggles with faceshield.

PROTECTIVE GLOVES: Impervious or rubber gloves.

OTHER PROTECTIVE EQUIPMENT: Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132 (general requirements), .133 (eye and face protection), and .138 (hand protection).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 113°C (235°F) 34% solution
VAPOR DENSITY (Air=1): NA
SPECIFIC GRAVITY (Water=1): 1.268 @ 15/15°C
pH: Strongly alkaline
FREEZING/MELTING POINT: -29.74°F (34.3% eutectic)
SOLUBILITY (wt.% in water): Infinite
BULK DENSITY: 10.56 lbs/gal
VOLUME % VOLATILE: 66%
VAPOR PRESSURE: Unknown
EVAPORATION RATE: Approx. 1 (water=1)
HEAT OF SOLUTION: Mildly exothermic
PHYSICAL STATE: Slightly Viscous Liquid

ODOR: Rotten egg. Sulfur Odor
COLOR: Dark Red

10. STABILITY AND REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITY (CONDITIONS/MATERIALS TO AVOID):
Avoid contact with strong oxidizing agents and acids. Solutions attack zinc, copper, aluminum and alloys of these metals. Avoid heat, flames, sparks and other sources of ignition.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:
Oxides of sulfur. Oxides of sodium. Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

ACUTE INHALATION LC50: Unknown
ACUTE DERMAL LD50: >900 mg/kg and <1350 mg/kg. (rabbit) Moderate toxicity.
SKIN IRRITATION: Corrosive.
EYE IRRITATION: Corrosive.
ACUTE ORAL LD50: 350 mg/kg. (rat) High toxicity.

CHRONIC EFFECTS/CARCINOGENICITY: This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

MEDICAL CONDITIONS AGGRAVATED: None known.

EFFECTS OF OVEREXPOSURE:

ACUTE:

Inhalation: Irritation of mucous membranes, eyes, and respiratory tract is possible following exposure to the decomposition product, hydrogen sulfide gas, which is potentially lethal. (Refer to attached PPG hydrogen sulfide MSDS.)

Ingestion: Gastric acidity would convert material to hydrogen sulfide gas which is potentially lethal. Material is quite corrosive and would produce burns of the stomach lining capable of causing severe injury and death. (Refer to attached PPG hydrogen sulfide MSDS.)

Eye/Skin: May cause irritating and severe burns to the skin. Material is considered corrosive and has the capability of being absorbed through the skin producing the toxicity typical of hydrogen sulfide poisoning. This product has similar effects as alkalies following direct exposure to the eye and can cause irreversible damage, including blindness.

CHRONIC: The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:
No data at this time.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:
Dispose of in an approved hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant Federal, State, or local laws/regulations regarding disposal.

14. TRANSPORT INFORMATION

USA DOT DESCRIPTION:
Proper Shipping Name: Corrosive Liquid, Basic, Inorganic, NOS
Technical Name: Sodium Tetrasulfide
Hazard Class: 8 (Corrosive)
Identification Number: UN3266
Packing Group: II

15. REGULATORY INFORMATION

USA TSCA: This product is listed on the TSCA Inventory.
EUROPE EINECS: This product is listed on EINECS.
CANADA DSL: This product is listed on the Canadian DSL.
AUSTRALIA AICS: This product is listed on AICS.
KOREA ECL: This product is listed on ECL.
JAPAN MITI (ENCS): This product is listed on MITI.

SARA TITLE III:
SARA (311, 312) Hazard Class:
Acute Health Hazard. Reactive Hazard.
SARA (313) Chemicals:
Not listed.
SARA Section 302:
Not listed as an Extremely Hazardous Substance.

HAZARD RATING SYSTEM (HMIS/NFPA):

NFPA: Health 3, Flammability 1, Reactivity 1 (based on sodium sulfide)

16. OTHER INFORMATION

Other Information:
Note: Since a potentially critical hazard in working with this product may result because of the generating of hydrogen sulfide gas under certain conditions, PPG recommends you consider the installation of a continuous monitoring hydrogen sulfide gas detection and alarm system in any area where generation of sulfide gas may occur. Details pertaining to the operation and maintenance of the hydrogen sulfide gas monitoring system, as well as employee training, are outlined by NIOSH.

As additional information to be considered when handling this product, PPG's hydrogen sulfide MSDS is attached.

The following has been revised since the last issue of this MSDS:
Date. Edition. MSDS has been reformatted into 16 sections.

Previous revision date:	09/04/1996
Previous edition number:	006

NA = Not Available

**** MATERIAL SAFETY DATA SHEET ****

Sodium Thiosulfate Solutions 0.025N to 1N
40182

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Sodium Thiosulfate Solutions 0.025N to 1N
Catalog Numbers:
GILSODTH20, S78930-5, SS364 1, SS3641, SS368 1, SS368 20, SS368 20 001, SS368 4, SS3681, SS36820, SS36820 001, SS36820001, SS3684, SS370 1, SS3701, SS371 1, SS3711, SS817
Synonyms:
None
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
64-02-8	Tetrasodium EDTA anhydrous	1	200-573-9
7732-18-5	Water	76-99.4	231-791-2
10102-17-7	Sodium Thiosulfate, pentahydrate	0.6-22.9	unlisted

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: colourless.
Caution! May cause respiratory tract irritation. May cause skin irritation. May cause eye irritation. May cause digestive tract irritation. This is expected to be a low hazard for usual industrial handling.
Target Organs: None.

Potential Health Effects
Eye:
May cause mild eye irritation.
Skin:
May cause skin irritation.
Ingestion:
Ingestion of large amounts may cause gastrointestinal irritation.
Inhalation:
Low hazard for usual industrial handling. May cause respiratory tract irritation.
Chronic:
No information found.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion:
If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Treat symptomatically and
Antidote:
None reported.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media:
For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.

NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Upper: Not available.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Avoid protonged or repeated contact with skin. Avoid ingestion and inhalation. Use with adequate ventilation.
Storage:
Store in a cool, dry place. Store in a tightly closed container.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Tetrasodium EDTA anhydrous	none listed	none listed	none listed
Water	none listed	none listed	none listed
Sodium Thiosulfate, pentahydrate	none listed	none listed	none listed

OSHA Vacated PELs:
Tetrasodium EDTA anhydrous:
No OSHA Vacated PELs are listed for this chemical.
Water:
No OSHA Vacated PELs are listed for this chemical.
Sodium Thiosulfate, pentahydrate:
No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin:
Wear appropriate gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: colourless
Odor: None reported
pH: Not available.
Vapor Pressure: 14 mm Hg
Vapor Density: Not available.
Evaporation Rate: 1 (ether=1)
Viscosity: Not available.
Boiling Point: 212 deg F
Freezing/Melting Point: 32 deg F
Decomposition Temperature: Not available.
Solubility: Completely soluble in water.
Specific Gravity/Density: 1.0-1.1
Molecular Formula: Mixture
Molecular Weight: Not available.

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable.
Conditions to Avoid:
Acids, strong oxidants.
Incompatibilities with Other Materials:

Sodium Thiosulfate

Sodium thiosulfate violently reacts with sodium nitrite. It is also incompatible with strong oxidizers, acids.
Hazardous Decomposition Products:
Hydrogen sulfide, sodium oxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 64-02-8: AH5075000
CAS# 7732-18-5: ZC0110000
CAS# 10102-17-7: WE6660000
LD50/LC50:
Not available.
CAS# 7732-18-5: Oral, rat: LD50 = 90 mL/kg.
CAS# 10102-17-7: Oral, mouse: LD50 = 2700 mg/kg.
Carcinogenicity:
Tetrasodium EDTA anhydrous -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Sodium Thiosulfate, pentahydrate -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No data available.
Teratogenicity:
No data available.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Not available.
Environmental Fate:
Not available.
Physical/Chemical:
Not available.
Other:
Not available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
No information available
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 64-02-8 is listed on the TSCA Inventory.
CAS# 7732-18-5 is listed on the TSCA Inventory.
CAS# 10102-17-7 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR720.3(u)(2)).
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
Section 313
No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Tetrasodium EDTA anhydrous is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
Sodium Thiosulfate, pentahydrate is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: Not available.
Risk Phrases:
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.
WGK (Water Danger/Protection)
CAS# 64-02-8: 2
CAS# 7732-18-5: No information available.
CAS# 10102-17-7: 0
Canada
CAS# 64-02-8 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of Not controlled..
CAS# 64-02-8 is not listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 10102-17-7 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 7/13/1995 Revision #6 Date: 6/08/1998

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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19-240 277

+FL

CIBA–GEIGY

REC'D H & H AUG 29 1983

SAFETY DATA SHEET

SECTION I	
CIBA-GEIGY CORPORATION, DYESTUFFS & CHEMICALS DIVISION	EMERGENCY TELEPHONE NO. 914-478-3131
410 SWING ROAD, GREENSBORO, N. C. 27409	
CHEMICAL NAME AND SYNONYMS: C. I. Direct Red 83	TRADE NAME AND SYNONYMS: Solophenyl Violet A2 RL
CHEMICAL FAMILY: Diazo	FORMULA

SECTION II HAZARDOUS INGREDIENTS					
INGREDIENT	%	TLV (UNITS)	INGREDIENT	%	TLV (UNITS)

SECTION III PHYSICAL DATA			
BOILING POINT (°F)	Not Appli.	SPECIFIC GRAVITY (H_2O = 1)	NA
VAPOR PRESSURE (mm Hg)	Not Appli.	% VOLATILE BY VOLUME	<3%
VAPOR DENSITY (AIR = 1)	Not Appli.	EVAPORATION RATE (= 1)	Not Appli.
SOLUBILITY IN WATER	<7%		
APPEARANCE AND ODOR	Dark Red Blue Powder		

SECTION IV HEALTH HAZARD INFORMATION

EFFECTS OF EXPOSURE

LD_{50} INGESTION >5,000 mg/kg

EYE non-irritating

SKIN slightly irritating

EFFECTS OF OVEREXPOSURE

ACUTE OVEREXPOSURE

CHRONIC OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURE

EYE Flush eyes with water for at least 15 minutes; get medical attention.

SKIN Wash with soap and water.

INHALATION

INGESTION

NOTES TO PHYSICIAN

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein.

This form is essentially similar to OSHA Form 20 required by the safety and health regulations for ship repairing, ship building and ship-breaking (29 CFR 1915, 1916, 1917) as revised in 1972.

DC 053 2/79

SECTION V FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT (METHOD USED) NA	FLAMMABLE LIMITS NA	LEL	LEL
EXTINGUISHING MEDIA Dry chemical, carbon dioxide, water			
SPECIAL FIRE FIGHTING PROCEDURES None			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

SECTION VI REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (MATERIALS TO AVOID) Avoid strong oxidizing and reducing agents			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Sweep up promptly. Wear an approved respirator.
WASTE DISPOSAL METHOD Normal plant waste, bury or incinerate

SECTION VIII SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (SPECIFY TYPE)		
PROTECTIVE GLOVES	EYE PROTECTION	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (GENERAL)	OTHER
OTHER PROTECTIVE EQUIPMENT		

SECTION IX SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Avoid unnecessary personal contact.
OTHER PRECAUTIONS:

DATE: 2-26-79 SIGNATURE: Dr. J. Schulze

bfc

OK 1-5-89

01-300

MATERIAL SAFETY DATA SHEET

SECTION I

DATE OF PREPARATION 3/7/85

REPLACES MSDS DATED 4/18/84

MANUFACTURER'S NAME Prime Leather Finishes Company

ADDRESS 205. S. Second Street
Milwaukee, Wisconsin 53204

INFORMATION TELEPHONE NO (414) 276-1668 (day)

EMERGENCY PHONE NO. (414) 367-2845 (414) 671-3319 (eve & weekends)

PRODUCT CLASS Solvent Dye Solutions

TRADE NAME N/A

H 1
F 2
R 0
PP C

MANUFACTURER'S CODE IDENTIFICATION
X-134

SECTION II HAZARDOUS INGREDIENTS

PRINCIPAL HAZARDOUS COMPONENTS	CAS NO.	%	TLV-TWA[1]	PEL-TWA[2]
2-Propoxyethanol	2807-30-9	94-95	NOT ESTABLISHED (100 ppm has been suggested)	

[1]ACGIH [2]OSHA

SECTION III PHYSICAL DATA

BOILING RANGE (°F)	301	SPECIFIC GRAVITY (H20 = 1)	0.909
VAPOR PRESSURE (mm Hg @ 20°C)	1.3 @ 25°C	% VOLATILE BY VOLUME	94-95
VAPOR DENSITY (air = 1)	3.6	EVAPORATION RATE (n-Butyl acetate = 1)	0.22
SOLUBILITY IN WATER	complete	VOC (lbs/gal)	7.18
APPEARANCE AND ODOR	colored liquid; mild odor		

N/A = Not Applicable

SECTION IV FIRE AND EXPLOSION HAZARDS

FLAMMABILITY CLASSIFICATION: OSHA Class II

DOT Combustible Liquid

FLASH POINT 120 (°F C.C.) LEL 1.3%

EXTINGUISHING MEDIA:

☐ FOAM ☒ ALCOHOL FOAM ☒ CO_2 ☒ DRY CHEMICAL ☒ WATER FOG

OTHER:

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Closed containers may explode when exposed to extreme heat. Vapors may travel along the ground igniting at locations other than the handling point. Isolate from sources of ignition.

SPECIAL FIREFIGHTING PROCEDURES:

Full protective equipment, including self-contained breathing apparatus, should be worn by firefighters. Avoid spreading burning liquid with water used to cool adjacent containers.

SECTION V HEALTH HAZARD DATA

PRIMARY EXPOSURE ROUTES: ☒ DERMAL ☒ INHALATION ☐ INGESTION

EFFECTS OF OVEREXPOSURE:

ACUTE: Direct eye contact can cause irritation, tearing, blurred vision. Excessive vapor inhalation can cause respiratory irritation, dizziness, weakness, nausea, headache, narcosis. Ingestion may cause gastrointestinal irritation, vomiting, diarrhea.

CHRONIC: Prolonged or repeated skin contact may cause dryness, dermatitis. Material can be absorbed through the skin in toxic amounts with prolonged contact. Anemia may occur after long-term overexposure.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: Unknown

TOXICITY: LC_{50} inhalation in rats: 2132 ppm/6h
LD_{50} orally in rats: 3089 mg/kg
LD_{50} dermal in rabbits: 1337 mg/kg

EMERGENCY FIRST AID PROCEDURES:

EYE CONTACT:

Flush immediately with water for at least 15 minutes.
Take to a physician for medical treatment.

SKIN CONTACT:

Wash affected areas with soap and water. Remove contaminated clothing; launder before reuse.
Consult a physician if irritation persists.

INHALATION:

Remove to fresh air. Give oxygen or artificial respiration if necessary. Treat symptomatically. Consult a physician.

INGESTION:

Drink 1 or 2 glasses of water to dilute. Do not induce vomiting. Consult a physician or poison control center immediately.

SECTION VI REACTIVITY DATA

STABILITY: ☒ STABLE ☐ UNSTABLE

HAZARDOUS POLYMERIZATION ☐ MAY ☒ WILL NOT OCCUR.

CONDITIONS TO AVOID: None

INCOMPATIBILITY: ☒ OXIDIZERS ☐ STRONG ACIDS & BASES ☐ AMINES ☐ ISOCYANATES ☐ OTHER _____

HAZARDOUS DECOMPOSITION PRODUCTS: ☒ CO_2 ☒ CO ☐ OXIDES OF NITROGEN

☐ OTHER (under extreme heat)

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of sparks, flame, or hot surfaces. Avoid breathing vapors by use of ventilation or respiratory protective devices. Large Spill: dike area of spill and pump to suitable containers. Small Spill: collect on absorbent material and transfer to suitable containers. Do not allow to enter sewers or waterways. Ventilate area.

WASTE DISPOSAL METHOD:

Incineration or other method in compliance with current federal, state, and local regulations. Check with waste management firm for possible reclamation.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Required protection is dependent on the level of exposure in excess of the TLV. If required, a NIOSH/MSHA approved self-contained respirator or gas mask for organic vapors should be used.

VENTILATION: At least 10 air changes per hour for general ventilation. Vapors will tend to collect in low areas and should be removed. If sprayed, local exhaust is required to remove overspray.

PROTECTIVE GLOVES: Chemically resistant gloves (consult your safety equipment supplier).

EYE PROTECTION: Splashproof goggles are in compliance with OSHA regulations. Other safety eyewear such as face shields or safety glasses with side shields may be acceptable; consult safety equipment supplier.

OTHER PROTECTIVE EQUIPMENT: Eyewash station, safety shower, impervious aprons.

HYGIENIC PRACTICES:

Wash hands before eating, drinking, or smoking.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Keep container closed and away from heat, spark, or flame. Use with adequate ventilation. Handling equipment should be electrically grounded. Comply with the provisions of OSHA 1910.106.

OTHER PRECAUTIONS:

"Empty" containers may contain hazardous residue and/or vapors. Never weld or flame-cut an empty drum. Do no reuse containers.

REFERENCES:

- ☐ Documentation of Threshhold Limit Values, ACGIH (latest edition and supp.)
- ☐ Patty's Industrial Hygiene and Toxicology, Wiley & Sons, NY
- ☒ Supplier Information
- ☒ 29 CFR 1910
- ☐ Occupational Health Guidelines for Chemical Hazards, NIOSH/OSHA Publication No. 81-123 (1981)
- ☐ Other:

PREPARED BY: Lori Schneider

MATERIAL SAFETY DATA SHEET
This Material Safety Data Sheet complies with the U.S. OSHA Hazard Communication Standard 29CFR 1910.1200

CODE: M/L 020

PRODUCT: TIN/LEAD SOLDER ALLOY (FABRICATIONS/FORMS)

COMMON NAME OR SYNONYMS: Tin/Lead/Silver formulation solders or alloys in the following forms: wire, ingot, pig, cake, rod, tubing, anodes, cast or extruded and ribbon. Includes trade name products: Taramet® or Dutch Boy® 50/50, 40/60 or 60/40.

NFPA/HMIS HAZARD CODES: HEALTH: 1/1 FIRE: 0/0 REACTIVITY: 0/0 SPECIAL: NA

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

SECTION I

MANUFACTURERS NAME: Taracorp
1690 Lowery Street
Winston-Salem, NC 27101
INFORMATION PHONE: 336-777-8600

PREPARATION DATE: March 2003
EMERGENCY PHONE: 800-424-9300 (Transportation/Chemtrec)

SECTION II HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	US-NIOSH RTECS NO.	US OSHA AL	US OSHA PEL	ACGIH TLV	WT. PERCENT
Lead	7439-92-1	OF7525000	0.03 mg/m3	0.05 mg/m3	0.15 mg/m3	1.5-98.5
Tin	7440-31-5	XP7320000	NE	2.0 mg/m3	2.0 mg/mg3	1.5-98.5

NOTE: Product formulation is to customer specification and appears on product packaging or packing slip.
NE=NONE ESTABLISHED AL=ACTION LEVEL PEL=PERMISSIBLE EXPOSURE LIMIT TLV=THRESHOLD LIMIT VALUE

SECTION III PHYSICAL DATA

APPEARANCE & ODOR (AT NORMAL CONDITIONS):	Solid - silver to silver gray metallic metal- No odor
SPECIFIC GRAVITY (H20=1):	5.83-11.27
MELTING POINT RANGE (DEGREES C):	Lead 328 Tin 232
BOILING POINT (DEGREES C):	Lead 1744 Tin 2260
SOLUBILITY IN WATER:	Insoluble
EVAPORATION RATE (BUTYL ACETATE=1:	Not applicable
VAPOR DENSITY (AIR=1):	Not applicable
VAPOR PRESSURE (mmHg):	Not applicable
PH:	Not applicable

SECTION IV FIRE & EXPLOSION HAZARD DATA

FLASH POINT:	Non-Flammable
FLAMMABLE LIMITS:	Not Applicable
EXTINGUISHING MEDIA:	No specific agents available
SPECIAL FIRE FIGHTING PROCEDURES:	If involved in fire, use full protective clothing and NIOSHA/MSHA approved self-contained breathing apparatus operated in a positive-pressure mode.
UNUSUAL FIRE & EXPLOSION HAZARDS:	NONE

SECTION V REACTIVITY DATA

STABILITY:	Stable
CONDITIONS TO AVOID:	Not Applicable
INCOMPATIBILTY:	Strong oxidizers, Hydrogen Peroxide, Chlorine, Turpentine, Active Metals-Sodium, Potassium. Powered lead fused with ammonium nitrate may cause a violent reaction.
HAZARDOUS DECOMPOSITION PRODUCTS:	At temperatures above the melting point metal oxide fumes may be evolved.
HAZARDOUS POLYMERIZATION:	Will not occur.

SECTION VI HEALTH HAZARD DATA

NOTE: Exposure to the solid form of this product presents few health hazards in itself. However, normal handling or processing of this material may result in the generation of lead and tin dusts and/or fumes, which may present a health hazard.

ROUTES OF ENTRY: Inhalation of dust/fume & ingestion of dust.
SYMPTOMS & EFFECTS OF OVEREXPOSURE:

Chronic (Prolonged) overexposure to **lead** can result in systemic lead poisoning with symptoms of metallic taste, anemia, insomnia, weakness, constipation, abdominal pain, gastrointestinal disorders, joint and muscle pains, and muscular weakness, and may cause damage to the blood forming, nervous, kidneys and reproductive systems. Damage may include reduced fertility in both men and women, damage to the fetus of the exposed pregnant women, anemia, muscular weakness & kidney dysfunction.

Chronic (prolonged) overexposure to **tin** can result in benign pneumoconiosis (stannois). This form of pneumoconiosis produces progressive x-ray changes of the lungs as long as exposure exists, but there is no distinctive fibrosis, no evidence of disability and no special complicating factors. **Acute** (severe short-term) overexposure to **tin** can cause irritation of the eyes, skin, mucous membranes and respiratory system. **Acute** overexposure to **tin** can cause irritation of the eyes, skin mucous membranes and respiratory system. **Acute** (severe short-term) overexposure to lead may lead to central nervous system disorders, characterized by drowsiness, seizures, coma & death. It should be recognized that exposures of this magnitude in an industrial environment are extremely unlikely.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE: Pre-existing conditions of the lungs, diseases of the blood and blood forming organs, kidneys, nervous and possibly reproductive systems.
CARCINOGENITY: Not listed as a carcinogen by NTP, IARC, OSHA, ACGIH
EMERGENCY & FIRST AID PROCEDURES

SKIN: Normal hygiene procedures - wash with soap and water. If rash develops get medical attention.
EYES: Flush well with running water to remove particulate. If irritation persists get medical attention.
INHALATION: Remove from exposure. Get medical attention.
INGESTION: Give water; induce vomiting in a conscious individual; get medical attention.

SECTION VII PROTECTION MEASURES

RESPIRATORY PROTECTION:	Respiratory protection is required where airborne exposures exceed US-OSHA/ACGIH permissible air concentrations. Respirator selection shall be made in accordance with the US OSHA Respiratory Protection Standard, 29CFR 1910.134.
VENTILATION:	Ventilation, as described in "Industrial Ventilation, A Manual of Recommended Practice", by the American Conference of Governmental Industrial Hygienists, is recommended to maintain exposure levels below the permissible exposure limits (PEL's) or threshold limit values (TLV's) specified by US-OSHA or other local or state regulations.
PROTECTIVE GLOVES:	Recommended for prolonged contact/heat. Required above the lead PEL.
EYE PROTECTION:	Safety glasses or goggles are recommended where the possibility exists of getting dust particles in the eyes. Safety glasses with face shield are recommended around molten metal.
OTHER PROTECTIVE EQUIPMENT:	Safety equipment should be worn as appropriate for the work environment. Full protective clothing and shoes are required for employee exposure above the lead PEL. Other safety equipment should be worn as appropriate for the work environment. Keep work clothing separate from street clothes.
WORK/HYGIENIC PRACTICES:	Do not permit eating, drinking, or the use of cosmetics or tobacco products while handling or processing material or in solder work areas. Practice good oral hygiene procedures. Wash hands and face thoroughly before eating, drinking, applying cosmetics or using tobacco products. Full protective clothing is required to worn by workers exposed to concentrations of lead/dust fume above the PEL, and showering is required before changing into street clothes. Avoid inhalation and ingestion of product, and activities which generate dust or fume. Keep melting/soldering temperatures as low as possible to minimize the generation of fumes.

SECTION VIII PRECAUTIONS FOR SAFE HANDLING & USE

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING:	Practice good housekeeping procedures to prevent dust accumulations. Keep material dry. Avoid storage near incompatible materials (See Section V). Keep product away from children and their environment.
OTHER PRECAUTIONS:	Special attention is drawn to the requirements of the U.S. OSHA Lead Standard (1910.1025) and Respirator Standard (1910.134) should airborne exposures exceed the U.S. OSHA Action Level (AL) or (PEL).

SECTION IX SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES:

1) Material in dust form-minimize exposure. Clean up using dustless methods (i.e. Vacuum). Do not use compressed air.
2) Place in closed labeled containers for recycling or disposal.
3) Keep out of waterways.

NOTE: Cleanup personnel should wear protective clothing and respiratory protection where significant dust/fume exposure exists.

OTHER PROCEDURES
We recommend that the purchaser establish a spill prevention, control and counter measure plan. This plan should include procedures for proper storage as well as clean up of spills or leaks. The procedures should conform to safe practices and provide for proper recovery and/or disposal. Depending on the quantity spilled, notification to the U.S. National Response Center (800-424-8802) may be required in case of hazardous substances. (See USEPA and USDOT regulations: also various state and local regulations.)
WATER DISPOSAL METHODS: May have value on a recycled basis. If disposed of, dispose of in a permitted disposal site in accordance with all federal, state and local disposal or discharge regulations.

SECTION X UNITED STATES SARA TITLE III INFORMATION

This product/mixture contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of title III of the U.S. Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372. The percent by weight of each toxic chemical and its associated chemical abstract system (CAS) number are to found in Section II of this Material Safety Data Sheet.

CHEMICAL NAME	EHS RQ (LBS) *1	EHS TPQ (LBS) *2	SEC.313 *3	313 CATEGORY *4	311/312 CATEGORY *5
Lead	Not Applicable	Not Applicable	YES	Lead	H-1, H-2

-FOOTNOTES-
*1= Reportable quantity of extremely hazardous substance, Section 302.
*2= Threshold planning quantity, extremely hazardous substance, Section 302.
*3= Toxic chemical list, Section 313
*4= Chemical category as required by Section 313 (40 CFR 372.42). Subject to annual release reporting requirements.
*5= Hazard category for SARA Section 311/312 reporting:

Health	H-1=Immediate (ACUTE) Health Hazard	Physical	P-3= Fire Hazard
	H-2=Delayed (CHRONIC) Health Hazard		P-4= Sudden Release of Pressure Hazard
			P-5= Reactive Hazard

SECTION XI UNITED STATES CERCLA SECTION 103 INFORMATION

This product/mixture contains the following chemicals subject to the release reporting of Section 302.

CHEMICAL NAME	RQ (LBS) (*1)	
LEAD	1.0	CERCLA STATUTORY RQ

-FOOTNOTES-
*1= Reportable quantity (RQ) under CERCLA Section 302. Spills to the environment exceeding the reportable quantity in any 24-hour period must be reported to the U.S. National Response Center (800) 424-8802. No reporting of releases of the hazardous substance(s) is required if the diameter of the pieces of the solid metal(s) released is equal to or exceeds 100 micrometers (0.004 inches).

SECTION XII USDOT TRANSPORTATION INFORMATION (172.101

DOT SHIPPING NAME:	This product is not regulated by the USDOT as shipped.
HAZARD CLASS:	NOT APPLICABLE
UN/ID NO.:	NOT APPLICABLE
DOT LABEL (S):	NOT APPLICABLE

SECTION XIII ADDITIONAL INFORMATION

U.S. OSHA Biological Limit for Blood Lead Level is a 3 sample/6 month average of 50 mcg per 100g (or higher) of whole blood and/or two (2) consecutive samples of 60 mcg per 100g (or higher). See U.S. OSHA Standard 29 CFR 1910.1025 for further information.
Lead and its compound have tentatively been classed by the USEPA Carcinogen Assessment Group as a Group B2 Carcinogen (Probable human carcinogen- a combination of sufficient evidence in animals and inadequate data for humans). IARC lists lead and its compounds as a teratogen.
The use of this solder in making joints or fittings in any private or public potable water supply is prohibited by the Clean Water Act. This material is subject to the requirements of California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This Material Safety Data Sheet is offered solely for your information, consideration and investigation. Taracorp Imaco, Inc. provides no warranties, either express or implied, and assumes no responsibilities for the accuracy or completeness of the data contained in this document. The data in this Material Safety Data Sheet relates only to this product and does not relate to use in combination with any other material or in any process.

Maint

This MSDS should be attached or kept with the respective product with which it is associated.

MATERIAL SAFETY DATA SHEET - 7S209

Associated Grainger Items
6W275, 6Z775

6W275/6Z775
#83001

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: SP-30

KESTER SOLDER
515 E. TOUHY AVENUE
DES PLAINES, IL 60018

DATE PREPARED: 09 APRIL 1996

SUPERCEDES: 18 MAY 1993

PREPARED BY: M. WISE

TELEPHONE NUMBER FOR INFORMATION: (708) 297-1600
CHEMTREC 24-HOUR EMERGENCY TELEPHONE NUMBER: (800) 424-9300

SECTION I - PRODUCT IDENTIFICATION AND USE

SP-30 SOLDERING PASTE FLUX
PRODUCT NAME AND NUMBER AS USED ON LABEL

PRODUCT USE: SOLDERING FLUX PASTE FOR GENERAL APPLICATIONS, ESPECIALLY PLUMBING AND SHEET METAL

NFPA RATING: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 SPECIAL:
HMIS RATING: HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTION: X

DOT: NOT REGULATED
WHMIS: CLASS D, DIVISION 1, SUBDIVISION B; CLASS D, DIVISION 2, SUBDIVISION A; CLASS E
TDG: NOT REGULATED

NA = NOT APPLICABLE NE = NOT ESTABLISHED UN = UNKNOWN

SECTION II - INGREDIENTS AND HAZARDS

HAZARDOUS INGREDIENTS 1% OR GREATER; CARCINOGENS 0.1% OR GREATER	C.A.S. NUMBER	WT. %	OSHA PEL MG/M3	ACGIH TLV STEL MG/M3
PETROLATUM	8009-03-8	65	NA	NA
ZINC CHLORIDE	7646-85-7*	24	1	2

NON-HAZARDOUS INGREDIENTS

NOTES:
* THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372

SECTION III - PHYSICAL DATA

BOILING POINT (760 MM HG): (F): NA (C): NA

VAPOR PRESSURE (MM HG AT 20C): NA

VAPOR DENSITY (AIR=1): NA

SOLUBILITY IN WATER (% BY WEIGHT): 35

PH: NE

SPECIFIC GRAVITY (WATER=1 AT 25C): 1.05

MELTING POINT: 120F (49C)

EVAPORATION RATE (BUTYL ACETATE=1): NA

% VOLATILE (BY VOLUME): 0

VOLATILE ORGANIC COMPOUND (VOC): 0 G/LITER

ODOR THRESHOLD: NE

APPEARANCE AND ODOR: LIGHT AMBER COLORED PASTE WITH LITTLE OR NO ODOR

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (T.O.C.): 430F (221C)

AUTO-IGNITION TEMPERATURE: (F): NE (C): NE

FLAMMABILITY LIMITS % BY VOLUME IN AIR: LEL: NA UEL: NA

EXTINGUISHING MEDIA: ( ) WATER (X) CARBON DIOXIDE (X) ALCOHOL FOAM (X) DRY CHEMICAL

HAZARDOUS COMBUSTION PRODUCTS: HYDROGEN CHLORIDE, CARBON DIOXIDE, CARBON MONOXIDE

EXPLOSION SENSITIVITY: IMPACT - NONE IDENTIFIED
STATIC DISCHARGE - ( ) YES (X) NO

SPECIAL FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS IF THIS MATERIAL IS IN THE VICINITY OF A FIRE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

SECTION V - REACTIVITY HAZARD DATA

STABILITY: (X) STABLE ( ) UNSTABLE

CONDITIONS TO AVOID: NE

INCOMPATIBILITY (MATERIALS TO AVOID): NONE

HAZARDOUS DECOMPOSITION PRODUCTS: NONE

HAZARDOUS POLYMERIZATION: ( ) MAY OCCUR (X) WILL NOT OCCUR

CONDITIONS TO AVOID: NE

SECTION VI - HEALTH HAZARD DATA

EXPOSURE LIMITS: INGESTED LD50): NE G/KG INHALED LC(50): NE G/KG

PRIMARY EXPOSURE IS TO SKIN AND EYES WHEN HANDLING AND TO ACRID FUMES DURING SOLDERING

PRIMARY ROUTES OF ENTRY: (X) SKIN (X) EYES (X) INHALATION (X) INGESTION

TARGET ORGANS: EYES, SKIN AND RESPIRATORY SYSTEM

EFFECTS OF ACUTE (SEVERE SHORT-TERM) EXPOSURE:

INHALATION: FUMES DURING SOLDERING MAY IRRITATE MUCOUS MEMBRANES AND RESPIRATORY SYSTEM

SKIN CONTACT: IRRITATION OR BURNS

SKIN ABSORPTION: NONE

EYE CONTACT: IRRITATION OR BURNS

INGESTION: NE

EFFECTS OF CHRONIC (PROLONGED) EXPOSURE: PROLONGED OR REPEATED SKIN CONTACT CAN RESULT IN BURNS

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: CHEMICAL HYPERSENSITIVITY, ASTHMA AND OTHER RESPIRATORY CONDITIONS

CARCINOGEN: ( ) NTP ( ) OSHA ( ) IARC (X) NOT LISTED

EMERGENCY FIRST AID PROCEDURES: SEEK MEDICAL ASSISTANCE FOR FURTHER TREATMENT, OBSERVATION AND SUPPORT IF NEEDED

EYE CONTACT: FLUSH EYES WITH PLENTY OF WATER AND GET MEDICAL ATTENTION

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER

INHALATION: REMOVE VICTIM TO FRESH AIR. RESTORE BREATHING IF NECESSARY

INGESTION: DO NOT INDUCE VOMITING, GIVE PLENTY OF WATER OR MILK AND GET MEDICAL ATTENTION

SECTION VII - PROCEDURES FOR MATERIAL CONTROL

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED: SCOOP UP PASTE AND DEPOSIT IN APPROPRIATE CONTAINERS. CLEAN UP RESIDUAL WITH DETERGENT WATER

WASTE DISPOSAL METHODS: ACCORDING TO LOCAL REGULATIONS

CAUTION: EMPTY CONTAINERS MAY CONTAIN PRODUCT RESIDUE. OBSERVE ALL LABEL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID EYE AND SKIN CONTACT. AVOID BREATHING VAPORS GENERATED DURING SOLDERING. OPEN CONTAINERS CAUTIOUSLY TO ALLOW VENTING OF ANY INTERNAL PRESSURE. KEEP CONTAINER SEALED WHEN NOT IN USE

SECTION VIII - PROTECTIVE MEASURES

RESPIRATORY PROTECTION: USUALLY NOT REQUIRED. WHEN VENTILATION IS NOT ADEQUATE TO REMOVE SMOKE FROM THE BREATHING ZONE, A CARTRIDGE TYPE RESPIRATOR SHOULD BE WORN

PROTECTIVE GLOVES: PLASTIC OR RUBBER GLOVES WHERE NECESSARY TO AVOID SKIN CONTACT

EYE PROTECTION: SAFETY GLASSES OR GOGGLES ESPECIALLY DURING SOLDERING

VENTILATION TO BE USED: PROVIDE ADEQUATE EXHAUST VENTILATION (GENERAL AND/OR LOCAL) TO MEET TLV REQUIREMENTS

OTHER PROTECTIVE CLOTHING AND EQUIPMENT: NONE

HYGIENIC WORK PRACTICES: WASH HANDS THOROUGHLY BEFORE EATING OR SMOKING

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE AND IS

OFFERED SOLELY FOR INFORMATION, CONSIDERATION AND INVESTIGATION. KESTER SOLDER EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY, COMPLETENESS OR SUITABILITY OF THIS DATA FOR ANY PURCHASER'S USE. THE DATA ON THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THIS PRODUCT AND DOES NOT RELATE TO USE WITH ANY OTHER MATERIAL OR IN ANY PROCESS. ALL CHEMICAL PRODUCTS SHOULD BE USED ONLY BY OR UNDER THE DIRECTION OF TECHNICALLY QUALIFIED PERSONNEL WHO ARE AWARE OF THE HAZARDS INVOLVED AND THE NECESSITY FOR REASONABLE CARE IN THEIR HANDLING. HAZARD COMMUNICATION REGULATIONS, U.S.A. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND CANADA WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS), REQUIRE THAT EMPLOYEES MUST BE TRAINED HOW TO USE A MATERIAL SAFETY DATA SHEET AS A SOURCE FOR HAZARD INFORMATION.

This MSDS should be attached or kept with the respective product with which it is associated.

##

MATERIAL SAFETY DATA SHEET - A0201

Associated Grainger Items

2D534, 2D535, 2D536, 2D537, 2D538, 2D539, 2D540, 2D541, 2D542, 2D543, 2D544, 2D545, 2D546, 2D547, 2D548, 2D549, 2D550, 2D551, 2D552, 2D553, 2D554, 2D555, 2D556, 2D557, 2D558, 2D559, 2D560, 2D561, 2D562, 2D563, 2D564, 2D565, 2D567, 2D568, 2D569, 2D570, 2D572, 2D591, 2D592, 2D593, 2D594, 2D595, 2D596, 2D597, 2D616, 2D617, 2D618, 2D619, 2D620, 2D621, 2D622, 2D623, 2D624, 2D625, 2D626, 2D627, 2D718, 2D719, 2D720, 2D721, 2D722, 2D723, 2D724, 2D725, 2D726, 2D727, 2D728, 2D729, 2D730, 2D731, 2D732, 2D733, 2D734, 2D735, 2D736, 2D737, 2D738, 2D739, 2D740, 2D741, 2D742, 2D743, 2D744, 2D745, 2D746, 2D747, 2D748, 2D798, 2D799, 2D800, 2D801, 3UM86, 3UM87, 3UM88, 3UM89, 3UN05, 3UN06, 3UN07, 3UN08, 3UN09, 3UN10, 3UN11, 3UN12, 3UN13, 3UN14, 3UN15, 3UN16, 3UN17, 3UN18, 3UN19, 3UN20, 3UN21, 3UN22, 3UN23, 3UN24, 3UN32, 3UN33, 3UN34, 3UN35, 3UN36, 3UN37, 3UN38, 3UN39, 3UN40, 3UN41, 3UN42, 3UN43, 3UP53, 3UP54, 3UP55, 3UP56, 3VK63, 3VK64, 3VK65, 3VK66, 3VK67, 3VK68, 3VK69, 3VK70, 3VK71, 3VK72, 3VK73

DATE PRINTED: JAN 10, 2000

MSDS NO. ALCOAT001 OUTBOUND

ALUMINUM OXIDE COATED ABRASIVE

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME

ALUMINUM OXIDE COATED ABRASIVE

TRADE NAME

ADALOX OR METALITE CAP CODES: H1XX, A1XX, A2XX, E2XX, F2XX, G2XX, H2X X, K2XX, Q1XX, Q2XX, R2XX, S2XX, T2XX, U2XX AND W2

MANUFACTURER

NORTON COMPANY, P.O. BOX 808

TROY, NY. 12180

(518) 266-2200

REVISION DATE

6/24/1999

MSDS PRINT FORMAT

NUSA

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
ALUMINUM OXIDE, NON-FIBROUS	55.000- 65.000	1344-28-1
CLOTH OR PAPER BACKING	20.000- 30.000	N/A
CURED PHENOLFORMALDEHYDE RESIN	2.500- 13.500	9003-35-4
ANIMAL GLUE BOND	2.500- 13.500	N/A
CURED UREA FORMALDEHYDE RESIN	2.500- 13.500	9011-05-6

OTHER

NOT APPLICABLE

SECTION 3. HAZARDS IDENTIFICATION

INHALATION ACUTE EXPOSURE EFFECTS

DUST MAY BE SLIGHTLY IRRITATING TO EYES AND RESPIRATORY TRACT AT HIGH CONCENTRATIONS.

INHALATION CHRONIC EXPOSURE EFFECTS

CHRONIC: MAY AFFECT BREATHING CAPACITY.

FOR PRODUCTS CONTAINING PHNEOL/FORMALDEHYDE RESIN, DUST GENERATED FROM INTENDED USE MAY CONTAIN TRACE AMOUNTS OF PHENOL AND FORMALDEHYDE WHICH UNDER EXCESSIVE EXPOSURE MAY CAUSE SKIN SENSITIZATION AND AIRWAY OBSTRUCTION.

FOR PRODUCTS CONTAINING INORGANIC FLUORIDES,

EXCESSIVE EXPOSURE TO INORGANIC FLUORIDES HAVE BEEN SHOWN TO INCREASE BONE DENSITY.

EYE CONTACT ACUTE EXPOSURE EFFECTS

DUST MAY IRRITATE EYES.

SKIN CONTACT ACUTE EXPOSURE EFFECTS

SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.

INGESTION ACUTE EXPOSURE EFFECTS

NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.

SECTION 4. FIRST AID MEASURES

INHALATION

REMOVE TO FRESH AIR. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT

WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.

EYE CONTACT

WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.

INGESTION

CALL POISON CONTROL CENTER, HOSPITAL EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY.

SECTION 5. FIRE FIGHTING MEASURES

FIRE FIGHTING PROCEDURES

NOT APPLICABLE

HAZARDOUS PRODUCTS/COMBUSTION

NONE.

HAZARD RATING SOURCE

NFPA

HEALTH

1

FLAMMABILITY

0

REACTIVITY

0

OTHER

SECTION 6. ACCIDENTAL RELEASE MEASURES

CLEAN-UP

FOLLOW NORMAL CLEAN UP PROCEDURES.

SECTION 7. HANDLING AND STORAGE

HANDLING

HANDLE WITH ADEQUATE VENTILATION FOR NUISANCE DUST.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION PROTECTION

RECOMMEND USING LOCAL EXHAUST VENTILATION WHEN GENERAL VENTILATION IS NOT KEEPING THE AIRBORNE CONCENTRATION BELOW THE TLV.

RESPIRATORY PROTECTION

RESPIRATORS ARE REQUIRED WHEN AIRBORNE CONTAMINANT LEVELS EXCEED THE TLV(S).

EYE PROTECTION

ALWAYS WEAR SAFETY GLASSES OR SOME TYPE OF EYE PROTECTION WHILE SANDING.

OTHER PROTECTION

USE OF THIS PRODUCT MAY CREATE ELEVATED SOUND LEVELS. HEARING PROTECTION SHOULD BE WORN WHERE REQUIRED (SEE OSHA 29 CFR 1910.134 AND OTHER APPLICABLE REGULATIONS).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR

SOLID ARTICLE. ODORLESS.

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES

AVOID ACIDS OF ALL TYPES WITH A PH < 4.0.

DECOMPOSITION

IN USE, DUST AND DECOMPOSING ODORS MAY BE GENERATED. IN MOST CASES, THE MATERIAL REMOVED FROM THE WORKPLACE WILL BE SIGNIFICANTLY GREATER THAN THE SANDPAPER COMPONENTS. COOLANTS MAY PRODUCE OTHER DECOMPOSITION PRODUCTS.

FOR PRODUCTS CONTAINING PHENOL AND FORMALDEHYDE RESIN, THERMAL DECOMPOSITION MAY PRODUCE TRACE AMOUNTS OF PHENOL AND FORMALDEHYDE.

FOR PRODUCTS CONTAINING INORGANIC FLUORIDES, THERMAL COMPOSITION MAY PRODUCE TRACE AMOUNTS OF FLUORIDES.

SECTION 11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY

NOT APPLICABLE

LD50/LC50

VALUES ARE NOT APPROPRIATE OR AVAILABLE.

SECTION 12. ECOLOGICAL INFORMATION

CHEMICAL FATE

NOT APPLICABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

USE STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE, PROVINCIAL AND LOCAL LAWS.

SECTION 14. TRANSPORT INFORMATION

HAZARD CLASS

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY THE DEPARTMENT OF TRANSPORTATION. (USA)

THIS PRODUCT IS "NOT REGULATED" UNDER THE TRANSPORTATION OF DANGEROUS GOODS ACT. (CAN)

SECTION 15. REGULATORY INFORMATION

EXPOSURE LIMITS/REGULATORY INFORMATION

SUBSTANCE DESCRIPTION	UNITS	OSHA	ACGIH	MOL
ALUMINUM OXIDE, NON-FIBROUS	MG/M3	15.0000	10.0000	10.0000
6				
CLOTH OR PAPER BACKING	PPM	0.0000	0.0000	0.0000
0				
CURED PHENOLFORMALDEHYDE RESIN	PPM	0.0000	0.0000	0.0000
0				
ANIMAL GLUE BOND	PPM	0.0000	0.0000	0.0000
0				
CURED UREA FORMALDEHYDE RESIN	PPM	0.0000	0.0000	0.0000
0				

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS

CA PROP 65

NOT APPLICABLE

TSCA

SECTION 8(B) - INVENTORY STATUS

ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCE CONTROL ACT.

DOMESTIC SUBSTANCE LIST

ALL COMPONENTS OF THIS PRODUCT ARE FOUND ON THE DOMESTIC SUBSTANCE

LIST.

SECTION 16. OTHER INFORMATION

KEY TO ABBREVIATIONS:

EQ=EQUAL	LT=LESS THAN	GT=GREATER THAN
AP=APPROXIMATELY	TR=TRACE	ND=NO DATA AVAILABLE

DISCLAIMER

THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE TAKEN FROM SOURCES BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF; HOWEVER, NORTON COMPANY MAKES NO WARRANTY WITH RESPECT TO THE ACCURACY OF THE INFORMATION OR THE SUITABILITY OF THE RECOMMENDATIONS, AND ASSUMES NO LIABILITY TO ANY USER THEREOF.

Spray Finish

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MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SPONGE BASE
IDENTIFICATION NUMBER: 15-0001
PRODUCT USE/CLASS : Resinated wax emulsion

DATE PRINTED: 08/15/02

SUPPLIER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

MANUFACTURER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

PREPARER: Lori Schneider, PHONE: 262-691-1930, PREPARE DATE: 09/04/00

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % EQUAL TO

No Hazardous Materials are Contained in this Product

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: No Information.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Can cause eye irritation, redness, tearing.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use. If product is sprayed, inhalation of solid airborne particles may irritate the respiratory tract and lungs.

EFFECTS OF OVEREXPOSURE - INGESTION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: No chronic effects expected in normal use.

(Continued on Page 2)

SECTION 3 - HAZARDS IDENTIFICATION

PRIMARY ROUTE(S) OF ENTRY: Unknown

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

FIRST AID - INHALATION: Remove from exposure, treat symptomatically. Get medical attention if symptoms persist.

FIRST AID - INGESTION: If swallowed, give water to dilute. Do not induce vomiting.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: N.A.

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE: N.D.

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Not applicable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Absorb small spills with inert material and place in chemical waste container. For a large spill: dike area of spill and pump to salvage container. Collect remainder on inert material and place in chemical waste container.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

STORAGE: Keep from freezing. Keep container closed when not in use.

(Continued on Page 3)

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

RESPIRATORY PROTECTION: Good general ventilation should be sufficient to control airborne levels. If material is sprayed, sufficient local exhaust must be used to remove solid airborne particles.

SKIN PROTECTION: Gloves should be worn to avoid prolonged skin contact.

EYE PROTECTION: Wear safety glasses with side shields or goggles.

OTHER PROTECTIVE EQUIPMENT: Where splashing is possible, an impermeable apron and boots should be worn.

HYGIENIC PRACTICES: Wash hands before eating. Avoid prolonged or repeated contact with skin.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: 212 - 212 F	VAPOR DENSITY	: Is lighter than air
ODOR	: Mild odor	ODOR THRESHOLD	: N.D.
APPEARANCE	: Creamy liquid	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	: Miscible		
FREEZE POINT	: N.D.	SPECIFIC GRAVITY	: 1.0026
VAPOR PRESSURE	: N.D.	pH @ 0.0 %	: N.D.
PHYSICAL STATE	: N.D.	VISCOSITY	: N.D.
WEIGHT % SOLIDS	: 11.17		

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Hazardous polymerization will not occur.

INCOMPATIBILITY: None.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

Toxic section 11B: No Information.

(Continued on Page 4)

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: No Information.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Not considered a hazardous waste by RCRA regulations. Liquids cannot be landfilled under current regulations.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Non-hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	WT/WT %
No SARA Section 313 components exist in this product.		

INTERNATIONAL REGULATIONS: AS FOLLOWS -

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 09/04/00

VOLATILE ORGANIC COMPOUNDS (VOCS): 1.17 lbs/gal, 140 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

(Continued on Page 5)

DISCLAIMER

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SPRAY BOOTH COATING
IDENTIFICATION NUMBER: 30006 DATE PRINTED: 06/09/00
PRODUCT USE/CLASS : Vinyl latex

SUPPLIER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

MANUFACTURER:
Prime Leather Finishes Company
205 S. Second St
Milwaukee, WI 53204

EMERGENCY TELEPHONE: 414-276-1668
7:00 am - 4:30 pm

PREPARER: Lori Schneider, PHONE: 414-691-1930, PREPARE DATE: 03/13/98

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % EQUAL TO
01	Butyl carbitol	112-34-5	4.1 %

ITEM	EXPOSURE LIMITS ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING	COMPANY TLV-TWA	SKIN
01	N.E.	N.E.	N.E.	N.E.	N.E.	NO

(See Section 16 for abbreviation legend)

SECTION 3 - HAZARDS IDENTIFICATION

*** EMERGENCY OVERVIEW ***: No Information.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Can cause eye irritation, redness, tearing.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash). Can be absorbed through intact skin in toxic amounts, especially from prolonged or repeated contact.

EFFECTS OF OVEREXPOSURE - INHALATION: No hazard in normal industrial use. If product is sprayed, inhalation of solid airborne particles may irritate the respiratory tract and lungs.

(Continued on Page 2)

SECTION 3 - HAZARDS IDENTIFICATION

EFFECTS OF OVEREXPOSURE - INGESTION: No hazard in normal industrial use.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: Overexposure may cause kidney damage. May cause liver disorder (e.g., edema, proteinuria) and damage.

PRIMARY ROUTE(S) OF ENTRY: SKIN CONTACT SKIN ABSORPTION INHALATION

SECTION 4 - FIRST AID MEASURES

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

FIRST AID - INHALATION: Remove from exposure, treat symptomatically. Get medical attention if symptoms persist.

FIRST AID - INGESTION: If swallowed, give water to dilute. Do not induce vomiting.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: N.A.

LOWER EXPLOSIVE LIMIT: N.A.
UPPER EXPLOSIVE LIMIT: N.A.

AUTOIGNITION TEMPERATURE: N.D.

EXTINGUISHING MEDIA: Unknown

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Not applicable.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Absorb small spills with inert material and place in chemical waste container. For a large spill: dike area of spill and pump to salvage container. Collect remainder on inert material and place in chemical waste container.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling.

(Continued on Page 3)

SECTION 7 - HANDLING AND STORAGE

STORAGE: Keep from freezing. Keep container closed when not in use.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

RESPIRATORY PROTECTION: Good general ventilation should be sufficient to control airborne levels. If material is sprayed, sufficient local exhaust must be used to remove solid airborne particles.

SKIN PROTECTION: Gloves should be worn to avoid prolonged skin contact.

EYE PROTECTION: Wear safety glasses with side shields or goggles.

OTHER PROTECTIVE EQUIPMENT: Where splashing is possible, an impermeable apron and boots should be worn.

HYGIENIC PRACTICES: Wash hands before eating. Avoid prolonged or repeated contact with skin.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE	: 212 - 447 F	VAPOR DENSITY	: Is heavier than air
ODOR	: Mild, resinous	ODOR THRESHOLD	: N.D.
APPEARANCE	: Milky liquid	EVAPORATION RATE	: Is slower than Butyl Acetate
SOLUBILITY IN H2O	: Miscible		
FREEZE POINT	: N.D.	SPECIFIC GRAVITY	: 1.1557
VAPOR PRESSURE	: N.D.	pH @ 0.0 %	: N.D.
PHYSICAL STATE	: N.D.	VISCOSITY	: N.D.
WEIGHT % SOLIDS	: 56.02		

(See Section 16 for abbreviation legend)

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Hazardous polymerization will not occur.

INCOMPATIBILITY: Avoid contact with strong acids or bases. None.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

(Continued on Page 4)

SECTION 11 - TOXICOLOGICAL PROPERTIES

No product or component toxicological information is available.

Toxic section 11B: No Information.

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: No Information.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Not considered a hazardous waste by RCRA regulations. Liquids cannot be landfilled under current regulations.

SECTION 14 - TRANSPORTATION INFORMATION

No transportation information is available.

SECTION 15 - REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: AS FOLLOWS -

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

CERCLA - SARA HAZARD CATEGORY:
This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

---------- CHEMICAL NAME ----------	CAS NUMBER	WT/WT %
Butyl carbitol	112-34-5	4.1 %
Ammonium hydroxide	1336-21-6	0.2 %
2-butoxyethanol	111-76-2	0.01 %
Hexone (MIBK)	108-10-1	0.01 %
Methanol	67-56-1	0.01 %

INTERNATIONAL REGULATIONS: AS FOLLOWS -

(Continued on Page 5)

SECTION 15 - REGULATORY INFORMATION

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: No information available.

SECTION 16 - OTHER INFORMATION

HMIS RATINGS - HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

PREVIOUS MSDS REVISION DATE: 08/18/93

VOLATILE ORGANIC COMPOUNDS (VOCS): 0.76 lbs/gal, 91 grams/ltr

LEGEND: N.A. - Not Applicable, N.E. - Not Established,
N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

<END OF MSDS>

21 RED

MATERIAL SAFETY DATA SHEET

IDENTITY: SPRAY WAX BLACK UG

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 0 REACTIVITY: 0 SPECIFIC HAZARDS: NONE

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: July 24, 2002
DATE REVISED: November 26, 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
NONE KNOWN OR ESTABLISHED			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: Liquid
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Soluble
APPEARANCE: Black liquid.

SPECIFIC GRAVITY (H_2O = 1): 1.04
VAPOR PRESSURE (mm Hg): Not Measured
EVAPORATION RATE (BUTYL ACETATE = 1): <1
PERCENT VOLATILES BY VOLUME.: 78-81%
V.O.C.: None

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-combustible
FLAMMABLE LIMITS: N/A
FLAMMABILITY CLASSIFICATION - OSHA: Non-combustible
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, or Carbon dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

V REACTIVITY DATA

STABILITY: √ STABLE

UNSTABLE

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: MAY OCCUR

√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: **INHALATION?** YES **SKIN?** YES **INGESTION?** NO

CARCINOGEN: **NTP?** NO **IARC MONOGRAPHS?** NO **OSHA REGULATED?** NO

EFFECTS OF OVEREXPOSURE: None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known to occur.

EMERGENCY FIRST AID PROCEDURES: SKIN: Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. **EYES:** Flush immediately with running water for 15 minutes. If irritation occurs, seek medical attention. **INHALATION:** Get victim to fresh air. If having trouble breathing, seek medical attention. **INGESTION:** If ingested, seek medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep from freezing.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: If adequate ventilation is not available, organic vapor respirator recommended.

VENTILATION: Local recommended, but mechanical may be used.

PROTECTIVE GLOVES: Impervious gloves required.

EYE PROTECTION: Safety Glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains the following chemicals subject to the reporting of SARA Title III Section 313 40CFR372.

CHEMICAL	CAS NO.
NONE	

"The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Union Specialties, Inc. assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of this material."

MATERIAL SAFETY DATA SHEET

IDENTITY: SPRAY WAX BROWN UG

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 0 REACTIVITY: 0 SPECIFIC HAZARDS: NONE

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: July 24, 2002
DATE REVISED: November 26, 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
NONE KNOWN OR ESTABLISHED			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: Liquid
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Soluble
APPEARANCE: Brown liquid.

SPECIFIC GRAVITY (H_2O = 1): 1.06
VAPOR PRESSURE (mm Hg): Not Measured
EVAPORATION RATE (BUTYL ACETATE = 1): <1
PERCENT VOLATILES BY VOLUME.: 76-78%
V.O.C.: None

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-combustible
FLAMMABLE LIMITS: N/A
FLAMMABILITY CLASSIFICATION - OSHA: Non-combustible
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, or Carbon dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

V REACTIVITY DATA

STABILITY: √ STABLE

UNSTABLE

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: MAY OCCUR

√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: **INHALATION?** YES **SKIN?** YES **INGESTION?** NO

CARCINOGEN: **NTP?** NO **IARC MONOGRAPHS?** NO **OSHA REGULATED?** NO

EFFECTS OF OVEREXPOSURE: None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known to occur.

EMERGENCY FIRST AID PROCEDURES: SKIN: Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. **EYES:** Flush immediately with running water for 15 minutes. If irritation occurs, seek medical attention. **INHALATION:** Get victim to fresh air. If having trouble breathing, seek medical attention. **INGESTION:** If ingested, seek medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep from freezing.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: If adequate ventilation is not available, organic vapor respirator recommended.

VENTILATION: Local recommended, but mechanical may be used.

PROTECTIVE GLOVES: Impervious gloves required.

EYE PROTECTION: Safety Glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains the following chemicals subject to the reporting of SARA Title III Section 313 40CFR372.

CHEMICAL	CAS NO.
NONE	

"The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Union Specialties, Inc. assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of this material."

MATERIAL SAFETY DATA SHEET

IDENTITY: SPRAY WAX ORANGE UG

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 0 REACTIVITY: 0 SPECIFIC HAZARDS: NONE

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: July 24, 2002
DATE REVISED: November 26, 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
NONE KNOWN OR ESTABLISHED			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: Liquid
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Soluble
APPEARANCE: Orange liquid.

SPECIFIC GRAVITY (H_2O = 1): 1.01
VAPOR PRESSURE (mm Hg): Not Measured
EVAPORATION RATE (BUTYL ACETATE = 1): <1
PERCENT VOLATILES BY VOLUME.: 81-83%
V.O.C.: None

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-combustible
FLAMMABLE LIMITS: N/A
FLAMMABILITY CLASSIFICATION - OSHA: Non-combustible
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, or Carbon dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

V REACTIVITY DATA

STABILITY: √ STABLE

UNSTABLE

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: MAY OCCUR

√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: **INHALATION?** YES **SKIN?** YES **INGESTION?** NO

CARCINOGEN: **NTP?** NO **IARC MONOGRAPHS?** NO **OSHA REGULATED?** NO

EFFECTS OF OVEREXPOSURE: None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known to occur.

EMERGENCY FIRST AID PROCEDURES: **SKIN:** Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. **EYES:** Flush immediately with running water for 15 minutes. If irritation occurs, seek medical attention. **INHALATION:** Get victim to fresh air. If having trouble breathing, seek medical attention. **INGESTION:** If ingested, seek medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep from freezing.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: If adequate ventilation is not available, organic vapor respirator recommended.

VENTILATION: Local recommended; but mechanical may be used.

PROTECTIVE GLOVES: Impervious gloves required.

EYE PROTECTION: Safety Glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains the following chemicals subject to the reporting of SARA Title III Section 313 40CFR372.

CHEMICAL	CAS NO.
NONE	

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MATERIAL SAFETY DATA SHEET

IDENTITY: SPRAY WAX WHITE UG

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 0 REACTIVITY: 0 SPECIFIC HAZARDS: NONE

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: July 24, 2002
DATE REVISED: November 25, 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
NONE KNOWN OR ESTABLISHED			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: Liquid
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Soluble
APPEARANCE: White liquid.

SPECIFIC GRAVITY (H_2O = 1): 1.07
VAPOR PRESSURE (mm Hg): Not Measured
EVAPORATION RATE (BUTYL ACETATE = 1): <1
PERCENT VOLATILES BY VOLUME.: 75-77%
V.O.C.: None

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-combustible
FLAMMABLE LIMITS: N/A
FLAMMABILITY CLASSIFICATION - OSHA: Non-combustible
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, or Carbon dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

V REACTIVITY DATA

STABILITY: √ STABLE

UNSTABLE

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: MAY OCCUR

√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: INHALATION? YES **SKIN?** YES **INGESTION?** NO

CARCINOGEN: NTP? NO **IARC MONOGRAPHS?** NO **OSHA REGULATED?** NO

EFFECTS OF OVEREXPOSURE: None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known to occur.

EMERGENCY FIRST AID PROCEDURES: SKIN: Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. **EYES:** Flush immediately with running water for 15 minutes. If irritation occurs, seek medical attention. **INHALATION:** Get victim to fresh air. If having trouble breathing, seek medical attention. **INGESTION:** If ingested, seek medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep from freezing.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: If adequate ventilation is not available, organic vapor respirator recommended.

VENTILATION: Local recommended, but mechanical may be used.

PROTECTIVE GLOVES: Impervious gloves required.

EYE PROTECTION: Safety Glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains the following chemicals subject to the reporting of SARA Title III Section 313 40CFR372.

CHEMICAL	CAS NO.
NONE	

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MATERIAL SAFETY DATA SHEET

IDENTITY: SPRAY WAX YELLOW UG

HMIS/NFPA RATINGS: HEALTH: 1 FIRE: 0 REACTIVITY: 0 SPECIFIC HAZARDS: NONE

I MANUFACTURER INFORMATION

Union Specialties, Inc.
3 Malcolm Hoyt Drive
Newburyport, MA 01950

EMERGENCY TELEPHONE NUMBER: (978) 465-1717
INFORMATION TELEPHONE NUMBER: (978) 465-1717
DATE PREPARED: July 24, 2002
DATE REVISED: November 26 2002

II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENT	OSHA PEL	ACGIH TLV	OPTIONAL %
NONE KNOWN OR ESTABLISHED			

III PHYSICAL/CHEMICAL CHARACTERISTICS

MELTING POINT: Liquid
BOILING POINT: 212°F (100°C)
VAPOR DENSITY (AIR = 1): >1
SOLUBILITY IN WATER: Soluble
APPEARANCE: Yellow liquid.

SPECIFIC GRAVITY (H_2O = 1): 1.07
VAPOR PRESSURE (mm Hg): Not Measured
EVAPORATION RATE (BUTYL ACETATE = 1): <1
PERCENT VOLATILES BY VOLUME.: 73-75%
V.O.C.: None

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-combustible
FLAMMABLE LIMITS: N/A
FLAMMABILITY CLASSIFICATION - OSHA: Non-combustible
EXTINGUISHING MEDIA: Foam, Water fog, Dry chemical, or Carbon dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus and turnout gear.

V REACTIVITY DATA

STABILITY: √ STABLE

UNSTABLE

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: MAY OCCUR

√ WILL NOT OCCUR

CONDITIONS TO AVOID: None known.

VI HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: **INHALATION?** YES **SKIN?** YES **INGESTION?** NO

CARCINOGEN: **NTP?** NO **IARC MONOGRAPHS?** NO **OSHA REGULATED?** NO

EFFECTS OF OVEREXPOSURE: None known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known to occur.

EMERGENCY FIRST AID PROCEDURES: SKIN: Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. **EYES:** Flush immediately with running water for 15 minutes. If irritation occurs, seek medical attention. **INHALATION:** Get victim to fresh air. If having trouble breathing, seek medical attention. **INGESTION:** If ingested, seek medical attention.

VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Spill should be contained and the product absorbed with absorbent material and collected for disposal.

WASTE DISPOSAL METHOD: Dispose in accordance with local, state, and federal regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep from freezing.

OTHER PRECAUTIONS: FOR INDUSTRIAL USE ONLY.

VIII CONTROL MEASURES

RESPIRATORY PROTECTION: If adequate ventilation is not available, organic vapor respirator recommended.

VENTILATION: Local recommended, but mechanical may be used.

PROTECTIVE GLOVES: Impervious gloves required.

EYE PROTECTION: Safety Glasses.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash station nearby.

WORK /HYGIENIC/MAINTENANCE PRACTICES: Wash after use.

IX REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Components of this product are listed or are exempt from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory; 40 CFR 723.250 Section V.

SARA 313

This product contains the following chemicals subject to the reporting of SARA Title III Section 313 40CFR372.

CHEMICAL	CAS NO.
NONE	

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T15-061

MATERIAL SAFETY DATA SHEET

STAINLESS STEEL BARE WIRE

Version Date 03/01/94 | Print Date 03/01/94

SECTION 1 — PRODUCT IDENTIFICATION

COMPANY NAME WHO SENT MSDS	HARRIS WELCO, DIV. OF J.W. HARRIS CO., INC
COMPANY ADDRESS	1051 YORK ROAD KINGS MOUNTAIN, NC 28086
EMERGENCY PHONE NUMBER	(800)-424-9300
MSDS VERSION NUMBER	1
TRADE NAME	STAINLESS STEEL AWS, 308, 308L, 308LHS, 310, 312, 316, 316L, 317, 317L, 318, 320, 330, 347, 410NiMo, 630, 410
HAZARD RATING (HMIS)	NA
HMIS DESIGNATION KEY	NA

SECTION 2 — HAZARDOUS COMPONENTS

MATERIAL	% BY WEIGHT	CAS NUMBER	ACGIH TLV (Mg/M3)	SEC 313
IRON	NA	7439-86-6	10 AS Fe203	NO
CHROMIUM	NA	7440-47-3	.05 CHROMIUM VI	YES
NICKEL	NA	7440-02-0	1	YES
MANGANESE	NA	7439-96-5	1	NO
SILICON	NA	7440-21-3	3 AS SI02	NO
MOLYBDENUM	NA	7439-98-7	10	NO

SECTION 3 — PHYSICAL PROPERTIES

BOILING POINT	NA
MELTING POINT	NA
VAPOR PRESSURE	NA
VAPOR DENSITY (AIR = 1)	NA
SOLUBILITY IN WATER	NA
SPECIFIC GRAVITY	NA
EVAPORATION RATE	NA
APPEARANCE AND ODOR	SOLID ROD

SECTION 4 — FIRE AND EXPLOSION DATA

FLASH POINT	NA
EXTINGUISHING MEDIA	SEE BELOW
SPECIAL PROCEDURES	SEE BELOW
UNUSUAL HAZARDS	WELDING ARC AND SPARKS CAN IGNITE COMBUSTIBLES AND FLAMMABLES. REFER TO AMERICAN NATIONAL STANDARD Z49.1 FOR FIRE PREVENTION DURING THE USE OF WELDING AND ALLIED PROCEDURES

SECTION 5 — REACTIVITY DATA

STABILITY	STABLE
CONDITIONS TO AVOID	NONE UNLESS OTHERWISE SPECIFIED
HAZARDOUS POLYMERIZATION	NA
CONDITIONS TO AVOID	NA
INCOMPATABILITY	NONE
HAZARDOUS DECOMPOSITION PRODUCTS	THE COMPOSITION AND QUALITY OF WELDING FUMES AND GASES ARE DEPENDENT UPON THE METAL BEING WELDED, THE PROCESS, PROCEDURE AND ELECTRODES USED. OTHER CONDITIONS WHICH ALSO INFLUENCE THE COMPOSITION AND QUANTITY OF FUMES AND GASES TO WHICH WORKERS MAY BE EXPOSED INCLUDE: COATINGS ON METAL BEING WELDED (SUCH AS PAINT, PLATING, OR GALVANIZING), THE NUMBER OF WELDERS AND VOLUME OF THE WORK AREA, THE QUALITY AND AMOUNT OF VENTILATION, THE POSITION OF WELDER'S HEAD WITH RESPECT TO FUME PLUME, AND THE PRESENCE OF CONTAMINANTS IN ATMOSPHERE (CHLORINATED HYDROCARBON VAPORS FROM CLEANING AND DEGREASING ACTIVITIES). WHEN ELECTRODE IS CONSUMED, THE FUME AND GAS DECOMPOSITION PRODUCTS GENERATED ARE DIFFERENT IN PERCENT AND FORM FROM INGREDIENTS IN SECTION 2. FUME AND GAS DECOMPOSITION PRODUCTS, AND NOT INGREDIENTS IN ELECTRODE, ARE IMPORTANT. CONCENTRATION OF GIVEN FUME OR GAS COMPONENT MAY DECREASE OR INCREASE BY MANY TIMES ORIGINAL CONCENTRATION. NEW COMPOUNDS IN ELECTRODE MAY FORM. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM VOLATILIZATION, REACTION, OR OXIDATION OF MATERIALS IN SECTION 2, PLUS THOSE FROM BASE METAL AND COATING, ETC., AS NOTED ABOVE. REASONABLY EXPECTED FUME CONSTITUENTS OF PRODUCT COULD INCLUDE PRIMARILY OXIDES OF IRON; SECONDARILY OXIDES OF CHROMIUM, NICKEL, MANGANESE, SILICON, AND MOLYBDENUM. PRESENT OSHA EXP. LIMITS FOR HEXAVALENT-CHROMIUM IS .05 MG/M3 AND NICKEL 1MG/M3 WHICH WILL RESULT IN SIGNIFICANT REDUCTION FROM 5MG/M3 GENERAL FUME LEVEL. GASEOUS REACTION IN

MATERIAL SAFETY DATA SHEET

STAINLESS STEEL BARE WIRE

Version Date 03/01/94 Print Date 03/01/94

SECTION 5 — REACTIVITY DATA - CONTINUED

PRODUCTS MAY INCLUDE CARBON MONOXIDE AND CARBON DIOXIDE. OZONE AND NITROGEN OXIDES MAY BE FORMED BY THE RADIATION FROM ARC. IN ADDITION TO SHIELDING GASES LIKE ARGON AND HELIUM WHEN EMPLOYED. ONE RECOMMENDED WAY TO DETERMINE COMPOSITION AND QUANTITY OF FUMES AND GASES IS TO TAKE AIR SAMPLE FROM INSIDE WELDER'S HELMET IF WORN OR IN BREATHING ZONE. SEE AWS F1.1 AND AWS F1.2-1985, AVAILABLE FROM THE AMERICAN WELDING SOCIETY. SEE AWS PUBLICATION: "FUMES AND GASES IN THE WELDING ENVIRONMENT".

SECTION 6 — HEALTH HAZARD DATA

ROUTES OF ENTRY	NA
HEALTH HAZARDS	ELECTRIC ARC-WELDING MAY CREATE. FUMES AND GASES CAN BE DANGEROUS. ARC RAYS CAN INJURE EYES AND BURN SKIN. ELECTRIC SHOCK CAN KILL.
CARCINOGENICITY	NA
SIGNS & SYMPTOMS OF EXPOSURE	SEE BELOW.
MEDICAL CONDITIONS FROM EXPOSURE	SHORT TERM TO WELDING FUMES-DIZZINESS, NAUSEA, DRYNESS & IRRITATION OF NOSE, EYES, THROAT, CHEST TIGHTNESS, FEVER, ALLERGIC REACTION. LONG TERM-SIDEROSIS, BELIEVED TO AFFECT PULMONARY FUNCTION. NICKEL AND CHROMIUM COMPOUNDS ARE REQUIRED BY OSHA TO BE CONSIDERED CARCINOGENIC.
EMERGENCY & FIRST AID	REMOVE TO FRESH AIR. OBTAIN MEDICAL ATTENTION. EMPLOY FIRST AID TECHNIQUES RECOMMENDED BY AM. RED CROSS.
ADDITIONAL INFORMATION	

SECTION 7 — PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL AND LEAK PROCEDURES	NA
WASTE AND DISPOSAL METHOD	PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT RESIDUE, DISPOSABLE CONTAINER OR LINER IN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
HANDLING AND STORING PRECAUTIONS	USE EXHAUST SYSTEM. MAKE SURE INHALED AIR DOES NOT CONTAIN FUME CONSTITUENTS ABOVE PERMISSIBLE EXPOSURE LEVELS. OTHER PRECAUTIONS FOR ADDITIONAL SAFETY INFORMATION ON WELDING AND CUTTING, SEE AMERICAN STANDARD Z49.1-1983, SAFETY IN WELDING AND CUTTING, AND THE WELDING HANDBOOK, VOL. 1, CHAPTER 9, SAFE PRACTICES IN WELDING AND CUTTING, BOTH AVAILABLE FROM AM WELDING SOCIETY INC., 550 N.W. LEJNUE RD., PO BOX 351040, MIAMI, FL 33135, PHONE 305-443-9353.
OTHER PRECAUTIONS	

SECTION 8 — CONTROL MEASURES

RESPIRATORY MEASURES	USE RESPIRABLE FUME RESPIRATORY OR AIR SUPPLIED RESPIRATOR WHEN IN CONFINED SPACE OR LOCAL EXHAUST DOES NOT KEEP EXPOSURE BELOW RECOMMENDED EXPOSURE LIMIT
VENTILATION	USE ENOUGH LOCAL VENTILATION, AND LOCAL EXHAUST AT ARC TO KEEP FUMES AND GASES FROM WORKER'S BREATHING ZONE AND GENERAL AREA. TRAIN WORKER TO KEEP HEAD OUT OF FUMES.
PROTECTIVE GLOVES	SEE OTHER PROTECTIVE EQUIPMENT
EYE PROTECTION	WEAR HELMET, FACE SHIELD WITH FILTER LENS, PROTECTIVE SCREENS, FLASH GOGGLES TO SHIELD OTHERS. START WITH SHADE TOO DARK THEN GO TO LIGHTER SHADE WHICH GIVES SUFFICIENT VIEW OF WELD ZONE.
OTHER PROTECTIVE EQUIPMENT	HAND, HEAD, BODY PROTECTION TO PREVENT INJURY FROM RADIATION, SPARKS AND ELECTRICAL SHOCK. DO NOT TOUCH LIVE ELECTRICAL PARTS AND INSULATE FROM WORK AND GROUND.
WORK/HYGIENIC PRACTICES	NA

SECTION 9 — DISCLAIMER

THIS DATA IS BELIEVED TO BE ACCURATE. HARRIS WELCO MAKES NO WARRANTY TO AND DISCLAIMS ALL LIABILITY FROM RELIANCE.

SECTION 10 — ADDITIONAL INFORMATION

NA = NOT APPLICABLE

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1. PRODUCT IDENTIFICATION

CATALOG NO.: R-0602P
PRODUCT NAME: Stannous Chloride Powder
CHEMICAL FAMILY: Inorganic salt mixture

2. INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
Stannous chloride	7772-99-8	<10	Irritant
Potassium chloride	7447-40-7	to 100	Irritant

3. PHYSICAL/CHEMICAL CHARACTERISTICS

STATE: Solid APPEARANCE: white powder ODOR: None
BOILING PT (F): NA pH: NA SPECIFIC GRAVITY: 2.4
VAPOR PRESSURE (mm Hg): NA VAPOR DENSITY (AIR=1): NA
PERCENT VOLATILE BY VOLUME: 0 SOLUBILITY IN WATER: Soluble

4. FIRE, EXPLOSION HAZARD AND REACTIVITY DATA

FLASH PT: NA METHOD: NA
FLAMMABLE LIMITS: LEL: NA UEL: NA
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and full-protective clothing
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: May emit toxic fumes of chlorine.
NFPA CODE: Health: 0 Flammability: 0 Reactivity: 0 Specific: NA
CONDITIONS TO AVOID: Extreme heat, temperatures. Contact with strong oxidizers, bromine trifluoride, (sulfuric acid + potassium permanganate).

5. HEALTH HAZARD DATA

INGREDIENT: Potassium chloride
TOXICITY: LDLo(orl-hmn): 500 mg/kg
PEL: NE TLV: NE
STEL: NE

INGREDIENT: Stannous chloride
TOXICITY: LD50(orl-rat): 700 mg/kg
PEL: 2 mg/m3 (as tin) TLV: 2 mg/m3 (as tin)
STEL: NE

5.HEALTH HAZARD DATA - continued
ROUTE(S) OF ENTRY: Inhalation X Ingestion X Skin X
TARGET ORGAN(S): Eyes, skin, respiratory tract
CARCINOGENICITY: NTP No IARC No OSHA No
HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:
EYES: Irritant
SKIN: Irritant
INGESTION: Irritant. May cause gastrointestinal irritation.
INHALATION: Irritant. May cause benign pneumoconiosis (stannosis)
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye, skin, and respiratory conditions

6.PRECAUTIONARY MEASURES
PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat, dust mask, adequate ventilation
HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.
STORAGE: Cool, dry area. Avoid direct sunlight.

7.EMERGENCY AND FIRST AID PROCEDURES
EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with soap and water.
INGESTION: Give large amounts of water. Call physician. Induce vomiting under direction of physician.
INHALATION: Remove to fresh air. Call physician.

8.SPILL AND DISPOSAL PROCEDURES
SPILL OR RELEASE: Sweep up. Avoid raising dust. Containerize for later disposal.
DISPOSAL: To comply with all local, state, and federal regulations.

NA = Not applicable
ND = Not determined
NE = Not established

This Material Safety Data Sheet has been prepared in accordance with 29 CFR Part 1910.1200 and contains information believed to be accurate and complete at the date of preparation. However, no warranty is expressed or implied. Advice given under "Spill and Disposal Procedures" assumes compliance with federal, state, and local regulations regarding the disposal of hazardous waste.

DATE PREPARED: March 1997

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New 2P

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1.PRODUCT IDENTIFICATION
CATALOG NO.: R-0602P
PRODUCT NAME: Stannous Chloride Powder.
CHEMICAL FAMILY: Inorganic salt mixture

2.INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
Potassium chloride	7447-40-7	>90	Irritant
Stannous chloride	7772-99-8	<10	Irritant

3.PHYSICAL/CHEMICAL CHARACTERISTICS
STATE: Solid APPEARANCE: white ODOR: None
BOILING PT (F): NA pH: NA SPECIFIC GRAVITY: 1
VAPOR PRESSURE (mm Hg): NA VAPOR DENSITY (AIR=1): NA
PERCENT VOLATILE BY VOLUME: 0 SOLUBILITY IN WATER: Soluble

4.FIRE, EXPLOSION HAZARD AND REACTIVITY DATA
FLASH PT: NA METHOD: NA
FLAMMABLE LIMITS: LEL: NA UEL: NA
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and full-protective clothing
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: May emit toxic fumes of chlorine.
NFPA CODE: Health: 0 Flammability: 0 Reactivity: 0 Specific: NA
CONDITIONS TO AVOID: Extreme heat, temperatures. Contact with strong oxidizers, bromine trifluoride, (sulfuric acid + potassium permanganate).

5.HEALTH HAZARD DATA
INGREDIENT: Potassium chloride
TOXICITY: LDLo(orl-hmn): 500 mg/kg
PEL: NE TLV: NE
STEL: NE

INGREDIENT: Stannous chloride
TOXICITY: LD50(orl-rat): 700 mg/kg
PEL: 2 mg/m3 (as tin) TLV: 2 mg/m3 (as tin)
STEL: NE

ROUTE(S) OF ENTRY: InhalationX IngestionX SkinX
TARGET ORGAN(S): Eyes, skin, respiratory tract
CARCINOGENICITY: NTPNo IARCNo OSHANo
HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:
EYES: Irritant
SKIN: Irritant
INGESTION: Irritant. May cause gastrointestinal irritation.
INHALATION: Irritant. May cause benign pneumoconiosis (stannosis)
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye, skin, and respiratory conditions

6.PRECAUTIONARY MEASURES

PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat, dust mask, adequate ventilation

HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.

STORAGE: Cool, dry area. Avoid direct sunlight.

7.EMERGENCY AND FIRST AID PROCEDURES

EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with soap and water.

INGESTION: Give large amounts of water. Call physician. Induce vomiting under direction of physician.

INHALATION: Remove to fresh air. Call physician.

8.SPILL AND DISPOSAL PROCEDURES

SPILL OR RELEASE: Sweep up. Avoid raising dust. Containerize for later disposal.

DISPOSAL: To comply with all local, state, and federal regulations.

9.TRANSPORTATION DATA (U.S. - SURFACE)

PROPER SHIPPING NAME: Stannous chloride, solid

HAZARD CLASS: ORM-B

IDENTIFICATION NO.: NA1759

NA = Not applicable
ND = Not determined
NE = Not established

This Material Safety Data Sheet has been prepared in accordance with 29 CFR Part 1910.1200 and contains information believed to be accurate and complete at the date of preparation. However, no warranty is expressed or implied. Advice given under "Spill and Disposal Procedures" assumes compliance with federal, state, and local regulations regarding the disposal of hazardous waste.

DATE PREPARED: February 1992

Dept 14

Thermo Orion
a Thermo Electron business
500 Cummings Center
Beverly, MA 01915-6199 USA
Telephone 978-232-6000

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name: Orion Application Solution-pH Electrode Storage Solution	**Catalog No.** 910001, 910060, 9100CB	**Effective Date** 11/3/00
Hazardous Shipment Labeling:	**DOT** None	**IATA** None
Prepared By	**Title** Quality Assurance Chemist	
Approved By	**Title** Director Regulatory Matters	

II. HAZARDOUS INGREDIENTS (IDENTIFY INFORMATION)

Hazardous Components * Specific Chemical Identity: Common Name(s)	CAS NO.	%	OSHA PEL	ACGIH TLV	LD_{50} mg/Kg
***Potassium Chloride (KCl)	7447-40-7	11	None Listed	None Listed	2600 (ORL-RAT)
Potassium Phosphate Monobasic (KH_2PO_4)	7778-77-0	<1	None Listed	None Listed	NA**
Sodium Phosphate Dibasic (Na_2HPO_4)	7558-79-4	<1	None Listed	None Listed	170,000 (ORL-RAT)
***Deionized Water (H_2O)	7732-18-5	>88	None Listed	None Listed	190,000 (IPR-MUS)

III. PHYSICAL DATA

Boiling Point 750mm Hg	100°C	**Freezing Point**	-3°C
Specific Gravity (H_2O=1)	1.05	**Vapor Pressure @ 25°C**	NA**
pH @ 25°C	6.3 - 6.9	**Solubility In Water, % by Wt @ 25°C**	Miscible
Volatiles % By Wt.	NA	**Evaporation Rate (BUTYL, ACETATE = 1)**	NA
Vapor Density (AIR = 1)	NA		
Appearance and Odor	Clear, colorless, odorless liquid		

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method) NA	**Autoignition Temperature** NA	
Flammable Limits in air, % by volume:	**Lower** NA	**Upper** NA
Extinguishing Media	Dry chemical, water, foam, or CO_2	
Special Fire-Fighting Procedures	None, this solution is non-flammable.	
Unusual Fire and Explosion Hazards	None	

*Chemicals which are not classified as hazardous per U.S. OSHA guidelines (29CFR Parts 1915.2 or 1916.2) or the Massachusetts Substance List (105CMR670.000 Appendix A) will not necessarily be listed on this form even though one or more may be a constituent of this product
** NA Not available/not applicable
*** Non-hazardous component

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated. Safe use of the materials is the responsibility of the user.

Document No. 205545-001
Rev. H

Printed in U.S.A.
Form MSDS/1192

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Orion Application Solution pH Electrode Storage Solution **Catalog No.: 910001, 10060, 9100CB**

V. REACTIVITY DATA

Stability:			**Conditions to Avoid**
Unstable	Stable	X	None
Incompatibility (Materials to avoid)	Magnesium and sodium metals		
Hazardous Decomposition Products	May emit toxic POx fumes if heated to decomposition		
Hazardous Polymerization:			**Condition to Avoid**
May Occur	Will Not Occur	X	Heating to decomposition

VI. HEALTH HAZARD DATA

Route(s) Of Entry:	**Inhalation?**	**Skin?**	**Ingestion?**
	No	No	No

Health Hazards (acute and chronic)
Low hazard for both acute and chronic because of low concentration of phosphate salts. This composition is also used as a buffer in pharmaceuticals.

Carcinogenicity:	**NTP?**	**IARC Monographs?**	**OSHA Regulated?**
Not found on these lists			

Signs and Symptoms of Exposure
Irritation of skin

Medical Conditions Generally Aggravated by Exposure Could aggravate diseases of the skin.

Emergency And First Aid Procedures
Wash off contact area with soap with water. If ingested: Dilute with water and consult physician.

VII. PRECAUTIONS (SAFE HANDLING AND USE)

Steps To be Taken In Case Material Is Released or Spilled
Clean up and wash down drain if local law allows

Waste Disposal Method
Wash down drain. Observe all Federal, State and Local laws when disposing of this product.

Precautions To Be Taken In Handling and Storing
NFPA Rating: Scale (0-4); Health - 1, Fire - 0, Reactivity - 0, Specific - None.

Other Precautions
SARA TITLE III Na_2HPO_4 is a CERCLA hazard and releases are subject to Section 304 of Title III. Not found on Cal. Prop. 65.
Components reported in EPA TSCA inventory.

VIII. CONTROL MEASURES

Respiratory Protection (specify type)	None		
Ventilation	**Local Exhaust** None	**Special**	None
Ventilation	**Mechanical (General)** None	**Other**	None
Protective Gloves	None	**Eye Protection**	Safety Glasses

Other Protective Clothing Or Equipment
Eye wash station should be available.

Work/Hygienic Practices
No eating or drinking in work area. Wash hands after working with this product.

Dispos

Compass Chemical International Inc.
10 E. 22nd Street
Suite 318
Lombard, IL 60148

Toll Free 888.815.3869
630.627.6787
Fax: 630.627.6788
email: info@compasschemical.com

Product Name: Sulfamic Acid

Date 10-1-00

Material Safety Data Sheet

1 – Product Identification

Product Name: Sulfamic Acid
CCII Anagram: SUL
CCII Product No.: 149221

CAS# 5329-14-6
Molecular Weight: 97.09
Chemical Formula: H_2NSO_3H

Synonyms:
Amidosulfonic Acid * Amidosulfuric Acid * Aminosulfonic Acid * Sulfamidic Acid

2 – Product Composition

Ingredient	CAS#	%	Hazardous
Sulfamic Acid	5329-14-6	90 – 100	Yes

3 – Hazard(s) Identification

Emergency Overview:
DANGER! Corrosive. May be fatal if swallowed. Harmful if inhaled. Causes severe irritation and burns to area(s) of contact. May cause lung damage
Potential Health Effects:
Eye:
Corrosive. Can cause blurred vision, redness, pain, severe tissue burns and/or eye damage
Skin:
Corrosive. Symptoms of redness, pain and/or severe burn can occur
Inhalation:
Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, and shortness of breath, headache, nausea and/or vomiting. Can cause pulmonary edema (this effect can be delayed up to 48 hours)
Ingestion:
Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, which could cause death.

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Fax: 630.627.6788
email: info@compasschemical.com

4 – First Aid Measures

Eye:
Immediately flush with copious amounts of water for at least 15 minutes lifting upper and lower eyelids occasionally. Seek medical aid immediately
Skin:
Immediately flush skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical aid immediately. Thoroughly wash clothing and shoes before reuse
Inhalation:
Remove to fresh air. If victim is not breathing, give artificial respiration (CPR) if breathing is difficult, give oxygen. Seek medical aid immediately
Ingestion:
If swallowed, **DO NOT** induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Seek medical aid immediately
Note to Physician: For severe exposures, monitor for delayed onset of pulmonary edema

5 – Fire Fighting Measures

Fire:
Not considered to be a fire hazard
Explosion:
Not considered to be an explosion hazard
Fire Extinguishing Media:
Use any means for extinguishing surrounding fire
Special Information:
As in any fire wear full protective clothing and NIOSH approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode

6 – Accidental Release

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment.
Spills:
Pick up and place material in a suitable waste container for disposal, using a method that does not generate dust

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7 – Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities

8 – Exposure Controls / Personal Protection

Airborne Exposure Limits:
None established
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant
Personal Protection:
Eye:
Use chemical safety goggles and/or full-face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and/or safety shower on store premise
Skin:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls as needed to prevent skin contact
Inhalation:
For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive pressure, air supplied respirator

9 – Physical and Chemical Properties

Appearance:
White to colorless crystals
Odor:
Odorless

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9 – Physical and Chemical Properties Cont'd

Solubility:
Soluble in water
Density:
2.1
pH:
1.18 (1% solution @ 25°C (77°F)
% Volatiles by volume @ 21°C (70°F):
0
Boiling Point:
Decomposes
Melting Point:
205°C (401°F)
Vapor Density (Air=1):
3.3
Vapor Pressure (mm Hg):
No information found
Evaporation Rate (BuAc=1):
No information found

10 – Stability and Reactivity

Stability:
Stable under normal conditions of use and storage. Solutions are acidic. In water solution slowly hydrolyzes to form ammonium sulfate and bisulfate
Hazardous Decomposition Products:
May emit ammonia, oxides of sulfur, oxides of nitrogen, and oxides of carbon
Hazardous Polymerization:
Will not occur
Incompatibilities:
Strong oxidizers, nitric acid, chlorine. Solutions are strong acids and react violently with bases.
Conditions to Avoid:
Dusting and incompatibles

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11 – Toxicological Information

Oral, rat LD50: 3160 mg/kg; Irritation data: skin human, standard Draize: 4%/5D-I mild. Skin, rabbit, standard Draize, 500 mg/24H severe. Eye, rabbit, standard Draize: 250 ug/24H Severe

Cancer Lists

Ingredient	Known	NTP Carcinogen Anticipated	IARC Category
Sulfamic Acid (5329-14-6)	No	No	None

12 – Ecological Information

Environmental Fate:
No information found
Environmental Toxicity:
No information found

13 – Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with Federal, State and local requirements

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14 – Transport Information

US DOT (Department of Transportation)
Proper Shipping Name: Sulfamic Acid
Hazard Class: 8 *(Corrosive)*
UN/NA: UN2967
Packing Group: III

In the event of a chemical transportation emergency involving spill, leak, fire or exposure, isolate the spill, cargo and articles involved and call:
CHEMTREC: 800-424-9300

15 – Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. Compass Chemical International, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Material Safety Data Sheet Issue Date: October 2000

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1. PRODUCT IDENTIFICATION

CATALOG NO.: R-0687
PRODUCT NAME: Sulfuric Acid .12N
CHEMICAL FAMILY: Inorganic acid solution

2. INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
Sulfuric acid	7664-93-9	<1	Irritant acid
Deionized water	7732-18-5	to 100	None

3. PHYSICAL/CHEMICAL CHARACTERISTICS

STATE: Liquid APPEARANCE: Clear, colorless ODOR: None
BOILING PT (F): 212 pH: 1.3 SPECIFIC GRAVITY: 1
VAPOR PRESSURE (mm Hg): 17 VAPOR DENSITY (AIR=1): .6
PERCENT VOLATILE BY VOLUME: 100 SOLUBILITY IN WATER: Soluble

4. FIRE, EXPLOSION HAZARD AND REACTIVITY DATA

FLASH PT: NA METHOD: NA
FLAMMABLE LIMITS: LEL: NA UEL: NA
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and special protective clothing
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: May react violently with water. May react with metals to produce hydrogen gas. May ignite combustible materials. May emit toxic fumes of sulfur oxides.
NFPA CODE: Health: 1 Flammability: 0 Reactivity: 1 Specific: CORR
CONDITIONS TO AVOID: Extreme heat, temperatures. Contact with strong alkali, metals.

5. HEALTH HAZARD DATA

INGREDIENT: Sulfuric acid
TOXICITY: LD50(orl-rat): 2140 mg/kg
PEL: 1 mg/m3 TLV: 1 mg/m3
STEL: 3 mg/m3

ROUTE(S) OF ENTRY: Inhalation Ingestion X Skin X
TARGET ORGAN(S): Eyes, skin
CARCINOGENICITY: NTP No IARC No OSHA No
HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:
EYES: Irritant. Contact may cause burns.
SKIN: Irritant. Contact may cause burns.
INGESTION: Irritant. May cause gastrointestinal irritation.
INHALATION: NA
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye and skin conditions

6. PRECAUTIONARY MEASURES
PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat
HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.
STORAGE: Cool, dry area. Avoid direct sunlight.

7. EMERGENCY AND FIRST AID PROCEDURES
EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with baking soda, soap and water.
INGESTION: Give large amounts of water or large amounts of water with milk of magnesia. Call physician. DO NOT INDUCE VOMITING.
INHALATION: NA

8. SPILL AND DISPOSAL PROCEDURES
SPILL OR RELEASE: Neutralize with soda ash. Absorb with vermiculite or other inert material. Containerize for later disposal.
DISPOSAL: Incineration or other method to comply with all local, state, and federal regulations.

NA = Not applicable
ND = Not determined
NE = Not established

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DATE PREPARED: May 1996

44-000108

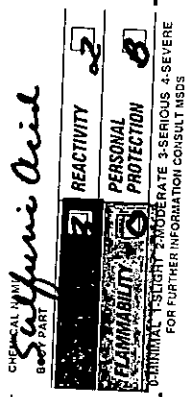
DATE: 02/23/99 ACCT: 889490001
INDEX: D90531176 CAT NO: A300S212 PO NBR: 15-088207

**** MATERIAL SAFETY DATA SHEET ****

Sulfuric Acid
22350

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Sulfuric Acid
Catalog Numbers:
S71211, S71211SC, S71826, S79200, S80213, S80213-1, A298 212, A298212, A300 212, A300 225LB, A300 500, A300 612GAL, A300 700LB, A300212, A300225LB A300500, A300612GAL, A300700LB, A300C 212, A300C212, A300C212001, A300C212002, A300C212003, A300C212004, A300C212005, A300C212006, A300C212007, A300C212008, A300C212009, A300C212010, A300C212LC, A300FP 500, A300FP500, A300J500, A300P 500, A300P500, A300S 212, A300S 500, A300S212, A300S212LC, A300S500, A300SI 212, A300SI212, A468-1, A468-250, A468-500, A484 212, A484212, A510-212, A510-500, AC3000S212002, NC9466102, NC9499595, S71211MF, S71211MF*, S71211SCMF, S71211SCMF*, S79200MF, S79200MF* DHAZ, S79200MF*DHAZ, S79200SCMF, SA174 212, SA174 4, SA174212, SA1744, SA176 4, SA1764, SA196 500, SA196500
Synonyms:
Hydrogen Sulfate, Oil of Vitriol, Vitriol Brown Oil, Matting Acid, Battery Acid
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887



**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7664-93-9	Sulfuric acid	95-98.0%	231-639-5

Hazard Symbols: C
Risk Phrases: 35

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: colourless.
Danger! Strong oxidizer. Contact with other material may cause a fire. Corrosive. Harmful if swallowed. Causes eye and skin burns. May cause severe respiratory and digestive tract irritation with possible burns.
Target Organs: None.

Potential Health Effects
Eye:
Causes severe eye burns. May cause irreversible eye injury.
Skin:
Causes skin burns.
Ingestion:
May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.
Inhalation:
Harmful if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract.
Chronic:
Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.
Skin:
Get medical aid immediately. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. SPEEDY ACTION IS CRITICAL!
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration.
Notes to Physician:

DATE: 02/23/99 ACCT: 889490001
INDEX: D90531176 CAT NO: A300S212 PO NBR: 15-088207

Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Strong oxidizer. Contact with combustible materials may cause a fire. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Contact with water can cause violent liberation of heat and splattering of the material. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water.
Extinguishing Media:
Use carbon dioxide or dry chemical. Do NOT get water inside containers. Cool containers with flooding quantities of water until well after fire is out.
Autoignition Temperature: Not available.
Flash Point: Not available.
(estimated) Health: 3; Flammability: 0; Reactivity: 2
Explosion Limits, Lower: Not available.
Upper: Not available.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Clean up spills immediately, observing precautions in the Protective Equipment section. Cover with sand, dry lime or soda ash and place in a closed container for disposal. Use water spray to reduce vapors, do not put water directly on leak, spill area or inside container.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Do not allow contact with water. Use only in a chemical fume hood.
Storage:
Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sulfuric acid	1 mg/m3; 3 mg/m3 STEL	1 mg/m3 TWA 15 mg/m3 IDLH	1 mg/m3 TWA

OSHA Vacated PELs:
Sulfuric acid:
1 mg/m3 TWA

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: colourless
Odor: odorless
pH: 0.3 (1N Solution)
Vapor Pressure: .00120 mm Hg

WWW_104(e)_018573

Vapor Density: 1.2 kg/m3
Evaporation Rate: Slower than ether.
Viscosity: Negligible
Boiling Point: 554 deg F
Freezing/Melting Point: 50.8 deg F
Decomposition Temperature: 340 deg C
Solubility: Soluble in water and ethanol.
Specific Gravity/Density: 1.841
Molecular Formula: H2SO4
Molecular Weight: 98.0716

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, contact with water, metals, excess heat, combustible materials, organic materials, oxidizers, amines, bases.
Incompatibilities with Other Materials:
Acetic Anhydride, Acetone Cyanhydrin, Acetone + Nitric Acid, Acetone + Potassium Dichromate, Acetonitrile + sulfur trioxide, Acrolein, Acrylonitrile, Alcohols + Hydrogen Peroxide, Allyl Alcohol, Allyl Chloride, 2-Aminoethanol, Ammonium Hydroxide Ammonium Iron(III) sulfate dodecahydrate, Ammonium Triperchromate, Aniline + Glycerol + Nitrobenzene, Benzyl Alcohol, Bromates + Metals, tert-Butyl-m-xylene + Nitric Acid, 1-Chloro-2,3-epoxypropane, Bromine Pentafluoride, n-Butyraldehyde, Carbides, Cesium Acetylene Carbide, Chlorates, 4-Chloronitrobenzene + sulfur trioxide, Copper, Dichloromethane + Ethanol + Nitrate or Nitrite, 2-Cyano-4-nitrobenzenediazonium hydrogen sulfate, 2-cyano-2-propanol, Chlorine Trifluoride, Chlorosulfonic Acid, Cyclopentadiene, Cyclopentanone oxime, 1,3-Diazidobenzene, Diethylamine, Cuprous Nitride, Diisobutylene, Epichlorohydrin, Ethylene Cyanohydrin, Ethylene Diamine, Ethylene Glycol, Dimethoxydinitroanthraquinone, 4-Dimethylaminobenzaldehyde, 2,5-Dinitro-3-Methylbenzoic acid + Sodium Azide, 1,5-Dinitronaphthalene + Sulfur, Ethoxylated nonylphenol, Hexalithium disilicide, Ethylenimine, Fulminates, Other Acids, Iodine Heptafluoride, Metals, Isoprene, Hydrofluoric acid, Hydrogen peroxide, Metal acetylides or carbides, Metal Chlorates, Metal Perchlorates, 4-Methylpyridine, Nitramide, Nitric Acid + Organic Materials, Nitric Acid + Toluene, Nitroaryl bases and derivatives, Nitrobenzene, 3-Nitrobenzenesulfonic Acid, Nitromethane, N-Nitromethylamine, 4-Nitrotoluene, Permanganates, Phosphorus, Phosphorus (III) Oxide, Poly(silylene), Mercuric Nitride, Mesityl Oxide, P-Nitrotoluene, Pentasilver Trihydroxydiaminophosphate, Perchlorates, Permanganates + Benzene, Phosphorus Isocyanate, Picrates, Potassium t-Butoxide, Potassium, 3-Propynol, Potassium Chlorate, Permanganates, beta-Propiolactone, Propylene Oxide, Pyridine, Rubidium Acetylene Carbide and Sodium, Silver Permanganates, Silver Peroxochromate, Sodium, Sodium Carbonate, Sodium Tetrahydroborate, Sodium Thiocyanate, Sucrose, Tetramethylbenzenes, 1,2,4,5-Tetrazine, Thallium (I) azidodithiocarbonate, 1,3,5-Trinitrosohexahydro-1,3,5-triazine, Water, and Zinc Iodide.
Hazardous Decomposition Products:
Oxides of sulfur.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 7664-93-9: WS5600000
LD50/LC50:
CAS# 7664-93-9: Inhalation, mouse: LC50 =320 mg/m3/2H; Inhalation, rat: LC50 =510 mg/m3/2H; Oral, rat: LD50 = 2140 mg/kg.
Carcinogenicity:
Sulfuric acid -
ACGIH: A2 - Suspected Human Carcinogen
OSHA: Select carcinogen
IARC: Group 1 carcinogen
Epidemiology:
Workers exposed to industrial sulfuric acid mist showed a st atistical increase in laryngeal cancer. This data suggests a possible relationship between carcinogenisis and inhalation of sulfuric acid mist.
Teratogenicity:
No data available.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:

Sulfuric acid is harmful to aquatic life in very low concentrations. It may be dangerous if it enters water intakes. The aquatic toxicity for bluegill in fresh water was 24.5 ppm/24 hr, which was lethal.
Environmental Fate:
Not available.
Physical/Chemical:
Not available.
Other:
Not available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants:
None listed.
RCRA D-Series Chronic Toxicity Reference Levels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: SULFURIC ACID
Hazard Class: 8
UN Number: UN1830
Packing Group: II
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
Shipping Name: SULFURIC ACID
Hazard Class: 8(9.2)
UN Number: UN1830

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 7664-93-9 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
CAS# 7664-93-9: final RQ = 1000 pounds (454 kg)
Section 302 (TPQ)
CAS# 7664-93-9: TPQ = 1000 pounds; RQ = 1000 pounds
SARA Codes
CAS # 7664-93-9: acute, chronic, reactive.
Section 313
This material contains Sulfuric acid (CAS# 7664-93-9, 95-98.0%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 7664-93-9 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Sulfuric acid can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: C
Risk Phrases:
R 35 Causes severe burns.
Safety Phrases:
S 26 In case of contact with eyes, rinse immediately

WWW_104(e)_018574

with plenty of water and seek medical advice.
S 30 Never add water to this product.
S 45 In case of accident of if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)
CAS# 7664-93-9: 2

Canada
CAS# 7664-93-9 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of C, D1A, E.
CAS# 7664-93-9 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits
CAS# 7664-93-9:. OEL-ARAB Republic of Egypt:TWA 1 mg/m3. OEL-AUSTRALIA:TWA 1 mg/m3. OEL-BELGIUM:TWA 1 mg/m3;STEL 3 mg/m3. OEL-CZECHOSLOVAKIA:TWA 1 mg/m3;STEL 2 mg/m3. OEL-DENMARK:TWA 1 mg/m3. OEL-FINLAND:TWA 1 mg/m3;STEL 3 mg/m3;Skin. OEL-FRANCE:TWA 1 mg/m3;STEL 3 mg/m3. OEL-GERMANY:TWA 1 mg/m3. OEL-HUNGARY:STEL 1 mg/m3. OEL-JAPAN:TWA 1 mg/m3 -THE NETHERLANDS:TWA 1 mg/m3. OEL-THE PHILIPPINES:TWA 1 mg/m3. OEL-POLAND:TWA 1 mg/m3. OEL-RUSSIA:STEL 1 mg/m3;Skin. OEL-SWEDEN:TWA 1 mg/m3;STEL 3 mg/m3. OEL-SWITZERLAND:TWA 1 mg/m3;STEL 2 mg/m3. OEL-THAILAND:TWA 1 mg/m3. OEL-TURKEY:TWA 1 mg/m3. OEL-UNITED KINGDOM:TWA 1 mg/m3 L IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 12/28/1994 Revision #23 Date: 12/12/1997

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

WOLVERINE WORLD WIDE INC
LEATHER PLANT
RX-1-D1
123 N MAIN STREET
ROCKFORD ,MI 49351 ,

UNIVAR USA INC. (425)889-3400
17425 NE UNION HILL RD , REDMOND , WA 98052

---------- EMERGENCY ASSISTANCE ----------

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

PRODUCT NAME:	SULFURIC ACID 77-100%
MSDS NUMBER:	DQ4950CR
DATE ISSUED:	01/24/2008
SUPERSEDES:	01/24/2007
ISSUED BY:	004690

****
****

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION

TRADE NAME 77 % - 100 % SULFURIC ACID

DISTRIBUTED BY:
UNIVAR USA INC.
17425 NE UNION HILL ROAD
REDMOND, WA 98052
425-889-3400

PHONE NUMBER (TRANSPORTATION EMERGENCY) U.S.A. 1-800-424-9300 CHEMTREC

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

SYNONYMS: DIHYDROGEN SULFATE ; OIL OF VITRIOL ; VITRIOL BROWN OIL
ACIDE SULFURIQUE (FRENCH)

NAME / CHEMICAL FORMULA: SULFURIC ACID / H2SO4

CHEMICAL FAMILY: ACID

UTILIZATION: CHEMICAL INDUSTRIES

SECTION 2. HAZARDS IDENTIFICATION

WHMIS (CANADA): CLASS D-1A : VERY TOXIC MATERIAL CAUSING IMMEDIATE AND SERIOUS EFFECTS

CLASS E : CORROSIVE MATERIAL
LABELING (EEC): C CORROSIVE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

NAME	CAS #	PERCENTAGE (%)	# CE	R PHRASES*
SULFURIC (ACID)	7664-93-9	77 % TO 100 %	231-639-5	R35
60 DEG TECHNICAL		77.7		
66 DEG TECHNICAL		93.2		
1.835 ELECTROLYTE		93.2		
98 % TECHNICAL		98		
99 % TECHNICAL		99		
100 % TECHNICAL		100		
WATER	7732-18-5	0-22		

NOTE *: SEE SECTION 15 FOR THE COMPLETE WORDING OF RISK PHRASES.

SECTION 4. FIRST-AID MEASURES

EYE CONTACT
REMOVE CONTACT LENSES IF PRESENT. IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER, HOLDING EYELIDS OPEN FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN. POSSIBILITY OF CONJUNCTIVITIS, SEVERE IRRITATION, SEVERE BUMS, PERMANENT EYE DAMAGE.

SKIN CONTACT
REMOVE CONTAMINATED CLOTHING AND SHOES AS QUICKLY AS POSSIBLE PROTECTING YOUR HANDS AND BODY. PLACE UNDER A DELUGE SHOWER FOR 15 MINUTES. FLUSH EXPOSED SKIN GENTLY AND THOROUGHLY WITH RUNNING WATER (PAY PARTICULAR ATTENTION TO : FOLDS, CREVICES, CREASES, GROIN). CALL A PHYSICIAN IF IRRITATION PERSISTS. MAY IRRITATE SKIN, CAUSE BUMS (HIGHLY CORROSIVE) AND POSSIBILITY OF SOME SCARRING.
WASH CONTAMINATED CLOTHING BEFORE REUSING. WHILE THE PATIENT IS BEING

TRANSPORTED TO A MEDICAL FACILITY, CONTINUE THE APPLICATION OF COLD, WET COMPRESSES. IF MEDICAL TREATMENT MUST BE DELAYED, REPEAT THE FLUSHING WITH COLD WATER OR SOAK THE AFFECTED AREA WITH COLD WATER TO HELP REMOVE THE LAST TRACES OF SULFURIC ACID. CREAMS OR OINTMENTS SHOULD NOT BE APPLIED BEFORE OR DURING THE WASHING PHASE OF TREATMENT.

INHALATION
TAKE PRECAUTIONS TO AVOID SECONDARY CONTAMINATION BY RESIDUAL ACIDS. REMOVE THE PERSON TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. DIFFICULT BREATHING : GIVE OXYGEN. GET IMMEDIATE MEDICAL ATTENTION. POSSIBILITY OF DAMAGE TO THE UPPER RESPIRATORY TRACT AND LUNG TISSUES. MAINTAIN OBSERVATION OF THE PATIENT FOR DELAYED ONSET OF PULMONARY EDEMA. MAY CAUSE IRRITATION TO THE UPPER RESPIRATORY TRACT : COUGHING, SORE THROAT, SHORTNESS OF BREATH.

INGESTION
DO NOT INDUCE VOMITING. CONSCIOUS AND ALERT PERSON: RINSE MOUTH WITH WATER AND GIVE 1/2 TO 1 CUP OF WATER OR MILK TO DILUTE MATERIAL. SPONTANEOUS VOMITING : KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION ; RINSE MOUTH AND GIVE 1/2 TO 1 CUP OF WATER OR MILK. UNCONSCIOUS PERSON : DO NOT INDUCE VOMITING OR GIVE ANY LIQUID. IMMEDIATELY OBTAIN MEDICAL ATTENTION.

NOTES TO PHYSICIANS
CONTINUED WASHING OF THE AFFECTED AREA WITH COLD OR ICED WATER WILL BE HELPFUL IN REMOVING THE LAST TRACES OF SULFURIC ACID. CREAMS OR OINTMENTS SHOULD NOT BE APPLIED BEFORE OR DURING THE WASHING PHASE OF THE TREATMENT.

SECTION 5. FIRE-FIGHTING MEASURES

FLASH POINT	NOT AVAILABLE
FLAMMABLE LIMITS	NOT AVAILABLE
AUTO-IGNITION TEMPERATURE	NOT AVAILABLE
PRODUCTS OF COMBUSTION	RELEASES OF SULFUR DIOXIDE AT EXTREMELY HIGH TEMPERATURES.
FIRE HAZARD	NOT FLAMMABLE

EXPLOSION HAZARD
REACTS WITH MOST METALS, ESPECIALLY WHEN DILUTE : HYDROGEN GAS RELEASE (EXTREMELY FLAMMABLE, EXPLOSIVE). RISK OF EXPLOSION WHEN ACID COMBINED WITH WATER ORGANIC MATERIALS OR BASE SOLUTIONS IN ENCLOSED SPACES (VACUUM TRUCKS, TANKS). FOLLOW APPROPRIATE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES.

EXTINGUISHING MEDIA
USE MEDIA APPROPRIATE FOR SURROUNDING MATERIAL. USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE ; DO NOT GET WATER INSIDE CONTAINERS.

PROTECTIVE EQUIPMENT
EVACUATE PERSONNEL TO A SAFE AREA. KEEP PERSONNEL REMOVED AND UPWIND OF FIRE.

GENERATES HEAT UPON ADDITION OF WATER, WITH POSSIBILITY OF SPATTERING. WEAR FULL PROTECTIVE CLOTHING. RUNOFF FROM FIRE CONTROL MAY CAUSE POLLUTION. NEUTRALIZE RUN-OFF WITH LIME, SODA ASH, ETC., TO PREVENT CORROSION OF METALS AND FORMATION OF HYDROGEN GAS. WEAR SELF-CONTAINED BREATHING APPARATUS IF FUMES OR MISTS ARE PRESENT.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL
REVIEW FIRE AND EXPLOSION HAZARDS AND SAFETY PRECAUTIONS BEFORE PROCEEDING WITH CLEAN UP. STOP FLOW IF POSSIBLE. SOAK UP SMALL SPILLS WITH THY SAND, CLAY OR DIATOMACEOUS EARTH.

METHODS
DIKE LARGE SPILLS, AND CAUTIOUSLY DILUTE AND NEUTRALIZE WITH LIME OR SODA ASH, AND TRANSFER TO WASTE WATER TREATMENT SYSTEM. PREVENT LIQUID FROM ENTERING SEWERS, WATERWAYS, OR LOW AREAS.
IF THIS PRODUCT IS SPILLED AND NOT RECOVERED, OR IS RECOVERED AS A WASTE FOR TREATMENT OR DISPOSAL, THE REPORTABLE QUANTITY (U.S. DOT) IS 1 000 LBS (BASED ON THE SULFURIC ACID CONTENT OF THE SOLUTION SPILLED). COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES.

PROTECTIVE EQUIPMENT
REVIEW FIRE FIGHTING MEASURES AND HANDLING (PERSONNEL PROTECTION) SECTIONS BEFORE PROCEEDING WITH CLEAN-UP. USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT DURING CLEAN-UP.

SECTION 7. HANDLING AND STORAGE

HANDLING
DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. AVOID BREATHING VAPORS OR MIST. WEAR APPROVED RESPIRATORS IF ADEQUATE VENTILATION CANNOT BE PROVIDED. WASH THOROUGHLY AFTER HANDLING. INGESTION OR INHALATION : SEEK MEDICAL ADVICE IMMEDIATELY AND PROVIDE MEDICAL PERSONNEL WITH A COPY OF THIS MSDS.

CONDITIONS FOR STORAGE
SULFURIC ACID MUST BE STORED IN CONTAINERS OR TANKS THAT HAVE BEEN SPECIALLY DESIGNED FOR USE WITH SULFURIC ACID. DO NOT ADD WATER OR OTHER PRODUCTS TO CONTENTS IN CONTAINERS AS VIOLENT REACTIONS WILL RESULT WITH RESULTING HIGH HEAT, PRESSURE AND/OR GENERATION OF HAZARDOUS ACID MISTS.
KEEP CONTAINERS AWAY FROM HEAT, SPARKS, AND FLAME. ALL CLOSED CONTAINERS MUST BE SAFELY VENTED BEFORE EACH OPENING.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

ACCIH (U.S.A.) 2007 OSHA (U.S.A.)

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

NAME	CAS #	TLV-TWA (MG/M3)	PEL-TWA (MG/M3)
SULFURIC (ACID)	7664-93-9	0.2 (THORACIC FR.)	1
60 DEG TECHNICAL		0.2 (THORACIC FR.)	1
66 DEG TECHNICAL		0.2 (THORACIC FR.)	1
1.835 ELECTROLYTE		0.2 (THORACIC FR.)	1
98 % TECHNICAL		0.2 (THORACIC FR.)	1
99 % TECHNICAL		0.2 (THORACIC FR.)	1
100 % TECHNICAL		0.2 (THORACIC FR.)	1
WATER	7732-18-5	NOT ESTABLISHED	NOT ESTABLISHED

ACGIH: AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS. OSHA : OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

NOTE: SULFURIC (ACID): EXPOSURE LIMITS MAY BE DIFFERENT IN OTHER JURISDICTIONS. NIOSH REL-TWA (<10 HOURS): 1 MG/M3 ; IDLH : 15 MG/M3. CONSULT LOCAL AUTHORITIES FOR ACCEPTABLE EXPOSURE LIMITS.

ENGINEERING CONTROLS
GOOD GENERAL VENTILATION SHOULD BE PROVIDED TO KEEP VAPOR AND MIST CONCENTRATIONS BELOW THE EXPOSURE LIMITS.

INDIVIDUAL PROTECTION
CHEMICAL SPLASH GOGGLES ; FULL-LENGTH FACE SHIELD/CHEMICAL SPLASH GOGGLES COMBINATION ; ACID-PROOF GAUNTLET GLOVES, APRON, AND BOOTS ; LONG SLEEVE WOOL, ACRYLIC, OR POLYESTER CLOTHING ; ACID PROOF SUIT AND HOOD ; APPROPRIATE NIOSH RESPIRATORY PROTECTION.

IN CASE OF EMERGENCY OR WHERE THERE IS A STRONG POSSIBILITY OF CONSIDERABLE EXPOSURE, WEAR A COMPLETE ACID SUIT WITH HOOD, BOOTS, AND GLOVES. IF ACID VAPOR OR MIST ARE PRESENT AND EXPOSURE LIMITS MAY BE EXCEEDED, WEAR APPROPRIATE NIOSH RESPIRATORY PROTECTION.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE AND APPEARANCE	LIQUID (OILY ; CLEAR TO TURBID)
ODOR	ODORLESS
MOLECULAR WEIGHT	98.08
COLOR	COLORLESS TO LIGHT GREY
PH (1% SOLN/WATER)	< 1
VOLATILITY	< 1 (BUTYL ACETATE = 1.0)
BOILING POINT	193 DEG C TO 327 DEG C (379 DEG F TO 621 DEG F) G 760 MM HG
VAPOR DENSITY	3.4
MELTING POINT	-35 DEG C TO 11 DEG C (-31 DEG F TO 52 DEG F)
DISPERSION	YES (WATER)
VAPOR PRESSURE	< 0.3 MM HG 25 DEG C (77 DEG F) < 0.6 MM HG G 38 DEG C (100 DEG F)

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

SOLUBILITY YES (WATER)

GRADE	BOILING POINT		FREEZES POINT		SPECIFIC GRAVITY
DEG DEG C	DEG DEG C	DEG DEG F	DEG DEG C	DEG DEG F	
60 DEG TECHNICAL	193	380	- 12	10	1.706
66 DEG TECHNICAL	279	535	- 35	-31	1.835
1.835 ELECTROLYTE	279	535	- 35	-31	1.835
98 % TECHNICAL	327	621	- 2	29	1.844
99 % TECHNICAL	310	590	4	40	1.842
100 % TECHNICAL	274	526	11	51	1.839

SECTION 10. STABILITY AND REACTIVITY

STABILITY
YES (UNDER NORMAL CONDITIONS OF AMBIENT TEMPERATURE)

REACTIVITY
REACTS VIOLENTLY WITH WATER AND ORGANIC MATERIALS WITH EVOLUTION OF HEAT.

CONDITIONS TO AVOID
HEAT : POSSIBILITY OF DECOMPOSITION. RELEASE OF DANGEROUS GASES (SULFUR OXIDES SO2, SO3)

POLYMERIZATION
POLYMERIZATION WILL NOT OCCUR.

INCOMPATIBILITIES
VIGOROUS REACTIONS WITH : WATER; ALKALINE SOLUTIONS ; METALS, METAL POWDER ; CARBIDES ; CHLORATES ; FULMINATES ; NITRATES ; PICRATES ; STRONG OXIDIZING, REDUCING, OR COMBUSTIBLE ORGANIC MATERIALS. HAZARDOUS GASES ARE EVOLVED ON CONTACT WITH CHEMICALS SUCH AS CYANIDES, SULFIDES, AND CARBIDES.

CORROSIVITY
YES

SECTION 11. TOXICOLOGICAL INFORMATION

ROUTES OF ENTRY
INGESTION. INHALATION. SKIN AND EYE CONTACTS.

CARCINOGENICITY
STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID (OCCUPATIONAL EXPOSURES) : PROVEN (HUMAN, GROUP 1, IARC) ; SUSPECTED (HUMAN, GROUP A2, ACGIH) ; GROUP X (NTP) ; CLASSIFICATION NOT APPLICABLE TO SULFURIC ACID AND SULFURIC ACID SOLUTIONS.

MUTAGENICITY

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

NOT APPLICABLE.

TERATOGENICITY
NOT APPLICABLE.

ACUTE TOXICITY
ORAL (LD50) : 2 140 MG/KG (RAT) ; INHALATION (LC50, 2 HOURS) : 510 MG/M3 (RAT) ; 320 MG/M3 (MOUSE). (RTECS).

ACUTE EFFECTS
MAY BE FATAL IF INHALED OR INGESTED IN LARGE QUANTITY. LIQUIDS OR ACID MISTS : MAY PRODUCE TISSUE DAMAGE : MUCOUS MEMBRANES (EYES, MOUTH, RESPIRATORY TRACT). EXTREMELY DANGEROUS BY EYES AND SKIN CONTACT (CORROSIVE). SEVERE IRRITANT FOR EYES : INFLAMMATION (REDNESS, WATERING, ITCHING). VERY DANGEROUS IN CASE OF INHALATION (MISTS) AT HIGH CONCENTRATIONS : MAY PRODUCE SEVERE IRRITATION OF RESPIRATORY TRACT (COUGHING, SHORTNESS OF BREATH, CHOKING).

CHRONIC EFFECTS
OVEREXPOSURE TO STRONG INORGANIC MISTS CONTAINING SULFURIC ACID : POSSIBILITY OF LARYNGEAL CANCER (HSBD, IARC). TARGET ORGANS FOR ACUTE AND CHRONIC OVEREXPOSURE (NIOSH 90-117) : RESPIRATORY SYSTEM, EYES, SKIN, TEETH.
ACID MISTS : POSSIBILITY OF IRRITATION OF THE NOSE AND THROAT WITH SNEEZING, SORE THROAT OR RUNNY NOSE. HEADACHE, NAUSEA AND WEAKNESS. GROSS OVEREXPOSURE : POSSIBILITY OF IRRITATION OF NOSE, THROAT, AND LUNGS WITH COUGH, DIFFICULTY BREATHING OR SHORTNESS OF BREATH. PULMONARY EDEMA WITH COUGH, WHEEZING, ABNORMAL LUNG SOUNDS, POSSIBLY PROGRESSING TO SEVERE SHORTNESS OF BREATH AND BLUISH DISCOLORATION OF THE SKIN. SYMPTOMS MAY BE DELAYED. REPEATED OR PROLONGED EXPOSURE TO MISTS MAY CAUSE : CORROSION OF TEETH.
CONTACT (SKIN) : POSSIBILITY OF CORROSION, BURNS OR ULCERS. CONTACT WITH A 1 % SOLUTION : POSSIBILITY OF SLIGHT IRRITATION WITH ITCHING, REDNESS OR SWELLING. REPEATED OR PROLONGED EXPOSURE (MIST) : POSSIBILITY OF IRRITATION WITH ITCHING, BURNING, REDNESS, SWELLING OR RASH.
CONTACT (EYE) : POSSIBILITY OF CORROSION OR ULCERATION (BLINDNESS MAY RESULT). REPEATED OR PROLONGED EXPOSURE (MIST) : POSSIBILITY OF EYE IRRITATION WITH TEARING, PAIN OR BLURRED VISION.
INGESTION : IMMEDIATE EFFECTS OF OVEREXPOSURE : BURNS OF THE MOUTH, THROAT, ESOPHAGUS AND STOMACH, WITH SEVERE PAIN, BLEEDING, VOMITING, DIARRHEA AND COLLAPSE OF BLOOD PRESSURE. DAMAGE MAY APPEAR DAYS AFTER EXPOSURE.

TOXICITY
PERSONS WITH THE FOLLOWING PRE-EXISTING CONDITIONS WARRANT PARTICULAR ATTENTION :
SULFURIC (ACID) : LARYNGEAL IRRITATION.
EATING, DRINKING AND SMOKING MUST BE PROHIBITED IN AREAS WHERE THIS MATERIAL IS HANDLED AND PROCESSED. WASH HANDS AND FACE BEFORE EATING, DRINKING AND SMOKING.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY
AQUATIC TOXICITY : SLIGHTLY TO MODERATELY TOXIC.
BLUEGILL SUNFISH (LC50 ; 48 HOURS) : 49 MG/L (TAP WATER, 20 DEG C, CONDITIONS OF BIOASSAY NOT SPECIFIED). (HSBD).
FLOUNDER (LC50 ; 48 HOURS) : 100-330 MG/L (AERATED WATER, CONDITIONS OF BIOASSAY NOT SPECIFIED). (HSBD).

TOXICITY TO ANIMALS
EYE : CONCENTRATED COMPOUND IS CORROSIVE. 10 % SOLUTION : MODERATE EYE IRRITANT. SKIN : CONCENTRATED COMPOUND IS CORROSIVE. 10 % SOLUTION : SLIGHT SKIN IRRITANT.
SINGLE AND REPEATED EXPOSURE : IRRITATION OF THE RESPIRATORY TRACT ; CORROSION OF THE RESPIRATORY TRACT ; LUNG DAMAGE ; LABORED BREATHING ; ALTERED RESPIRATORY RATE ; PULMONARY EDEMA. REPEATED EXPOSURE : ALTERED RED BLOOD CELL COUNT.

MOBILITY (SOIL)
EASY SOIL SEEPING UNDER RAIN ACTION

PERSISTENCE AND DEGRADABILITY
SULFATE ION : UBIQUITOUS IN THE ENVIRONMENT. METABOLIZED BY MICRO-ORGANISMS AND PLANTS.

BIOACCUMULATION
SULFATE ION : UBIQUITOUS IN THE ENVIRONMENT. METABOLIZED BY MICRO-ORGANISMS AND PLANTS WITHOUT BIOACCUMULATION.

BIODEGRADATION PRODUCTS
NOT AVAILABLE

BIODEGRADATION PRODUCTS (TOXICITY)
NOT APPLICABLE

REMARKS ON ENVIRONMENT
DUE TO THE PRODUCT'S COMPOSITION, PARTICULAR ATTENTION MUST BE TAKEN FOR TRANSPORTATION AND STORAGE. PROTECT FROM RAIN BECAUSE THE RUN-OFF WATER WILL BECOME ACIDIC AND MAY BE HARMFUL TO FLORA AND FAUNA.

BOD5 AND COD
NOT AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS
CLEANED-UP MATERIAL MAY BE AN HAZARDOUS WASTE ON RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) ON DISPOSAL DUE TO THE CORROSIVITY CHARACTERISTIC. DO NOT FLUSH TO SURFACE WATER OR SANITARY SEWER SYSTEM. COMPLY WITH FEDERAL, STATE,

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AND LOCAL REGULATIONS. IF APPROVED, NEUTRALIZE AND TRANSFER TO WASTE TREATMENT SYSTEM.

SECTION 14. TRANSPORT INFORMATION

TDG (CANADA)	CLASS 8 CORROSIVES	
PIN	UN1830 SULFURIC ACID	PG II
SPECIAL PROVISIONS (TRANSPORT)	NONE	
DOT (U.S.A.)/IMO (MARITIME)	PROPER SHIPPING NAME:	SULFURIC ACID
HAZARD CLASS		8
UN N DEG		1830
DOT/IMO LABEL		CORROSIVE
PACKING GROUP		II
REPORTABLE QUANTITY		1000 LBS (454 KG)

SECTION 15 REGULATORY INFORMATION

LABELING (EEC)
EU (DIRECTIVE 67/548/EEC) :
SULFURIC (ACID) : C CORROSIVE (PICTOGRAM)
ANNEX I INDEX NUMBER : 016-020-00-8 ; EU CONSOLIDATED INVENTORIES : EC NUMBER 231-639-5 C> 15% C ; R35 ; S2, 26, 30, 45.

RISK PHRASES (EEC)
R35- CAUSES SEVERE BURNS
R8- CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE

SAFETY PHRASES (EEC)
S26- IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE
S30- NEVER ADD WATER TO THIS PRODUCT
S36/37/39- WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION
S45- IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

CEPA DSL (CANADA)
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : ON THE DOMESTIC SUBSTANCES LIST (DSL) ; ACCEPTABLE FOR USE UNDER THE PROVISIONS OF CEPA.

REGULATIONS (U.S.A.)
CERCLA SECTION 103 HAZARDOUS SUBSTANCES (40 CFR 302.4) ; SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) : YES ; SARA SECTION 313, TOXIC CHEMICALS (40 CFR 372.65) ; US: TSCA INVENTORY : LISTED :
SULFURIC (ACID) (FINAL RQ) : 1 000 POUNDS (454 KG)

SULFURIC ACID IS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313, TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), 40 CFR PART 372.

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

CERTAIN COMPANIES MUST REPORT EMISSIONS OF SULFURIC ACID AS REQUIRED UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA), 40 CFR PART 302

FOR MORE INFORMATION CALL THE SARA HOTLINE 800-424-9346.

STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID: CHEMICAL LISTED EFFECTIVE MARCH 14, 2003 TO THE STATE OF CALIFORNIA, PROPOSAL 65. SULFURIC ACID IS A CLASS B DRUG PRECURSOR UNDER HEALTH CANADA'S CONTROLLED DRUGS AND SUBSTANCES ACT AND PRECURSOR CONTROL REGULATIONS.

U.S. FDA FOOD BIOTERRORISM REGULATIONS: THESE REGULATIONS APPLY TO SULFURIC ACID WHEN BEING DISTRIBUTED, STORED OR USED FOR FOOD OR FOOD PROCESSING.

CLASSIFICATIONS HCS (USA)
DANGEROUS MAY CAUSE CANCER
CORROSIVE LIQUID

NFPA NATIONAL FIRE PROTECTION ASSOCIATION) (U.S.A.)
FIRE HAZARD 0 REACTIVITY 2 HEALTH 3 SPECIAL HAZARD ACID
NPCA- HMIS RATING:
FIRE HAZARD 0 REACTIVITY 2 HEALTH 3

SECTION 16. OTHER INFORMATION

REFERENCES
- TLVS AND BEIS (2007). BASED ON THE DOCUMENTATION OF THE THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS & BIOLOGICAL EXPOSURE INDICES. ACGIH, CINCINNATI, OH HTTP://WWW.ACGIH.ORG
- CCOHS (2007) - CANADIAN CENTRE FOR OCCUPATIONAL HEALTH AND SAFETY HTTP://WWW.CCOHS.CA/
- CSST (2007) - COMMISSION DE LA SANTE ET DE LA SECURITE DU TRAVAIL (QUEBEC). SERVICE DU REPERTOIRE TOXICOLOGIQUE - HTTP://WWW.REPTOX.CSST.QC.CA/
- HSDB (2007) - HAZARDOUS SUBSTANCES DATA BANK. TOXNET NETWORK OF DATABASES ON TOXICOLOGY, HAZARDOUS CHEMICALS, AND ENVIRONMENTAL HEALTH. NLM DATABASES & ELECTRONIC RESOURCES, U.S. NATIONAL LIBRARY OF MEDICINE, NHI, 8600 ROCKVILLE PIKE, BETHESDA, MD 20894 - HTTP://TOXNET.NLM.NIH.GOV/CGI-BIN/SIS/HTMLGEN?HSDB
- IARC - MONOGRAPHS ON THE EVALUATION OF CARCINOGENIC RISKS TO HUMANS (COLLECTION) - HTTP://WWW-CIE.IARC.FR/ - MERCK INDEX (1999). MERCK & CO., INC, 12TH EDITION
- NIOSH U.S. (2007) - POCKET GUIDE TO CHEMICAL HAZARDS HTTP://WWW.CDC.GOV/NIOSH/NPG/
- NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK DOCUMENTS (2004), DEVELOPED BY THE U.S. DEPARTMENT OF TRANSPORTATION,
TRANSPORT CANADA, AND THE SECRETARIAT OF COMMUNICATIONS AND TRANSPORTATION OF MEXICO
- PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY, 3RD REVISED EDITION

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

- REGLEMENT SUR LES PRODUITS CONTREILES (CANADA)
- RTECS (2007). REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES, NIOSH, CDC
- TOXICOLOGIE INDUSTRIELLE & INTOXICATION PROFESSIONNELLE, 3E EDITION, LAUWERYS

GLOSSARY

CSST : COMMISSION DE LA SANTE ET DE LA SECURITE DU TRAVAIL (QUEBEC).
HSDB : HAZARDOUS SUBSTANCES DATA BANK.
IARC : INTERNATIONAL AGENCY FOR RESEARCH ON CANCER.
NIOSH : NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH.
NTP : U.S. NATIONAL TOXICOLOGY PROGRAM.
RTECS : REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES

BECAUSE OF ITS CORROSIVE CHARACTERISTICS AND INHERENT HAZARDS, SULFURIC ACID SHOULD NOT BE USED IN SEWER OR DRAIN CLEANERS OR ANY SIMILAR APPLICATION; REGARDLESS OF WHETHER THEY ARE FORMULATED FOR RESIDENTIAL, COMMERCIAL OR INDUSTRIAL USE. VENDOR WILL NOT KNOWINGLY SELL SULFURIC ACID TO INDIVIDUALS OR COMPANIES WHO REPACKAGE THE PRODUCT FOR SALE AS SEWER OR DRAIN CLEANERS, OR ANY OTHER SIMILAR USE.

THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PROCESS.

PRODUCT: SULFURIC ACID 77-100%

ORDER NO: 255982
PROD NO : 608953

---------- FOR ADDITIONAL INFORMATION ----------

CONTACT: MSDS COORDINATOR UNIVAR USA INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

11/24/08 11:07 PRODUCT: 608953 CUST NO: 149380 ORDER NO: 255982

---------- NOTICE ----------

******** UNIVAR USA INC("UNIVAR"), EXPRESSLY DISCLAIMS

ALL EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A

PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT OR INFORMATION PROVIDED

HEREIN, AND SHALL UNDER NO CIRCUMSTANCES BE LIABLE FOR INCIDENTAL OR

CONSEQUENTIAL DAMGAGES. **

DO NOT USE INGREDIENT INFORMATION AND/OR PERCENTAGES IN THIS MSDS AS A PRODUCT SPECIFICATION. FOR PRODUCT SPECIFICATION INFORMATION REFER TO A PRODUCT SPECIFICATION SHEET AND/OR A CERTIFICATE OF ANALYSIS. THESE CAN BE OBTAINED FROM YOUR LOCAL UNIVAR SALES OFFICE.

ALL INFORMATION APPEARING HEREIN IS BASED UPON DATA OBTAINED FROM THE MANUFACTURER AND/OR RECOGNIZED TECHNICAL SOURCES. WHILE THE INFORMATION IS BELIEVED TO BE ACCURATE, UNIVAR MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR SUFFICIENCY. CONDITIONS OF USE ARE BEYOND UNIVARS CONTROL AND THEREFORE USERS ARE RESPONSIBLE TO VERIFY THIS DATA UNDER THEIR OWN OPERATING CONDITIONS TO DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY ASSUME ALL RISKS OF THEIR USE, HANDLING, AND DISPOSAL OF THE PRODUCT, OR FROM THE PUBLICATION OR USE OF, OR RELIANCE UPON , INFORMATION CONTAINED HEREIN. THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER PROCESS.

* * * E N D O F M S D S * * *

1-5-05

NorFalco LLC
NorFalco Sales Inc.

RECEIVED JAN 1 9 2005

Material Safety Data Sheet

77% - 100% SULFURIC ACID

WHMIS (Classification)
CLASS D-1A : Very toxic material causing immediate and serious effects
CLASS E : Corrosive material

WHMIS (Pictograms)

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name	**77 % - 100 % Sulfuric Acid**
Product Code	None
Manufacturers/Distributors	NorFalco LLC, 6050 Oak Tree Blvd, Suite 190, Independence, OH U.S.A. 44131 NorFalco Sales Inc., 6755 Mississauga Road, Suite 304, Mississauga, Ontario L5N 2Y7
Information Contact	André Auger, Administration Assistant
Phone Number (Product Information)	1-905-542-6901 (Mississauga)
Phone Number (Transportation Emergency)	Canada 1-877-ERP-ACID (377-2243)
Phone Number (Transportation Emergency)	U.S.A. 1-800-424-9300 CHEMTREC
Phone Number (Medical Emergency)	**1-418-656-8090**
Synonyms	Dihydrogen Sulfate ; Oil of Vitriol ; Vitriol Brown Oil Acide sulfurique (French)
DSL (Domestic Substance List)	Listed
Name / Chemical Formula	Sulfuric Acid / H_2SO_4
Chemical Family	Acid
Utilization	Chemical industries

Manufacturers CEZinc on behalf of Noranda Income Limited Partnership, Salaberry-de-Valleyfield (Quebec) Canada J6S 4W2
NORANDA INC.Home Smelter, Rouyn-Noranda (Quebec) J9X 5B6
NORANDA INC. Brunswick Smelting Division, Belledune, New Brunswick E0B 1G0
FALCONBRIDGE LIMITED Kidd Creek Division, Timmins, Ontario P4N 7K1
FALCONBRIDGE LIMITED Sudbury Operations, Falconbridge, Ontario P0M 1S0

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Name	CAS #	Percentage (%)	Exposure Limits ACGIH (U.S.A.) TLV-TWA (mg/m³)	OSHA (U.S.A.) PEL - TWA (mg/m³)
Sulfuric (Acid)	7664-93-9	77 % to 100 % Technical	1	1
60 Deg Technical		77,7		
66 Deg Technical		93,2		
1,835 Electrolyte		93,2		
98 % Technical		98		
99 % Technical		99		
100 % Technical		100		
Water	7732-18-5	0-22	Not established	Not established

ACGIH : American Conference of Governmental Industrial Hygienists. OSHA : Occupational Safety and Health Administration. QUEBEC : Règlement sur la qualité du milieu de travail

Note : **Sulfuric (Acid) :** ACGIH TLV-STEL 3 mg/m3. Exposure limits may be different in other jurisdictions. ORAL acute (LD50) : 2 140 mg/kg (Rat) ; INHALATION (LC50, 4 hours) : 255 mg/m3 (Rat) ; 160 mg/m3 (Mouse).
Consult local authorities for acceptable exposure limits.

SECTION 3. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance	Liquid (Oily ; Clear to turbid)	**Odour**	Odourless
Molecular Weight	98,08	**Colour**	Colourless to light grey
pH (1% soln/water)	< 1	**Volatility**	< 1 (Butyl Acetate = 1,0)
Boiling Point	193°C -327 °C (379°F -621°F) @ 760 mm Hg	**Vapour Density**	3,4
Melting Point	-35°C to 11°C (-31°F to 52°F)	**Dispersion**	Yes (Water)
Vapour Pressure	< 0,3 mm Hg @ 25°C (77 °F) < 0,6 mm Hg @ 38°C (100 °F)	**Solubility**	Yes (Water)

GRADE	Boiling Point		Freezing Point		Specific Gravity
	DEG °C	DEG °F	DEG °C	DEG °F	
60 DEG TECHNICAL	193	380	- 12	10	1,706
66 DEG TECHNICAL	279	535	- 35	- 31	1,835
1,835 ELECTROLYTE	279	535	- 35	- 31	1,835
98 % TECHNICAL	327	621	- 2	29	1,844
99 % TECHNICAL	310	590	4	40	1,842
100 % TECHNICAL	274	526	11	51	1,839

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SECTION 4. RISK IDENTIFICATION FOR HUMAN HEALTH

Routes of Entry Ingestion. Inhalation. Contacts oculaire et cutané.

Carcinogenicity **Strong inorganic acid mists containing sulfuric acid (Occupational exposures) :** PROVEN (Human, Group 1, IARC) ; SUSPECTED (Human, Group A2, ACGIH) ; Group X (NTP). Classification not applicable to sulfuric acid and sulfuric acid solutions.

Mutagenicity Not applicable.

Teratogenicity Not applicable.

Acute Effects **Sulfuric (Acid) :** May be **fatal** if inhaled or ingested in large quantity. Liquids or acid mists : May produce tissue damage : Mucous membranes (Eyes, mouth, respiratory tract). **Extremely** dangerous by eyes and skin contact (**Corrosive**). Severe irritant for eyes : Inflammation (Redness, watering, itching). Very dangerous in case of inhalation (Mists) : May produce severe irritation of respiratory tract (Coughing, shortness of breath, choking).

Chronic Effects **Sulfuric (Acid) :** Possible overexposure to strong inorganic mists containing sulfuric acid : Laryngeal cancer. Target organs for acute and chronic overexposure (NIOSH 90-117) : Respiratory system, eyes, skin, teeth.

Mists : Possible irritation of the nose and throat with sneezing, sore throat or runny nose. Headache, nausea and weakness. Gross overexposure : Possible irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Pulmonary edema with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin ; Symptoms may be delayed. Repeated or prolonged exposure to mists may cause : Corrosion of teeth.

Contact: Possible skin corrosion, burns or ulcers. Contact with a 1 % solution : Possible slight irritation with itching, redness or swelling. Repeated or prolonged exposure (Mist) : Possible irritation with itching, burning, redness, swelling or rash.

Contact : Possible eye corrosion or ulceration (Blindness may result). Repeated or prolonged exposure (Mist) : Possible eye irritation with tearing, pain or blurred vision.

Ingestion : Immediate effects of overexposure may include : Burns of the mouth, throat, esophagus and stomach, with severe pain, bleeding, vomiting, diarrhea and collapse of blood pressure. Damage may appear days after exposure.

Toxicity Persons with the following pre-existing conditions warrant particular attention :
Sulfuric (Acid) : Laryngeal irritation.

Eating, drinking and smoking must be prohibited in areas where this material is handled and processed. Wash hands and face before eating, drinking and smoking.

SECTION 5. FIRST AID MEASURES

Eye Contact Remove contact lenses if present. Immediately flush eyes with plenty of water, holding eyelids open for at least 20 minutes. Consult a physician. Possible conjonctivitis, severe irritation, severe burns, permanent eye damage.

Skin Contact Remove contaminated clothing and shoes as quickly as possible protecting your hands and body. Place under a deluge shower. Flush exposed skin gently and thoroughly with running water and non-abrasive soap (Pay particular attention to : Folds, crevices, creases, groin). Call a physician if irritation persists. May irritate skin, cause burns (Highly corrosive) and possibly leave some scarring.

Wash contaminated clothing before reusing. While the patient is being transported to a medical facility, continue the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. *Creams or ointments **SHOULD NOT** be applied before or during the washing phase of treatment.*

Inhalation Take precautions to avoid secondary contamination by residual acids. Remove the person to fresh air. If not breathing, give artificial respiration. Difficult breathing : Give oxygen. Get immediate medical attention. Possible damage to the upper respiratory tract and lung tissues. Maintain observation of the patient for delayed onset of pulmonary oedema. May cause irritation to the upper respiratory tract : Coughing, sore throat, shortness of breath.

Ingestion **DO NOT** INDUCE VOMITING. Conscious and alert person : Rinse mouth with water and give ½ to 1 cup of water or milk to dilute material. **Spontaneous vomiting :** Keep head below hips to prevent aspiration ; Rinse mouth and give ½ to 1 cup of water or milk. **UNCONSCIOUS** person : **DO NOT** induce vomiting or give any liquid. **Immediately** obtain medical attention.

Notes to Physicians *Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of the treatment.*

SECTION 6. FIRE AND EXPLOSION DATA

Flash Point Not available

Flammable Limits Not available

Auto-Ignition Temperature Not available

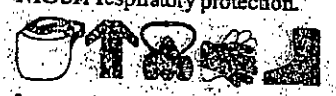
Products of Combustion Releases sulfur dioxide at extremely high temperatures.

Fire Hazard Not flammable

Explosion Hazard	Reacts with most metals, especially when dilute : Hydrogen gas release (Extremely flammable, explosive). Follow appropriate National Fire Protection Association (NFPA) codes.
Fire Fighting (Instructions)	Use media appropriate for surrounding material. Use water spray to cool containers exposed to fire ; **DO NOT** get water inside containers.
	Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possible spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

SECTION 7. HANDLING AND STORAGE / ENGINEERING CONTROLS AND PERSONAL PROTECTION

Handling	Do not get in eyes, on skin, or on clothing. Avoid breathing vapours or mist. Wear approved respirators if adequate ventilation cannot be provided. Wash thoroughly after handling. Ingestion or inhalation : Seek medical advice **immediately** and provide medical personnel with a copy of this MSDS.
Storage	Keep container tightly closed and closure up (Drum) to prevent leakage. **DO NOT** add water to contents while in container because of violent reaction. Keep out of sun and away from heat, sparks, and flame.
	Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. **DO NOT** use pressure to empty. Be sure closure is securely fastened before moving container. **DO NOT** wash out container or use it for other purposes; Replace closure after each withdrawal and return it with empty container.
Engineering Controls	Good general ventilation should be provided to keep vapour and mist concentrations below the exposure limits.
Personal Protection	Chemical splash goggles ; Full-length face shield/chemical splash goggles combination ; Acid-proof gauntlet gloves, apron, and boots ; Long sleeve wool, acrylic, or polyester clothing ; Acid proof suit and hood ; And appropriate NIOSH respiratory protection.



In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves. If acid vapour or mist are present and exposure limits may be exceeded, wear appropriate NIOSH respiratory protection.

SECTION 8. ACCIDENTAL RELEASE MEASURES / DISPOSAL ARRANGEMENTS

Spill	Review **Fire and Explosion Hazards** and **Safety Precautions** before proceeding with clean up. Stop flow if possible. Soak up small spills with dry sand, clay or diatomaceous earth.
	Dike large spills, and cautiously dilute and neutralize with lime or soda ash, and transfer to waste water treatment system. Prevent liquid from entering sewers, waterways, or low areas.
	If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the Reportable Quantity is 1,000 lbs. (Based on the sulfuric acid content of the solution spilled). Comply with Federal, State, and local regulations on reporting releases.
Personal Protection	Review **Fire Fighting Measures** and **Handling (Personnel Protection)** sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.
Waste Disposal	Cleaned-up material may be an RCRA Hazardous Waste on disposal due to the corrosivity characteristic. **DO NOT** flush to surface water or sanitary sewer system. Comply with Federal, State, and local regulations. If approved, neutralize and transfer to waste treatment system.

SECTION 9. STABILITY AND REACTIVITY DATA

Stability	Yes
Conditions of Instability	Reacts violently with water and organic materials with evolution of heat.
Polymerization	Polymerization will not occur
Incompatibilities	Vigorous reactions with : Water, alkaline solutions ; Metals, metal powder ; Carbides ; Chlorates ; Fuminates ; nitrates ; Picrates ; Strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.
Corrosivity	Yes

SECTION 10. ECOTOXICOLOGICAL INFORMATION

Ecotoxicity	**Aquatic toxicity :** Slightly to moderately toxic. Bluegill Sunfish (LC50 ; 96 hours) : 10,5 ppm Flounder (48 hours TLM) : 100-300 ppm
Toxicity to Animals	EYE : Testing indicates this material is corrosive to the eye, when tested undiluted. Testing indicates this material is a moderate eye irritant, when tested as 10 % solution.
	SKIN : The concentrated compound is corrosive. Testing indicates this material is a slight skin irritant, when tested as 10 %solution.

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	Single and repeated exposure caused : Irritation of the respiratory tract. Corrosion of the respiratory tract. Lung damage. Labored breathing. Altered respiratory rate. Pulmonary edema. Repeated exposure caused : Altered red blood cell count.
Biodegradation Products	Not available
Biodegradation Products (Toxicity)	Not applicable
Remarks on Environment	Due to the product's composition, particular attention must be taken for transportation and storage. Protect from rain because the run-off water will become acidic and may be harmful to flora and fauna.
BOD5 and COD	Not available

SECTION 11. TRANSPORT INFORMATION / OTHER REGULATIONS

TDG (Pictograms)	CLASS 8 Corrosives	
PIN	UN1830 SULFURIC ACID	PG II
Special Provisions (Transport)	None	
Other Regulations		
DOT (U.S.A.)/IMO	Proper Shipping Name	SULFURIC ACID
	Hazard Class	8
	UN No.	1830
	DOT/IMO Label	CORROSIVE
	Packing Group	II
	Reportable Quantity	1000 lbs (454 kg)
	Shipping Containers	Tank Cars, Tank Trucks, Barge

EU (Directive 67/548/EEC) :
Sulfuric (Acid) : Annex I Index number : 016-020-00-8 ; EU Consolidated Inventories : EC Number 231639

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : On the Domestic Substances List (DSL) ; acceptable for use under the provisions of CEPA.

CERCLA Section 103 Hazardous substances (40 CFR 302.4) ; SARA Section 302 Extremely Hazardous Substances (40 CFR 355) : Yes ; SARA Section 313, Toxic Chemicals (40 CFR 372.65) ; US. TSCA Inventory : Listed :
Sulfuric (Acid) (Final RQ) : 1 000 pounds (454 kg)

Sulfuric Acid is subject to reporting requirements of Section 313, *Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)*, 40 CFR Part 372.

Certain companies must report emissions of Sulfuric Acid as required under *The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)*, 40 CFR Part 302

For more information call the *SARA Hotline* 800-424-9346.

Strong Inorganic Acid Mists Containing Sulfuric Acid : Chemical listed effective March 14, 2003 to the *State of California, Proposal 65.*

Sulfuric Acid is a Class B Drug Precursor under *Health Canada's Controlled Drugs and Substances Act* and *Precursor Control Regulations*.

U.S. FDA Food Bioterrorism Regulations : These regulations apply to Sulfuric Acid when being distributed, stored or used for Food or Food Processing.

Classifications HCS (U.S.A.)	Dangerous may cause cancer Corrosive liquid
Classifications DSCL (EEC)	R35- Causes severe burns S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S30- Nerver add water to this product S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

NFPA (National Fire Protection Association) (U.S.A.)

Reactivity 2 Health 3 **Special Hazard** **ACID**

NPCA- HMIS Rating

Reactivity 2 Health 3

SECTION 12. OTHER INFORMATION

References

- ACGIH, TLVs and BEIs. 2003
- Canadian Centre for Occupational Health and Safety (CCOHS). Database MSDS/FTSS. Network Version WWW, 2003
- CSST - Répertoire toxicologique, 2003
- IARC, Monographs on the Evaluation of Carcinogenic Risks to Humans (collection)
- Merck Index. Merck & CO., Inc, 12th edition, 1999
- NIOSH U.S. - Pocket Guide to Chemical Hazards - WWW database, 2003
- North American Emergency Response Guidebook Documents, Developed by the U.S. Department of Transportation,

Transport Canada, and the Secretariat of Communications and Transportation of Mexico, 2000
- Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition
- Règlement sur les produits contrôlés (Canada)
- TOMES plus® Micromedex Inc. Environmental Health & Safety Series. WWW database, 2003
- Toxicologie industrielle & intoxication professionnelle, 3e édition, Lauwerys

Glossary

CSST : Commission de la Santé et de la Sécurité du Travail (Québec).
IARC : International Agency for Research on Cancer.
NIOSH : National Institute of Occupational Safety and Health.
NTP : U.S. National Toxicology Program.

Note

For further information, see NorFalco LLC Sulfuric Acid « Storage and Handling Bulletin ».

Because of its corrosive characteristics and inherent hazards, Sulfuric Acid should not be used in sewer or drain cleaners or any similar application; regardless of whether they are formulated for residential, commercial or industrial use. NorFalco will not knowingly sell sulfuric acid to individuals or companies who repackage the product for sale as sewer or drain cleaners, or any other similar use.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Written by : Groupe STEM Consultants / Noranda Inc. **Date :** 2005-01-05 **Printed :** 2005-01-05
Verified by : Sylvain Laparé, Manager, Industrial Hygiene **Telephone :** 1-514-745-9374

SECTION 13. MSDS REQUEST

Request André Auger, Administration Assistant Tel. : (905) 542-6901 extension 0 Fax : (905) 542-6914 / 6924
NorFalco Sales Inc., 6755 Mississauga Road, Suite 304, Mississauga, Ontario L5N 2Y7

Notice to Reader

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Color & Disp

17-120122

Material Safety Data Sheet

HAVILAND®

SULFURIC ACID 66o

SECTION I - IDENTIFICATION

MANUFACTURER'S NAME ..... **Haviland Products Company**
MANUFACTURER'S ADDRESS ..... 421 Ann St., N.W., Grand Rapids, MI 49504
PHONE NUMBER ..... (616) 361-6691
EMERGENCY PHONE NUMBER ..... CHEMTREC (800) 424-9300
EFFECTIVE DATE 09/17/2001
TRADE NAME ..... **SULFURIC ACID 66o**
CHEMICAL FAMILY ..... Inorganic Mineral Acid

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	OSHA PEL	TLV (Units)	CAS NUMBER
**Sulfuric Acid (93.1% by wt)	1mg/m3 TWA	1mg/m3 (TWA) 3 mg/m3 (STEL)	7664-93-9
SEE NOTE UNDER "REFERENCES" AT END OF MSDS	OSHAPEL	TLV	PCASNUM

SECTION III - PHYSICAL DATA

BOILING POINT 529oF (276oC)
FREEZING POINT ..... -21.1oF (-29.5oC)
VAPOUR PRESSURE ..... (0.0016 @ 40o)
VAPOUR DENSITY (air=1) ..... 3.4 Sulfuric Acid component
SOLUBILITY IN H20 ..... Completely
ODOUR AND APPEARANCE ..... Clear, Colorless to Amber, Slightly Cloudy, Oily Liquid; Odorless
SPECIFIC GRAVITY 1.824
pH ..... 1% Solution: 2.3

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT AND METHOD OF DETERMINATION ..... Will Not Burn
LOWER EXPLOSIVE LIMIT (% by Volume) Not Applicable
UPPER EXPLOSIVE LIMIT (% by Volume) Not Applicable
MEANS OF EXTINCTION ..... As for Surrounding Fires
SPECIAL FIRE FIGHTING PROCEDURES ..... Wear self-contained breathing aparatus and full protective clothing.
UNUSUAL FIRE HAZARD ..... Sulfuric acid will not burn, but is capable of igniting finely divided combustible materials on contact. Flammable and potentiallly explosive hydrogen gas can be generated inside metal drums and storage tanks.

Sera (Nurse)

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Material Safety Data Sheet

SECTION V - HEALTH HAZARD DATA

CARCINOGENICITY, REPRODUCTIVE EFFECTS	See Note in Reference Section
NTP?	See Note in Reference Section
IARC MONOGRAPHS?	See Note in Reference Section
OVER EXPOSURE EFFECTS	Irritation of eyes, skin and throat with possible burns and ulceration; conjunctivitis, dermatitis, dizziness, abdominal cramps, vomiting, headache, mental impairment, cyanosis, coughing.
PRIMARY ROUTE(S) OF ENTRY	Inhalation, Eye and Skin Contact
SPECIFIC FIRST AID PROCEDURES	In case of eye contact: Immediately flush eyes with plenty of water for at least 15 minutes; holding eyelids apart to insure washing of entire surface. Get medical attention. If inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention. Ingestion: Do not induce vomiting. Call a Physician Immediately. For Skin: Thoroughly flush skin with plenty of water.
EXPOSURE AGGRAVATED MEDICAL CONDITIONS	Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary diseases such as emphysema and bronchitis.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY	Stable
CONDITIONS TO AVOID	None Currently Known
INCOMPATIBLE MATERIALS	Alkalis, aldehydes, organic materials, gas forming salts (eg carbides), most metals acid anhydrides, organic acids, halogens, phosphorus trichloride, aldehydes, monomers, polymerizable esters, and hydrogen with palladium.
HAZARDOUS DECOMPOSITION PRODUCTS	Sulfur trioxide gas, sulfur dioxide, hydrogen sulfide
HAZARDOUS POLYMERIZATION	Will Not Occur
POLYMERIZATION AVOID	Not Applicable

SECTION VII - SPILL OR LEAK PROCEDURE

LEAK AND SPILL PROCEDURES	Contain spills. Dilute cautiously with water and neutralize gradually with soda ash or lime. Do not allow unneutralized material into sewers containing sulfides. Soak up neutralized material with inert absorbent and sweep into dry labeled containers. Flush spill area with water and drain to waste treatment system.
WASTE DISPOSAL	Dispose of spilled or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all federal, state and local regulations.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION	NIOSH/MSHA approved air purifying respirator with acid gas/fume, dust, mist cartridges for concentrations up to 10mg/m3. Air supplied respirator if concentration unknown.
VENTILATION	To maintain vapors below limits.
PROTECTIVE GLOVES	Rubber or other impervious materials.
EYE PROTECTION	Splash proof chemical goggles.
OTHER PROTECTIVE EQUIPMENT	For operations where spills or splashing may occur, use an impervious body covering and boots. A safety shower and eye bath should be available.
HANDLING PROCEDURES AND EQUIPMENT	Store in cool, dry area. Keep containers tightly closed when not in use. Emptied containers retain produce residues.

WWW_104(e)_018594

Material Safety Data Sheet

SECTION IX - SPECIAL PRECAUTIONS

HAZARD CLASS ..... Corrosive, 8, PG II
DOT SHIPPING NAME ..... SULFURIC ACID
UN NUMBER UN1830
REPORTABLE QUANTITY (RQ) ..... 1000 lbs.

REFERENCES

HMIS: H-3,F-0,R-2 SULAD66 **NOTE** Hazardous Component(s) subject to reporting under 40 CFR 372 (SARA Title III, Sec. 313). Although no direct link has been established between exposure to Sulfuric Acid, itself, and cancer in man, the World Health Organization (WHO) International Agency for Research on Cancer (IARC) have concluded that occupational exposure to strong inorganic acid mists containing Sulfuric Acid is carcinoogenic to man, causing cancer of the larynx (the voice box) and to a lesser extent, the lung.

WWW_104(e)_018595

Rhodia

SULFURIC ACID

Material Safety Data Sheet Date Prepared: 6/03/03 Supersedes Date: 2/23/01

1. PRODUCT AND COMPANY DESCRIPTION

17 120122

distributed by:

WILSON INDUSTRIAL SALES COMPANY INC.
P.O. BOX 425
BROOK, INDIANA 47922

RHODIA INC.
ECO SERVICES
CN 7500

Cranbury NJ 08512

Emergency Phone Numbers:
FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC (800-424-9300 within the United States or 703-527-3887 for international collect calls) or Rhodia CAERS (Communication and Emergency Response System) at 800-916-3232.

For Product Information:
(800) 642-4200

Chemical Name or Synonym:
SULFURIC ACID

Molecular Formula:
H_2SO_4

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Reg Number	OSHA Hazard	Percentage
SULFURIC ACID	7664-93-9	Y	65 - 100
WATER	7732-18-5	N	BALANCE

3. HAZARDS IDENTIFICATION

A. EMERGENCY OVERVIEW:

Physical Appearance and Odor:
colorless oily liquid, odorless.

Warning Statements:

 Continued on Next Page

3. HAZARDS IDENTIFICATION (Continued)

DANGER! CAUSES SEVERE BURNS. REACTS VIOLENTLY WITH WATER. CONTENTS MAY BE UNDER PRESSURE OF EXPLOSIVE, FLAMMABLE HYDROGEN GAS. HIGHLY REACTIVE AND CAPABLE OF IGNITING COMBUSTIBLE MATERIAL ON CONTACT.

B. POTENTIAL HEALTH EFFECTS:

Acute Eye:
Corrosive. Causes burns, tissue destruction, Can cause blindness.

Acute Skin:
Corrosive. Causes redness, inflammation, burns.

Acute Inhalation:
Harmful if inhaled. Causes upper respiratory tract irritation, lung irritation, chest pain, wheezing, shortness of breath, a burning sensation, tickling of the nose and throat, sneezing.

Acute Ingestion:
Harmful if ingested. Can cause irritation, abdominal pain, corrosion, burns to mouth and esophagus, death.

Chronic Effects:
When mists are released from this product they are considered to be probable or suspected human carcinogens (see Section 11 - Chronic).

4. FIRST AID MEASURES

FIRST AID MEASURES FOR ACCIDENTAL:
Eye Exposure:
Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention.

Skin Exposure:
In case of contact, immediately wash with plenty of water for at least 15 minutes. Seek medical attention if irritation developes or persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

Inhalation:
Remove victim from immediate source of exposure and assure that the victim is breathing. If breathing is difficult, administer oxygen, if

 Continued on Next Page

4. FIRST AID MEASURES (Continued)

available. If victim is not breathing, administer CPR (cardio-pulmonary resuscitation). Seek medical attention.

Ingestion:
DO NOT INDUCE VOMITING. If the person is conscious and has no trouble breathing a small (no more than one glass) amount of water may be given. Do not leave victim unattended. To prevent aspiration of the swallowed product, lay victim on side with head lower than waist. If vomiting occurs do not re-administer water. Do not give anything by mouth to an unconscious person. IMMEDIATELY obtain medical attention.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:
Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

NOTES TO PHYSICIAN:
All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

This material is an acid. The primary toxicity of this product is due to its irritant effects on mucous membranes.

INHALATION: If cough or shortness of breath occurs, evaluate the possibility of bronchitis or pneumonitis. Chest x-ray and arterial blood gases can be used to determine the presence of pulmonary edema. In severe cases, use of humidified oxygen and assisted ventilation including positive end expiratory pressure (PEEP) may be needed. Parenteral steroids may be useful in limiting the extent of pulmonary damage.

SKIN: Wash exposed area thoroughly with soap and water. Chemical burns from strong acids are generally treated the same as thermal burns.

EYES: Irrigate eyes for 15 minutes with sterile saline. If irritation, pain, swelling, photophobia or lacrimation persist, examination by an ophthalmologist is recommended.

INGESTION: If not already performed by first aid personnel, irrigate mouth with large amounts of water and dilute the acid by having victim drink 4 to 8 ounces of water or milk. DO NOT induce vomiting. Use of gastric lavage is controversial. The advantage of removal of acid must

 Continued on Next Page

4. FIRST AID MEASURES (Continued)

be weighted against the risk of perforation or bleeding. If a large amount of acid (> 1 ml/kg body weight) has been recently ingested, cautious gastric lavage is generally advised if the patient is alert and there is little risk of convulsions. Consultation with a gastroenterologist and/or surgeon is advised. Serious complications such as perforation or stricture of the esophagus may occur requiring care by specialists. Laryngeal edema may develop requiring intubation or tracheostomy.

5. FIRE FIGHTING MEASURES

FIRE HAZARD DATA:

Flash Point:
Not Applicable

Extinguishing Media:
Not combustible. Use extinguishing method suitable for surrounding fire. Recommended (small fires): dry chemical.

Special Fire Fighting Procedures:
Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus with full face-piece and full acid-resistant protective clothing. Fight fire from maximum distance.

Unusual Fire and Explosion Hazards:
Not combustible. Strong oxidizers can react with reducing agents or combustibles producing heat and causing ignition. Reacts violently with water releasing heat and corrosive material.

Hazardous Decomposition Materials (Under Fire Conditions):
oxides of sulfur

6. ACCIDENTAL RELEASE MEASURES

Evacuation Procedures and Safety:
Personnel handling this material should be thoroughly trained to handle

 Continued on Next Page

6. ACCIDENTAL RELEASE MEASURES (Continued)

spills and releases. Do not direct hose streams into an unignited transportation spill (tank truck or tank car).

Containment of Spill:
Stop leak if it can be done without risk. Dike spill using absorbent or impervious materials such as earth, sand or clay. Dike or retain dilution water or water from firefighting for later disposal.

Cleanup and Disposal of Spill:
Pump any free liquid into an appropriate closed container (see Section 7: Handling and Storage). Exercise caution during neutralization as considerable heat may be generated. Carefully neutralize spill with soda ash. Absorb neutralized spill with an inert absorbent. Scrape up and place in appropriate closed container (see Section 7: Handling and Storage).

Environmental and Regulatory Reporting:
Do not flush to drain. Runoff from fire control or dilution water may cause pollution. Dispose of as a hazardous waste. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies. Large spills should be handled according to a predetermined plan. For assistance in developing a plan contact the Technical Service Department using the Product Information phone number in Section 1.

7. HANDLING AND STORAGE

Minimum/Maximum Storage Temperatures:
Not Available

Handling:
Do not breathe vapors and mists. Do not get on skin or in eyes. This product reacts violently with bases liberating heat and causing spattering.

When diluting an acid, ALWAYS add the acid slowly to water and stir well to avoid spattering. NEVER ADD WATER TO ACID.

Storage:
Store in tightly closed containers. Store in an area that is dry, well-ventilated, diked with impermeable material, Freezing point varies

 Continued on Next Page

7. HANDLING AND STORAGE (Continued)

with concentration. Maximum recommended storage temperature = 120F (49C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Introductory Remarks:
These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

Exposure Guidelines:
Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements. The following limits apply to this material, where, if indicated, S=skin and C=ceiling limit:

SULFURIC ACID

	Notes	TWA	STEL
ACGIH		1 mg/cu m	3 mg/cu m
OSHA		1 mg/cu m	
RPI		0.3 mg/cu m	

Engineering Controls:
Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: local exhaust ventilation at the point of generation.

Respiratory Protection:
When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance

 Continued on Next Page

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

with the appropriate regulatory standards and/or industrial recommendations.

Under normal conditions, in the absence of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate OSHA, WHMIS or ANSI standard(s): Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against acid gases.

Eye/Face Protection:
Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.

Skin Protection:
Skin contact must be prevented through the use of permeation resistant clothing, gloves and footwear, selected with regard for use conditions and exposure potential. An emergency shower must be readily accessible to the work area. Consideration must be given both to durability as well as permeation resistance.

Work Practice Controls:
Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material:

(1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
(2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
(3) Wash exposed skin promptly to remove accidental splashes or contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical properties here represent typical properties of

 Continued on Next Page

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

this product. Contact the business area using the Product Information phone number in Section 1 for its exact specifications.

Physical Appearance:
colorless oily liquid.

Odor:
odorless.

pH:
1 at 1 wt/wt%.

Specific Gravity:
Not Available

Water Solubility:
miscible

Melting Point Range:
Not Available

Boiling Point Range:
Not Available

Vapor Pressure:
Not Available

Vapor Density:
3.4

Molecular Weight:
98.08

10. STABILITY AND REACTIVITY

Chemical Stability:
This material is stable under normal handling and storage conditions described in Section 7.

Conditions To Be Avoided:

 Continued on Next Page

10. STABILITY AND REACTIVITY (Continued)

none known

Materials/Chemicals To Be Avoided:
water
strong reducing agents
halogens
bases
metals
nitrogen compounds

The Following Hazardous Decomposition Products Might Be Expected:
Decomposition Type: thermal
oxides of sulfur

Hazardous Polymerization Will Not Occur.
Avoid The Following To Inhibit Hazardous Polymerization:
not applicable

11. TOXICOLOGICAL INFORMATION

Acute Eye Irritation:
Toxicological Information and Interpretation
eye - eye irritation, 250 ug/24 hr, rabbit.
Severely irritating.

Acute Skin Irritation:
No test data found for product. This product was not tested because strong acids are known to be corrosive and to cause severe tissue destruction.

Acute Dermal Toxicity:
No test data found for product. This product was not tested because strong acids are known to be corrosive and to cause severe tissue destruction.

Acute Respiratory Irritation:
Toxicological Information and Interpretation
lung - lung irritation, < 5 mg/cu m, human.
Mildly irritating.

Acute Inhalation Toxicity:

 Continued on Next Page

11. TOXICOLOGICAL INFORMATION (Continued)

Toxicological Information and Interpretation

LC50 - lethal concentration 50% of test species, 510 mg/cu m/2 hr, rat.
LC50 - lethal concentration 50% of test species, 347 ppm/1 hr, rat.

Acute Oral Toxicity:

Toxicological Information and Interpretation

LD50 - lethal dose 50% of test species, 2140 mg/kg, rat.

Chronic Toxicity:

This product contains the substances that are considered to be "probable" or "suspected" human carcinogens as follows:

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified "occupational exposure to strong inorganic acid mists containing sulfuric acid" as a known human carcinogen (IARC Category 1). This classification applies only to sulfuric acid when generated as a mist. There is still debate in the scientific community whether the studies reviewed by IARC and NTP adequately controlled for confounding occupational exposures and personal habits such as cigarette smoking and alcohol consumption. A few epidemiology studies have suggested a possible association between sulfuric acid exposure and laryngeal or lung cancer; however, in all these studies, workers were exposed to many other chemicals, some of which are recognized carcinogens, such as diethylsulfate and nickel. Considering the multiple chemical exposures and other limitations of the studies, we disagree with IARC's conclusion that a cause and effect relationship between cancer and "occupational exposure to strong inorganic acid mist containing sulfuric acid" has been demonstrated. Also more recent epidemiological studies have failed to find any association between "occupational exposure to strong inorganic acid mist containing sulfuric acid" and laryngeal or lung cancer. ACGIH has classified "sulfuric acid as contained in strong inorganic acid mists" as a suspect human carcinogen. This classification does not apply to sulfuric acid per se.
Lifetime animal studies in hamsters, rats and guinea pigs were conducted in the 1970's under sponsorship of the Environmental Protection Agency (EPA) or the National Institutes of Environmental Health Sciences (NIEHS). All three lifetime studies were negative for carcinogenic effects. These studies were not formally published by the government agencies because they were satisfied that sulfuric acid mist was not a carcinogenic problem. Because these studies were not published, IARC or NTP did not consider them in their deliberations.

Ingredient Name	Regulatory Agency Listing Carcinogen			
	OSHA	IARC	NTP	ACGIH

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11. TOXICOLOGICAL INFORMATION (Continued)

OCCUPATIONAL EXPOSURES TO STRONG-INORGANIC-ACID MISTS CONTAINING	No	1	Yes	A2

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ecotoxicological Information and Interpretation:
The toxicity of sulfuric acid to fish is dependent on the resulting pH of the water. lethality at a pH of 5.0 or below. required to cause lethality varies depending on the hardness of the water (hard water has some buffering capacity) and the species of fish (some fish are more resistant to the effects of acidity). McKee, JE, and Wolf, HA (Editors), Water Quality Criteria, 2nd ed., Publication No. 3-A, p. 279, California State Water Resources Control Board, Sacramento, CA (rev. 1963).

Chemical Fate Information:
No data found for product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:
Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

EPA Hazardous Waste - YES

EPA RCRA HAZARDOUS WASTE CODES:
"C" Corrosive; "R" Reactive.

 Continued on Next Page

14. TRANSPORTATION INFORMATION

Transportation Status: IMPORTANT! Statements below provide additional data on listed DOT classification.
The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

US Department of Transportation
Hazard Class..... 8

Shipping Name:
SULFURIC ACID
ID Number..... UN1830
Packing Group.... II
Labels..... CORROSIVE
Emergency Guide #.... 137

15. REGULATORY INFORMATION

Inventory Status

Inventory	Status
UNITED STATES (TSCA)	Y
CANADA (DSL)	Y
EUROPE (EINECS/ELINCS)	Y
AUSTRALIA (AICS)	Y
JAPAN (MITI)	Y
SOUTH KOREA (KECL)	Y

Y = All ingredients are on the inventory.
E = All ingredients are on the inventory or exempt from listing.
P = One or more ingredients fall under the polymer exemption or are on the no longer polymer list. All other ingredients are on the inventory or exempt from listing.
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

FEDERAL REGULATIONS

Inventory Issues:
All functional components of this product are listed on the TSCA Inventory.

 Continued on Next Page

15. REGULATORY INFORMATION (Continued)

SARA Title III Hazard Classes:

Fire Hazard	- NO
Reactive Hazard	- YES
Release of Pressure	- NO
Acute Health Hazard	- YES
Chronic Health Hazard	- NO

SARA 313 Chemicals

SULFURIC ACID (65 - 100%)

SARA Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

Ingredient	CERCLA/SARA RQ	SARA EHS TPQ
SULFURIC ACID	1000 lbs	1000 lbs
UNLISTED HAZARDOUS WASTES - CHARACTERISTIC OF CORROSIVITY	100 lbs	
UNLISTED HAZARDOUS WASTES - CHARACTERISTIC OF REACTIVITY	100 lbs	

STATE REGULATIONS:

This product contains the following components that are regulated under California Proposition 65:

Ingredient Name	Cancer List	Reprod. List	No Sign. Risk Lvl (ug/day) California	RPI
OCCUPATIONAL EXPOSURES TO STRONG-INORGANIC-ACID MISTS CONTAINING SULFU	Y	N	ND	ND

16. OTHER INFORMATION

National Fire Protection Association Hazard Ratings--NFPA(R):

3 Health Hazard Rating--Serious
0 Flammability Rating--Minimal
2 Instability Rating--Moderate
0 * NO WATER

National Paint & Coating Hazardous Materials Identification System--HMIS(R):

3 Health Hazard Rating--Serious
0 Flammability Rating--Minimal
2 Reactivity Rating--Moderate

Reason for Revisions:

 Continued on Next Page

16. OTHER INFORMATION (Continued)

Change and/or addition made to Section 4, Section 7, Section 9, Section 11, Regulatory Review and Update.

Key Legend Information:

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
TLV - Threshold Limit Value
PEL - Permissable Exposure Limit
TWA - Time Weighted Average
STEL - Short Term Exposure Limit
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer
ND - Not determined
RPI - Rhodia Established Exposure Limits

Disclaimer:

The information herein is given in good faith but no warranty, expressed or implied, is made.

Power house

SUPERIOR

MATERIAL SAFETY DATA SHEET

I IDENTIFICATION

PRODUCT TRADE NAME: SUPERCOOL

MANUFACTURER: SUPERIOR OIL COMPANY
400 WEST REGENT STREET
INDIANAPOLIS, IN 46225

INFORMATION PHONE: (317) 781-4400 /// EMERGENCY PHONE: (317) 781-4400

PREPARED DATE: February 13, 2002 /// PRINTED DATE: February 13, 2002

II INGREDIENTS

MATERIAL	CAS #	OSHA TWA(ppm)	ACGIH TWA(ppm)	Wt.%
Ethylene Glycol	107-21-1	C-50**	C-50**	> 90
Proprietary Inhibitor	Mixture	N/A	N/A	< 5

** MFR Recommended Ceiling Exposure Limits 50ppm **
*** Ingredients listed above are TSCA Inventory registered ***

III HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

INHALATION	SKIN	EYE	INGESTION
Yes	Yes	Yes	Yes

INHALATION:
Excessive exposures may cause irritation to eyes, nose, throat and lungs. Irritation to respiratory tract; Central Nervous System (CNS) effects; Discomfort, Disagreeable odor, Nausea. Repeated excessive exposures may cause liver effects or damage. Kidney effects or damage. Chronic, adverse systemic effects.

SKIN:
Skin absorption of material may produce systemic toxicity. Contains a mater which may cause irritation with prolonged or repeated contact.

EYE:
Contact with the eye may cause irritation.

INGESTION:
Harmful or fatal if swallowed. Ingestion of this material may cause abdomin pain; Central Nervous System effects; Difficulty in breathing; Respiratory failure; and death. Ingestion of this material may cause damage to kidneys.

SUPERIOR

PRODUCT NAME: SUPERCOOL

III. HAZARDS IDENTIFICATION (Continued)

CARCINOGEN:

IARC - No // NTP - No // OSHA - No // ACGIH - No

PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Disorders or diseases of the skin, eye, kidney, liver.

IV. FIRST AID MEASURES

INHALATION:

Move person to fresh air. If not breathing, give artificial respiration, obtain medical assistance.

SKIN:

Wash with soap and water until no odor remains. If redness or swelling develops, obtain medical attention. Immediately remove soaked clothing. Wash clothing before reuse.

EYE:

Flush with water for at least 15 minutes. If irritation persists, obtain medical assistance.

INGESTION:

Give liquids and induce vomitting unless victim is unconscious. Obtain emergency medical attention. Small amounts which accidentally enter mouth should be rinsed out until taste of it is gone.

V. FIRE FIGHTING MEASURES

Flash Point: 245°F (111°C)
Lower Explosive Limits: 3.2 Vol.%
Upper Explosive Limits: 15.3 Vol.%

FIRE AND EXPLOSION HAZARDS: Can be made to burn

EXTINGUISHING MEDIA: Water spray, alcohol resistant foam, dry chemical, CO_2

SPECIAL FIRE FIGHTING INSTRUCTIONS: Use water spray. Cool tank/container. Wear self-contained breathing apparatus. Wear structural firefighters protective clothing.

VI. ACCIDENTAL RELEASE MEASURES

In case of spill or release, dike the area and contain spill. Notify the EPA or state agency if required. Absorb on inert material. Shovel, sweep or vacuum spill. Flush with water and remove contaminated articles.

SUPERIOR

PRODUCT NAME: SUPERCOOL

VII. HANDLING AND STORAGE

Keep in cool, dry place. Keep in well ventilated area. NFPA class IIIB storage. Avoid prolonged breathing of mist or vapor. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

VIII. EXPOSURE CONTROL & PERSONAL PROTECTION

VENTILATION: Local exhaust or Mechanical ventilation is recommended to comply wi exposure limit.

PERSONAL PROTECTIVE EQUIPMENT:

EYE: Splash proof chemical goggles.

GLOVES: Polyethylene; Neoprene; Nitrile; Polyvinyl alcohol; Natural rubber; butyl rubber.

RESPIRATOR: Respiratory protection usually not needed unless product is heated or misted. Use only NIOSH certified respiratory protection.

OTHER: If contact is unavoidable, wear chemical resistant clothing.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	:	317°F
Freezing Point	:	-36°F
Specific Gravity	:	1.113 (Water = 1)
Vapor Pressure	:	0.08 mmHg @ 20°C
Vapor Density	:	2.1 (Air = 1)
Solubility in Water	:	100%
Evaporation Rate	:	<1 (Ethyl Ether = 1)
Appearance	:	Red liquid
Odor	:	Typical

X. STABILITY & REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Extreme heat will ignite in air at 748°F. Do not store at temperatures avobe 120°F (60°C).

INCOMPATIBLE MATERIALS: Strong oxidizing chemicals. Reacts violently with chlorosulfonic acidoleum, sulfuric acid, and strong bases.

HAZARDOUS DECOMPOSITION: Carbon monoxide and asphyxiants are produced by burnir

POLYMERIZATION: Will not occur.

SUPERIOR

PRODUCT NAME: SUPERCOOL

XI. TOXICOLOGICAL INFORMATION

INHALATION:

Overexposure to mist or vapors may cause eye, nose, throat and respiratory tract irritation, CNS effects, dizziness, drunkeness, incoordination, coma, respiratory failure, or death. Excessive exposures may cause brain, liver, and/or kidney effects and damage.

SKIN & EYE:

Large acute exposure may cause systemic effects. Irritant on contact.

INGESTION:

TOXIC! Harmful or fatal if swallowed. Acute poisoning (100 ml in human) characterized by GI pain, nausea, vomitting, muscle tenderness, CNS depression, possible respiratory and renal failure, death. In lab animals by oral and inhalation exposure embryotoxicity and teratogenicity were reported.

XII. DISPOSAL INFORMATION

Follow federal, state, and local regulations. The material is not a RCRA hazardous waste if uncontaminated. Do not flush to drain/storm sewer.

XIII. REGULATORY INFORMATION

SARA 313 LISTED MATERIAL:

Ingredients on Section II of the Material Safety Data Sheet are listed in Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986.

HMIS CLASSIFICATION:	HAZARD RATING:
Health - 1	0 - Least
Flammability - 1	1 - Slight
Reactivity - 0	2 - Moderate
	3 - High
	4 - Extreme

DISCLAIMER: This information is based on data available to us and is accurate and reliable to the best of our knowledge at the time of printing. However, no warranty is expressed or implied regarding the accuracy or completeness of the information contained herein. Buyer assumes all legal responsibility and liabilities. Buyer accepts and uses this material on these conditions.

17-120122

PVS CHEMICALS, INC. (ILLINOIS)
SUBSIDIARY OF PVS CHEMICALS, INC.
12260 South Carondolet Avenue • Chicago, Illinois 60633
Phone 773-933-8800

Customer Service: 1-800-932-8860
or
773-933-8860
Fax #: 773-933-0957

MATERIAL SAFETY DATA SHEET
PRODUCT: SULFURIC ACID 66° BE

SECTION 1 – MANUFACTURER INFORMATION

MANUFACTURER/DISTRIBIRTOR:

PVS CHEMICALS, INC. (ILLINOIS)
12260 S. Carondolet Avenue
Chicago, Illinois 60633
Telephone: 773-933-8800 (product information and emergencies)
Fax: 773-933-0957

*****FOR TRANSPORTATION EMERGENCY ONLY, DAY OR NIGHT, CALL*****
*****CHEMTREC, 1-800-424-9300*****

PREPARTATION/REVISION DATE: March 1, 1996
CONTACT: Manager of Environmental Affairs

SECTION 2 – PRODUCT IDENTITY/HAZARDOUS INGREDIENTS INFORMATION

Product Name: Sulfuric Acid
Chemical Name/synonyms: Sulfuric Acid, Oil of Vitriol
Chemical Formula: H_2SO_4
CAS Number: 7664-93-9
Product Code: N/A

HAZARDOUS INGREDIENTS: Yes

Component	CAS Number	% by weight
Sulfuric Acid	7664-93-9	75-100%

Exposure Limits:
OSHA PEL: 1mg/m^3, 8-hr TWA
ACGIH TLV: 1mg/m^3, 8-hr TWA
3mg/m^3, STEL
80 mg/m^3, IDLH

Other:
This is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

NON HAZARDOUS INGREDIENTS: Yes

Component	CAS Number	% by weight
Water	7732-18-5	1-25%

OSHA 29 CFR 1910.1200 EVALUATION: Hazardous

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: Clear to slightly cloudy, oily liquid; Odorless to slightly pungent.

BOILING POINT:	77.7% = 193°C; 98% = 327°C;	93% = 279°C; 99% = 310°C	96% = 308°C
VAPOR PRESSURE (REID):	93.2% = 0.0016 mm Hg;		98% = 0.002 mm Hg
VAPOR DENSITY (AIR = 1):	No information		
SPECIFIC GRAVITY (WATER = 1):	77.7% = 1.706; 98% = 1.844;	93.2% = 1.835; 99% = 1.842	96% = 1.843
PERCENT VOLATILE BY WEIGHT:	No Information		
EVAPORATION RATE (BUTYL ACETATE = 1):	<1		
pH:	<1		
SOLUBILITY IN WATER:	Completely miscible		

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP METHOD): Not flammable. May ignite combustible materials.
FLAMMABLE LIMITS IN AIR, % BY VOLUME: N/A
LOWER: N/A UPPER: N/A
EXTINGUISHING MEDIA: Use dry chemicals or CO_2 fire extinguishers to fight surrounding fire. Do not use water on acid itself. Apply from farthest possible distance.
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective clothing. Cool exterior of storage tanks.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Violent reaction with water. Evolution of explosive hydrogen gas on contact with most metals. Will react with organic material with evolution of heat and dense white fumes.

SECTION 5 – REACTIVITY DATA

STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBILITY (CONDITIONS AND MATERIALS TO AVOID): Material is stable when properly handled. Reactive with materials such as metals, metal oxides, hydroxides, nitrates, amines, carbonates and other alkaline materials. Reactions can generate a great deal of heat as does the dilution of acid with water. Concentrated acid is a strong oxidizing agent. May cause ignition of combustible materials on contact with generation of sulfur dioxide fumes. Avoid open flames or sparks.

HAZARDOUS DECOMPOSITION PRODUCTS: Explosive hydrogen gas is generated by the action of acid on most metals and may accumulate in metal containers. Releases Sulfur Dioxide at extremely high temperatures.

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SECTION 6 – HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation, ingestion, and direct contact

HEALTH EFFECTS (ACUTE AND CHRONIC):

INHALTION: Inhalation of concentrated vapor or mist may damage respiratory tract.

INGESTION: Swallowing may be fatal.

DIRECT CONTACT: Contact with liquid, mist, or vapor can cause immediate irritation or corrosive burns to all human tissue. The concentration of the solution and duration of exposure generally determine severity of the burn.

EYE CONTACT: Contact with eyes may result in permanent visual loss unless removed quickly by through irrigation with water.

TOXICITY DATA (ANIMAL):

Oral LD50, rat: 2,140 mg/kg

Skin and eye irritation (rabbit): (FHSA)

Corrosive

Inhalation 1 hour LC50, rat: 347ppm

The International Agency of Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions.

CARCINOGENS (NTP, IARC, OR OSHA):

None of the components of this material are listed by NTP, IARC, OSHA or ACGIH as a carcinogen.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Repeated skin contact with dilute solutions may cause dermatitis. May cause dental erosion.

SECTION 7 – FIRST AID

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. Get medical attention.

INGESTION: Drink copious amount of water or milk. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Wipe off excess. Flush immediately with water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention. Wash clothing before re-use. Destroy contaminated shoes.

DIRECT EYE CONTACT: Flush immediately with water for at least 15 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

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SECTION 8 – PRECAUTIONS FOR SAFE STORAGE, HANDLING AND USE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store away from sources of ignition. Do not add water to concentrated acid. When diluting, slowly add acid to water while stirring to avoid spattering, boiling and eruption. Keep container closed and protect from contact with water. Protect container from physical damage. Do not strike containers or fittings with tools. Wash thoroughly after handling. Emptied container will retain vapor and product residue.

STEPS TO BE TAKEN IN CASE MATEIAL IS RELEASED OR SPILLED:

Utilize full protective clothing, including boots and protective equipment. Contain spill in order to prevent contamination of sewage system or waterway. Pump into marked containers for reclamation or disposal. If possible, neutralize on a dry basis with suitable alkali such as lime or soda ash; then flush with water in accordance with applicable regulations.

WASTE DISPOSAL METHODS:

Dispose of spilled, neutralized, or waste product, contaminated soil and other materials in accordance with all local, state and federal regulations.

SECTION 9 – EXPOSURE CONTOL INFORMATION

VENTILATION:

Provide ventilation to control exposure levels below airborne exposure limits. Use local exhaust ventilation. Reference NFPA Standard 91 for design of exhaust systems.

RESPIRATORY PROTECTION:

Use NIOSH/MSHA approved, full-face respirator with canister approved for sulfuric acid vapor and mist. Consult respirator manufacturer to determine appropriate equipment. If concentrations are high or unknown, use self-contained breathing apparatus.

PROTECTIVE GLOVES:

Wear gloves made of butyl rubber, Saranex (PVSDC/PE), Teflon, polyethylene, or other suitable material as recommended by manufacturer.

EYE PROTECTION:

Wear splash proof chemical safety goggles. Eyewash fountains recommended in all storage and handling area. Do not wear contact lenses.

OTHER PROTECTIVE EQUIPMENT:

Wear protective clothing to prevent skin contact. Full-face shield and rubber footwear should be used. Acid-resistant hood and full body suit recommended. Safety shower recommended in all storage and handling areas.

WORK/HYGIENCIC PRACTICES:

Avoid breathing fumes. Use gloves when handling. Remove and change contaminated clothing immediately.

OTHER PRECAUTIONS: None

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SECTION 10 – REGULATORY INFORMATION

DOT:

Proper shipping name:	Sulfuric Acid
Hazard Class:	8
UN Number:	UN 1830
Packing Group:	II

SARA TITLE III HAZARD CLASSIFICATION

ACUTE:	Yes
CHRONIC:	Yes
FIRE:	No
PRESSURE:	No
REACTIVITY:	Yes

Sulfuric Acid is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

OTHER RATINGS:
(Hazard Index Key): 4 = severe
3 = serious
2 = moderate
1 = slight
0 = minimal

HMIS:	Health = 3,	Flammability = 0,	Reactivity = 2
NFPA:	Health = 3,	Flammability = 0,	Reactivity = 2

OTHER INFORMATION:

Sulfuric Acid:

CERCLA: RQ =	1000 lbs.
SARA TPQ:	1000 lbs.
WHMIS:	1%

END

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MALLINCKRODT

Material Safety Data Sheet

Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

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Emergency Telephone Number: 314-982-5000

SULFURIC ACID 96%

PRODUCT IDENTIFICATION:

Synonyms: Oil of Vitriol

Formula CAS No.: 7664-93-9

Molecular Weight: 98.07

Chemical Formula: H_2SO_4

Hazardous Ingredients: Sulfuric acid

PRECAUTIONARY MEASURES

DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG DAMAGE.

Do not get in eyes, on skin, or on clothing.
Do not breathe mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
This substance is classified as a POISON under the Federal Caustic Poison Act.

EMERGENCY/FIRST AID

In all cases call a physician. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
SEE SECTION 5.

DOT Hazard Class: Corrosive Material

SECTION 1 Physical Data

Appearance: Colorless, oily liquid.

Odor: Odorless.

Solubility: Infinite @ 20°C.

Boiling Point: ca. 310°C (590°F)

Melting Point: ca. -14°C (6°F).

Specific Gravity: 1.84

Vapor Density (Air = 1): < 0.3 @ 25°C (77°F)

Vapor Pressure (mm Hg): 1 @ 146°C (250°F).

Evaporation Rate: No information found.

SECTION 2 Fire and Explosion Information

Fire:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Reacts with most metals releasing flammable, potentially explosive hydrogen gas.

Explosion:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Fire Extinguishing Media:
Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 3 Reactivity Data

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Toxic fumes of oxides of sulfur. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas, and with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Water, bases, organic material, halogens, metal acetylides, oxides and hydrides, strong oxidizing and reducing agents and many other reactive substances.

SECTION 4 Leak/Spill Disposal Information

Dike and cover leaking or spilled liquid with dirt, vermiculite, kitty-litter or other inert absorbent. Cover spill with sodium bicarbonate or soda ash and mix. Clean-up personnel require protective clothing and respiratory protection from vapors and mists. Neutralized waste may be containerized and disposed in a RCRA approved waste disposal facility. Flush area of spill with dilute soda ash solution and discard to sewer.

Reportable Quantity (RQ)(CWA/CERCLA) : 1000 lbs.

Ensure compliance with local, state and federal regulations.

AD

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 2 Other: Water reactive

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SECTION 5 Health Hazard Information

A. EXPOSURE / HEALTH EFFECTS

Inhalation:
Inhalation produces damaging effects on the mucous membranes and upper respiratory tract. May cause lung edema. Symptoms may include irritation of the nose and throat, and labored breathing.

Ingestion:
Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, leading to death. Can cause sore throat, vomiting, diarrhea.

Skin Contact:
Corrosive. Symptoms of redness, pain, and severe burn can occur.

Eye Contact:
Corrosive. Splashes can cause blurred vision, redness, pain and severe tissue burns.

Chronic Exposure:
Long-term exposure to mist or vapors may cause damage to teeth.

Aggrevation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

B. FIRST AID

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:
If swallowed, DO NOT induce vomiting. Give large quantities of water or milk if available. Call a physician immediately. Never give anything by mouth to an unconscious person.

Skin Exposure:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

Eye Exposure:
Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY DATA (RTECS, 1986)

Oral rat LD50: 2140 mg/kg. Inhalation Guinea Pig LC50: 18 mg/m^3.

SECTION 6 Occupational Control Measures

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
1 mg/m^3 (TWA).
-ACGIH Threshold Limit Value (TLV):
1 mg/m^3 (TWA).

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Personal Respirators: (NIOSH Approved)
If the TLV is exceeded a full facepiece chemical cartridge respirator may be worn, in general, up to 100 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 7 Storage and Special Information

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, always add the acid to water; never add water to the acid.

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MALLINCKRODT

Material Safety Data Sheet

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Mallinckrodt, Inc. Science Products Division, P.O. Box M Paris, KY 40361

Emergency Telephone Number: 314-982-5000

Addendum to Material Safety Data Sheet

REGULATORY STATUS

This Addendum Must Not Be Detached from the MSDS

Identifies SARA 313 substance(s)

Any copying or redistribution of the MSDS must include a copy of this addendum

(Chem.Key: SUF96)

Hazard Categories for SARA Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
X	X			X

Product or Components of Product:	SARA EHS Sect. 302 RQ (lbs.)	SARA EHS Sect. 302 TPQ (lbs.)	SARA Section 313 Chemicals Name List	SARA Section 313 Chemicals Chemical Category	CERCLA Sec.103 RQ (lbs.)	RCRA Sec. 261.33
SULFURIC ACID 96% (7664-93-9)	1000	1,000	Yes	No	1000	No

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.
SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.
SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.
CERCLA Sec. 103: Comprehensive Enviromental Response, Compensation and Liability Act (Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4
RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK LIQUID
138622 VERSION: 02 REVISED DATE: 05/19/1997

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	2 *
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK BLACK LIQUID
PRODUCT CODE: 138622
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<3.0	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CROMPD	<26	25MG CR/M3 IDLH
1-ETHOXY-2-PROPANOL	1569-02-4	5	100 PPM SUPPLIER
LD50(ORAL)(RAT) 4400 MG/KG			
LD50(ORAL)(RABBIT) 8100 MG/KG			

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT:
INHALATION: X
INGESTION:

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE N.C. 28205

SUPRONIL HK BLACK LIQUID
138622 VERSION: 02 REVISED DATE: 05/19/1997

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Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLASH POINT ('F): >212
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): NOT AVAILABLE

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. CONTAINS COMPLEXED CHROMIUM. AVOID RUNOFF TO SEWERS AND BODIES OF WATER. WEAR PROPER PROTECTIVE EQUIPMENT. ABSORB ON SUITABLE ABSORBANT MATERIALS. CLEAN UP BY SCRUBBING WITH SOAP AND WATER, COLLECT CLEANING WASTES, OR REMOVE CONTAMINATED SOILS. PLACE IN PROPER CONTAINERS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN CLOSED CONTAINERS. AVOID CONTACT WITH SKIN AND EYES. DO NOT INHALE VAPORS. STORE BETWEEN -10C AND 60C.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BLACK LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 6.0 - 7.0
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.10
BOILING POINT ('F): 212.0
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 74.5
VOC(EPA METHOD 24/24A): 65%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK LIQUID
138622 VERSION: 02 REVISED DATE: 05/19/1997

For Chemical Emergency
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For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 10 - STABILITY AND REACTIVITY (CONT.)

CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK LIQUID
138622 VERSION: 02 REVISED DATE: 05/19/1997

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 14 - TRANSPORT INFORMATION (CONT.)

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 65%
LOSS ON DRYING (%): 74.5

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CRCMPD	<26	NO RQ

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK LIQUID
138622 VERSION: 02 REVISED DATE: 05/19/1997

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For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 15 - REGULATORY INFORMATION (CONT.)

1-ETHOXY-2-PROPANOL	1569-02-4	5	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

LABEL PRECAUTIONS:

AVOID BREATHING FUMES AND VAPORS. KEEP CONTAINER CLOSED WHEN NOT IN USE. USE WITH ADEQUATE VENTILATION OR APPROPRIATE RESPIRATORY PROTECTION.

FIRST AID

CLARIANT CORPORATION
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SECTION 16 - OTHER INFORMATION (CONT.)

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES, HOLDING EYELIDS OPEN. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

INGESTION: SEEK PROMPT MEDICAL ATTENTION

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN, SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

SECTION 1

MANUFACTURERS NAME: STAHL USA
ADDRESS: 13 CORWIN ST., P.O. BOX 3039,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /978/ 531-0371
NIGHTS: CHEMTREC 1-800-424-9300 (CHEM.EMERG, ONLY!)
PRODUCT NAME: WT-7370

HMIS RATING

HEALTH	2
FLAMMABILITY	3
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
SOLVENT NAPHTHA(PETROLEUM)LT.AROM.	3.8	10.00	25.0	OSHA NOT ESTAB
CAS NO. 64742-95-6 SYN: ...				ACGIH NOT ESTAB
2-PENTANONE,4-HYDROXY-4-METHYL-	6.3	***	***	OSHA 50 PPM
CAS NO. 123-42-2 SYN: DIACETONE ALCOHOL				ACGIH 50 PPM
1-METHYL-2-PYRROLIDONE	1.3	***	***	OSHA NOT ESTAB.
CAS NO. 872-50-4 SYN: N-METHYLPYRROLIDONE{1}				ACGIH NOT ESTAB.

{1} THIS PRODUCT CONTAINS A "TOXIC" CHEMICAL OR CHEMICALS SUBJECT TO REPORTING REQUIREMENTS OF SECTION 313 OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372. THESE CHEMICALS ARE IDENTIFIED BY {1} AT THE END OF THE SYNONYM ABOVE.

*** NOT KNOWN TO MANUFACTURER

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.
VAPOR DENSITY: HEAVIER THEN AIR (FOR SOLVENT CONTENT)
BOILING RANGE:311-395 DEGREES F (SOLVENT ONLY)
PERCENT BY WEIGHT VOLATILE ORGANIC COMPOUNDS (VOC) : 12
WEIGHT PER GALLON: 8.70 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) 70 DEGREES F
EXTINGUISHING MEDIA

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED -

USE EXTINGUISHING AGENTS SUITABLE FOR CLASS B FIRES. THESE INCLUDE CARBON DIOXIDE, DRY CHEMICAL, FOAM, AND HALON AGENTS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

FLAMMABLE LIQUID. VAPORS MAY IGNITE OR EXPLODE IF THEY ARE ALLOWED TO ACCUMULATE IN AREAS WHERE AN IGNITION SOURCE COULD BE PRESENT. CLOSED CONTAINERS MAY EXPLODE IF EXPOSED TO EXTREME HEAT, SUCH AS OCCURS IN A FIRE.

MAY FLOAT ON WATER WHILE BURNING.

DO NOT STORE OR MIX WITH STRONG OXIDANTS.

SPECIAL FIRE FIGHTING PROCEDURES

WATER MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE BECAUSE SOLID WATER STREAM MAY SPREAD FIRE. WATER SPRAY OR FOG MAY BE USED TO COOL EXPOSED CONTAINERS, BUT CARE SHOULD BE TAKEN NOT TO SPREAD ANY BURNING LIQUID. DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. MSHA/NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS SHOULD BE WORN WHEN FIGHTING A FIRE WHICH EXPOSES FIREFIGHTER TO VAPORS OR COMBUSTION PRODUCTS (E.G. AN INDOOR FIRE) AND SHOULD BE AVAILABLE FOR ALL FIRES. FIGHT FIRE FROM A SAFE DISTANCE/PROTECTED LOCATION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

SELF CONTAINED BREATHING APPARATUS SHOULD BE WORN BY FIREFIGHTERS OR OTHERS EXPOSED TO THE VAPORS FROM THIS PRODUCT IN A FIRE SITUATION (FOR INSTANCE IF THE CONTAINER RUPTURES FROM SEVERE HEAT EXPOSURE).

2-PENTANONE,4-HYDROXY-4-METHYL (SEE SECTION 2) IS TOXIC AND AN EYE IRRITANT.

USE PROTECTIVE CLOTHING TO PREVENT CONTACT WITH INGREDIENTS LISTED IN SECTION 2.

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

** THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT PRESENT AN ACTUAL HEALTH RISK IN THE WORKPLACE, IF EXPOSURE IS ELIMINATED. ALSO, THESE HAZARDS ARE BASED UPON THE HAZARDS OF THE COMPONENTS OF THE PRODUCT. IN SOME CASES, THESE COMPONENTS MAY BE CONTAINED IN A SMALL PERCENTAGE, WHICH WILL REDUCE THE DEGREE OF RISK THAT THIS POTENTIAL HAZARD COULD ACTUALLY MANIFEST ITSELF.

DUE TO SOLVENT CONTENT, BREATHING OF VAPORS MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, VOMITING, AND, IN EXTREME CASES, UNCONSCIOUSNESS. LIQUID MAY CAUSE DEFATTING OF SKIN AND DERMATITIS. THE LIKELIHOOD OF THESE EFFECTS OCCURRING IS PARTIALLY DEPENDENT UPON THE AMOUNT OF SOLVENT IN THE PRODUCT, AS INDICATED

SECTION 5 - HEALTH HAZARD DATA - CONTINUED -

IN SECTION 2.
MAY CAUSE SEVERE EYE IRRITATION.
MAY CAUSE SKIN IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING.
INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.
MAY CAUSE NARCOSIS IN HIGH CONCENTRATIONS.
POSSIBLE ANESTHESIA FROM HIGH CONCENTRATIONS.
MODERATELY TOXIC. MAY CAUSE STOMACH DISCOMFORT, NAUSEA, VOMITING, DIARRHEA, AND NARCOSIS.
N-METHYLPYRROLIDONE HAS BEEN SHOWN TO PRODUCE REPRODUCTIVE AND DEVELOMPMENTAL EFFECTS IN TEST ANIMALS AND THEIR EMBRYOS, BUT ONLY AT HIGH DOSES THAT ARE POTENTIALLY LETHAL TO THE TEST ANIMAL. THESE OBSERVATIONS ARE NOT THOUGHT TO BE RELEVANT TO OCCUPATIONAL USAGE OF N-METHYLPYRROLIDONE. TOXICOLOGICAL STUDIES ON EXPERIMENTAL ANIMALS INDICATE THAT N-METHYLPYRROLIDONE IS NOT A CARCINOGEN, MUTAGEN, TERATOGEN, OR REPRODUCTIVE TOXIN IN HUMANS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT
WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT
FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPTHAMOLOGIST.

INHALATION
REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION
SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.
CONTAINS A PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING, GUARD AGAINST ASPIRATION INTO LUNGS.

OTHERS
NOTE TO PHYSICIAN:
ASPIRATION OF ONE OF THE SOLVENTS LISTED IN SECTION 2 DUE TO VOMITING MAY CAUSE CHEMICAL PNEUMONITIS (LUNG DAMAGE), WHICH MAY BE FATAL.
THERE IS NO SPECIFIC ANTIDOTE. TREATMENT OF OVEREXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION.

SECTION 6 - REACTIVITY DATA

STABILITY

SECTION 6 - REACTIVITY DATA - CONTINUED -

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING OR REDUCING AGENTS.
LIQUID CHLORINE AND CONCENTRATED OXYGEN.

HAZARDOUS DECOMPOSITION PRODUCTS

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

HEAT, SPARKS, OPEN FLAMES, AND OTHER IGNITION SOURCES.
ACIDS

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WHEN HANDLING SPILL INCIDENTS, ELIMINATE ALL POTENTIAL IGNITION SOURCES, SUCH AS FLARES, FLAMES, PILOT LIGHTS, SMOKING, SPARKING MOTORS, ETC. IF THE SPILL IS INDOORS OR IN A CONFINED AREA, VENTILATE THE AREA (SUCH AS BY OPENING WINDOWS AND DOORS), BUT DO NOT USE SPARK-PRODUCING EQUIPMENT, SUCH AS NON-EXPLOSION-PROOF FANS. USE NON-SPARKING TOOLS FOR CLEANUP. TAKE ALL OTHER PRECAUTIONS APPROPRIATE TO HANDLING A SPILL OF A MATERIAL THAT CONTAINS FLAMMABLE OR COMBUSTIBLE LIQUIDS.

KEEP OUT OF PUBLIC SEWERS, STREAMS, AND RIVERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT STAHL USA IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

SECTION 7 - SPILL OR LEAK PROCEDURES - CONTINUED -

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS,OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

USE OF SOLVENT RESISTANT GLOVES IS STRONGLY RECOMMENDED. THE SUBSTANCES LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION WHEN SELECTING GLOVES.

EYE PROTECTION

SPLASH-PROOF CHEMICAL GOGGLES, OR EQUIVALENT EYE PROTECTION.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EMERGENCY EYE WASH FOUNTAIN BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE (THAT IS, WHEREVER THIS PRODUCT IS HANDLED OR USED).

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING, INDUSTRIAL HYGIENE, AND PERSONAL HYGIENE PRACTICES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY

SECTION 9 - SPECIAL PRECAUTIONS - CONTINUED -

WITH ADEQUATE VENTILATION. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTLY OF SOAP AND WATER.

KEEP FROM HEAT, SPARKS, OPEN FLAMES, HOT METAL SURFACES, AND OTHER IGNITION SOURCES. PROHIBIT SMOKING IN AREAS WHERE THIS PRODUCT IS HANDLED. HANDLE ONLY WITH EQUIPMENT APPROPRIATE FOR HANDLING FLAMMABLE LIQUIDS. APPLY PRODUCT IN PROPERLY EXHAUSTED EQUIPMENT ONLY.

WASH THOROUGHLY AFTER HANDLING, ESPECIALLY BEFORE EATING.

AVOID BREATHING MISTS.

AVOID SPLASH FILLING.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

MATERIAL SAFETY DATA SHEET

Finish Dept.

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK B LIQUID
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WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	1 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	B

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK BLACK B LIQUID
PRODUCT CODE: 138624
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: MIXTURE OF METALLIZED AZO DYES
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
DIETHYLENE GLYCOL	111-46-6	1.7	50 PPM TWA AIHA
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	6	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<1.5	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CROMPD	35-36	25MG CR/M3 IDLH

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT:
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

DIETHYLENE GLYCOL: SKIN IRRITATION (HUMAN)(112 MG/3D-I) - MILD. SKIN IRRITATION (RABBIT)(500 MG) - MILD. LD50 (RAT)(ORAL) - >12565 MG/KG. LD50 (RAT)(INTRAPERITONEAL) - >7700 MG/KG. LD50 (RABBIT)(SKIN) - >11890 MG/KG. INGESTION: MODERATELY HIGH TOXICITY. MAY CAUSE PAIN OR

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

DISCOMFORT IN THE ABDOMEN, PAIN IN THE LUMBAR REGION, NAUSEA, VOMITING, DIARRHEA, DIZZINESS, DROWSINESS, DECREASED URINE PRODUCTION, MALAISE, AND LOSS OF CONSCIOUSNESS. SEVERE KIDNEY DAMAGE MAY OCCUR WHICH CAN BE FATAL IF NOT PROMPTLY AND ADEQUATELY TREATED. LIVER INJURY MAY ALSO OCCUR. SKIN ABSORPTION: NO EVIDENCE OF ADVERSE HEALTH EFFECTS FOR AVAILABLE INFORMATION. INHALATION: SHORT-TERM ADVERSE HEALTH EFFECTS ARE NOT EXPECTED FROM EXPOSURE TO VAPOR GENERATED AT AMBIENT TEMPERATURE. AEROSOL OR VAPOR FORMED BY HEATING THE MATERIAL MAY CAUSE NAUSEA AND HEADACHE. SKIN CONTACT: NO EVIDENCE OF ADVERSE EFFECTS FROM AVAILABLE INFORMATION. EYE CONTACT: MAY CAUSE MILD DISCOMFORT. EXCESS REDNESS OF THE CONJUNCTIVA MAY OCCUR. EFFECTS OF REPEATED OVEREXPOSURE: INHALATION OF MIST MAY PRODUCE HEADACHE, NAUSEA, AND DIZZINESS. SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION: A CHRONIC DIETARY FEEDING STUDY WITH RATS SHOWED MILD KIDNEY INJURY AT 1% WHILE CONCENTRATIONS OF 2% AND 4% CAUSED MORE MARKED KIDNEY INJURY. IN ADDITION, AT 2% AND 4% OF DIETHYLENE GLYCOL IN THE DIET, SOME RATS DEVELOPED BENIGN PAPILLARY TUMORS IN THE URINARY BLADDER. THESE HAVE BEEN ATTRIBUTED TO THE PRESENCE OF URINARY BLADDER CALCIUM OXALATE STONES. NO EVIDENCE FOR CARCINOGENICITY WAS FOUND WITH A CHRONIC SKIN PAINTING STUDY WITH DIETHYLENE GLYCOL IN MICE. THE ABSENCE OF DIRECT CHEMICAL CARCINOGENIC EFFECTS IS IN ACCORD WITH THE RESULTS OF IN VITRO GENOTOXICITY STUDIES WHICH SHOW THAT IT DOES NOT PRODUCE MUTAGENIC OR CLASTOGENIC EFFECTS. A FEEDING STUDY EMPLOYING VERY HIGH CONCENTRATIONS OF DIETHYLENE GLYCOL IN THE DIET FAILED TO PRODUCE ANY TERATOGENIC EFFECTS. IN A MOUSE CONTINUOUS BREEDING STUDY WITH LARGE DOSAGES OF DIETHYLENE GLYCOL IN DRINKING WATER, THERE WAS EVIDENCE FOR REPRODUCTIVE TOXICITY AT 3.5% (EQUIVALENT TO 6.1 G/KG/DAY) AS REDUCED NUMBER OF LITTERS, LIVE PUPS PER LITTER, AND LIVE PUP WEIGHT. NO SUCH EFFECTS WERE SEEN AT 1.75% (APPROXIMATELY 3.05 G/KG/DAY) AND LOWER. THE RELEVANCE OF THESE VERY HIGH DOSAGES TO HUMAN HEALTH IS UNCERTAIN. PREGNANT RATS RECEIVING UNDILUTED DIETHYLENE GLYCOL BY GAVAGE OVER THE PERIOD OF ORGANOGENESIS HAD TOXIC EFFECTS AT 4.0 AND 8.0 ML/KG/DAY. MORTALITY, DECREASED BODY WEIGHT, DECREASED FOOD CONSUMPTION, INCREASED WATER CONSUMPTION, AND INCREASED LIVER AND KIDNEY WEIGHTS WERE OBSERVED AT ONE OR BOTH DOSAGES. FETOTOXICITY WAS SEEN ONLY AT THESE MATERNALLY TOXIC DOSAGES. DECREASED FETAL BODY WEIGHT OCCURRED AT 8.0 ML/KG, AND INCREASED SKELETAL VARIANTS AT 4.0 AND 8.0 ML/KG/DAY. NO EMBRYOTOXIC OR TERATOGENIC EFFECTS WERE SEEN. NEITHER MATERNAL TOXICITY NOR FETOTOXICITY OCCURRED AT 1.0 ML/KG/DAY. IN A STUDY WITH MICE ALSO RECEIVING UNDILUTED DIETHYLENE GLYCOL OVER THE PERIOD OF ORGANOGENESIS, MATERNAL TOXICITY OCCURRED AT 2.5 AND 10.0 ML/KG/DAY, BUT NOT AT 0.5 ML/KG/DAY. DEFINITIVE DEVELOPMENTAL TOXICITY WAS NOT SEEN IN THIS SPECIES.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION,BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

SUPRONIL HK BLACK B LIQUID MAY BE A DERMAL SENSITIZER

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

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4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK BLACK B LIQUID
138624 VERSION: 01 REVISED DATE: 05/02/2000

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 04 - FIRST AID MEASURES (CONT.)

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 176 CC
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILL. CONTAINS COMPLEXED CHROMIUM. AVOID RUNOFF TO SEWERS AND BODIES OF WATER. WEAR PROPER PROTECTIVE EQUIPMENT. ABSORB ON SUITABLE ABSORBANT MATERIALS. CLEAN UP BY SCRUBBING WITH SOAP AND WATER, COLLECT CLEANING WASTES, OR REMOVE CONTAMINATED SOILS. PLACE IN PROPER CONTAINERS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

NONE REQUIRED IN NORMAL USE OF PRODUCT.

PROTECTIVE GLOVES:

BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:

SAFETY GLASSES OR CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:

NONE KNOWN

VENTILATION:

LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):

NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BLACK LIQUID, MILD ODOR
ODOR THRESHOLD: NO DATA AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: MISCIBLE

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SPECIFIC GRAVITY: 1.09
BOILING POINT ('F): 212
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
> 20 % ANALYSIS: D.O.C. METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: ZEBRA FISH	LC 50: > 6	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

ESTIMATED FROM COMPONENTS.

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): >35
ESTIMATED FROM COMPONENTS.

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SECTION 12 - ECOLOGICAL INFORMATION (CONT.)

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : NA1993
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: NONE
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 128

SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION (CONT.)

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CRCMPD	35-36	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NO
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: YES
LISTED ON NDSL: NO
CEPA STATUS:
PRODUCT NOT YET EVALUATED

SECTION 15 - REGULATORY INFORMATION (CONT.)

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

AVOID CONTACT WITH PRODUCT. WEAR PROPER PROTECTIVE EQUIPMENT. WASH THOROUGHLY AFTER HANDLING PRODUCT.

KEEP AWAY FROM HEAT AND FLAME. KEEP CONTAINER CLOSED WHEN NOT IN USE.

FIRST AID

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES, HOLDING EYELIDS OPEN. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

INGESTION: SEEK PROMPT MEDICAL ATTENTION

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN, SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

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SECTION 16 - OTHER INFORMATION (CONT.)

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

Clariant

MATERIAL SAFETY DATA SHEET
SUPRONIL HK BLUE LIQ

Substance key: KS7656
Version : 1 - / USA

Revision Date: 07/02/2004
Date of printing :08/25/2004

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Textile, Leather & Paper Chemicals PS, Telephone: ++49(0)711-9032-170 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**SUPRONIL HK BLUE LIQ**
Material number:	101725
Primary product use:	Colourant for leather
Chemical family:	anthraquinone dyestuff in aqueous/organic dispersion

Section 02 - Composition information on hazardous ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
1-Methoxy-2-propanol	107-98-2	25 - 50 %
2-Propanol	67-63-0	2.5 - 10 %
1,2-Propanediol	57-55-6	2.5 - 10 %
Ethyl lactate	97-64-3	2.5 - 10 %

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	yes
Skin contact:	yes
Eye contact:	yes
Ingestion:	yes
Skin absorption:	no

Health effects of exposure:

1-Methoxy-2-Propanol (107-98-2)
1-Methoxy-2-Propanol: Toxicity is low via oral and inhalation routes. No cases of human toxicity are known. A skin and eye irritant. Causes irritation to nose and throat, head-ache and nausea. Prolonged skin contact with very large amounts may cause drowsiness. Single dose oral toxicity is low. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm. Repeated excessive exposures may cause minor lung, liver and kidney effects. Central nervous system depressant. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Birth defects are unlikely. Exposures having no adverse effects

on the mother should have no effect on the fetus. Results of in vitro (test tube) mutagenicity tests have been negative. In general, uncorroborated case reports and in vitro studies, such as Ames tests, are useful pieces of information, but not definitive findings of hazards. Commercial 1-methoxy-2-propanol contains a small amount (<3%) of the isomer, 2-methoxy-1-propanol.. This isomer in animal studies has been reported to cause serious birth defects.

Isopropanol (67-63-0)
Isopropanol: Eye (Human) - 20 ppm. Oral LDLo (Human) - 8600 mg/kg. TCL0 (Human) - 400 ppm. Inhalation irritant. Indefinite carcinogenic determination (IARC). Toxicity is low via dermal and moderate via oral and intraperitoneal routes. An eye irritant. Acts as a local irritant and in high concentrations as a narcotic. It can cause corneal burns and often eye damage. Ingestion or inhalation of large quantities of the vapor may cause flushing, headache, dizziness, mental depression, nausea, vomiting, narcosis, anesthesia and coma. 100 ml can be fatal. The following is a summary of TSCA Section 4 Test Rule results: large doses given to pregnant rats and rabbits (> 800 mg/kg/day and 480 mg/kg/day respectively) produced evidence of toxicity in the mothers but little evidence of fetal or embryo toxicity (except for slight decreases in fetal weights in rats). No evidence of teratogenicity was noted in either species.

Propylene Glycol (57-55-6)
Propylene Glycol: May cause eye irritation. Skin irritation may occur in sensitive individuals after repeated or prolonged exposure. Chronic excessive ingestion may cause a reduction in red-blood cell count. Standard mutagenicity tests indicate it is not mutagenic or otherwise genotoxic. Reproductive and developmental toxicity studies indicate little or no hazard below maternally toxic doses.

Ethyl Lactate (97-64-3)
May cause irritation to eyes, skin and mucous membranes. Inhalation may cause narcotic effects at excessive exposure levels.

Known effects on other illnesses: No known effects on other illnesses for this product.

Listed carcinogen:
IARC: No
NTP: No
OSHA: No
Other: No

HMIS:

Health: 1 Flammability: 3 Reactivity: 0 Personal protection: H

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Remove contaminated clothing without delay. Immediately wash the skin with soap and water for at least 15 minutes under a safety shower. If redness or skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush the eyes with large amounts of water, occasionally lifting the upper and lower eyelids, for at least 15 minutes. Seek medical attention immediately.

After ingestion:
If ingested, seek medical assistance immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint:	89 °F Method: DIN 51755 (closed cup)
Lower explosion limit:	1.5 %(V) Data relate to solvent
Upper explosion limit:	13.7 %(V) Data relate to solvent
Ignition temperature:	548 °F Data relate to solvent

Hazardous combustion products:
Thermal decomposition may produce oxides of carbon.

Extinguishing media: carbon dioxide
dry powder
water spray jet

Special fire fighting procedure:
Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.
Use water spray to cool drums in fire area.

Unusual fire and explosion hazards: Do not use water jet. Do not allow run-off from fire fighting to enter drainage system.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Contain spill. Prevent sources of ignition. Wear appropriate respiratory protection and proper protective equipment. Ventilate if in enclosed area. Recover as liquid using hand or explosion proof pump or use suitable absorbant to collect. Clean up by flushing with water if appropriate or removal of contaminated soils.

Section 07 - Handling and storage

Advice on safe handling:
Store in a cool, well-ventilated area. Keep away from heat, sparks, and flame. Keep containers closed. Use only dot-approved containers. When transferring follow proper grounding procedures. Avoid breathing vapors. Avoid contact with eyes, skin, and clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly

before re-use. Discard contaminated leather clothing. Do not enter storage area unless adequately ventilated.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

Occupational exposure limits:

Component	CAS number:	Regulatory list	Type of value	Value 1	Value 2
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):	100 ppm	360 mg/m3
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	US OSHA Table Z-1-A Data	Short Term Exposure Limit (STEL):	150 ppm	540 mg/m3
1-METHOXY-2-PROPANOL (PGME)	107-98-2	US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):	100 ppm	
1-METHOXY-2-PROPANOL (PGME)	107-98-2	US ACGIH Threshold Limit Values Data	Short Term Exposure Limit (STEL):	150 ppm	
ISOPROPYL ALCOHOL	67-63-0	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):	400 ppm	980 mg/m3
ISOPROPYL ALCOHOL	67-63-0	US OSHA Table Z-1-A Data	Short Term Exposure Limit (STEL):	500 ppm	1,225 mg/m3
ISOPROPANOL	67-63-0	US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):	200 ppm	
ISOPROPANOL	67-63-0	US ACGIH Threshold Limit Values Data	Short Term Exposure Limit (STEL):	400 ppm	
PROPYLENE GLYCOL, TOTAL VAPOR AND AEROSOL	57-55-6	US WEEL Guides Data	Time Weighted Average (TWA):	50 ppm	
PROPYLENE GLYCOL, AEROSOL ONLY	57-55-6	US WEEL Guides Data	Time Weighted Average (TWA):		10 mg/m3

Respiratory protection: Ensure adequate ventilation such as local exhaust. In poorly ventilated areas use NIOSH approved - chemical cartridge respirator with appropriate cartridge.

Hand protection: Butyl Rubber.

Eye protection: Chemical splash goggles.

Other protective equipment: Coveralls are recommended.

Advice on system design: Local ventilation recommended - mechanical ventilation may be used.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form:	liquid
Color:	blue
Odor:	characteristic
pH:	not determined
Solubility in water:	miscible
Density:	1.02 g/cm3 (20 °C, 1,013 hPa)
Boiling point :	> 179 °F (1,013 hPa)
Viscosity / (dynamic):	< 50 mPa.s (20 °C)

Section 10 - Stability and reactivity

Chemical stability:	Stable.
Hazardous Polymerization:	Will not occur. Conditions to avoid: None known.
Conditions to avoid:	Strong oxidizing agents.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 2,000 mg/kg (rat) The product has not been tested. The information is derived from the properties of the individual components.
Skin irritation:	Not tested
Eye irritation:	Not tested

Section 12 - Ecological information

Product information:

Biodegradation:	> 80 % Method: evaluated
Fish toxicity:	LC50 > 100 mg/l (zebra fish (brachydanio rerio)) Method: evaluated
Bacteria toxicity:	IC50 > 100 mg/l Method: evaluated

Remarks:

The product has not been tested. The information is derived from the properties of the individual components.

Section 13 - Disposal considerations

Waste disposal information:

This product may be a RCRA hazardous waste when it becomes a waste material due to ignitability. Recommended disposal is by incineration in approved facilities. This product may have a flash point of <140 F, and consideration should be given to treating it as hazardous waste for disposal purposes; or make an independent determination of the flash point of the waste product or waste mixture for disposal classification purposes.

RCRA hazardous waste:

Yes -- If it becomes a waste as sold.
RCRA number: D001

Section 14 - Transport information

DOT Regulation:

Proper shipping name:	Paint
Hazard class:	3
Packing group:	III
UN/NA-number:	UN 1263
Primary hazard class:	3
Emergency Response Guide:	128

IATA

Proper shipping name:	Paint
Class:	3
Packing group:	III
UN/ID number:	UN 1263
Primary risk:	3

IMDG

Proper shipping name:	Paint
Class:	3
Packing group:	III
UN no.:	UN 1263
Primary risk:	3
EmS:	F-E S-E

Further information:

Not regulated for surface transportation in non-bulk containers under 119 gallons.

Section 15 - Regulatory information

TSCA Status:

All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	yes

Immediate/acute: yes
Delayed/chronic: no

SARA 313 information:

This product does not contain any toxic chemical listed under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986.

Clean Water Act:

Contains no known priority pollutants at concentrations greater than 0.1%.

Volatile organic compounds VOC:

Content VOC (weight-%): 80 %
Remarks: Estimated

FDA:

This product has not been evaluated for FDA regulatory requirements.

Section 16 - Other information

Other precautions:

Keep away from ignition sources. Protect against electrostatic charges. prevent formation of aerosols.

Label information:

CAUTION!

COMBUSTIBLE LIQUID AND VAPOR MAY CAUSE IRRITATION TO EYES AND SKIN MAY CAUSE EYE DAMAGE MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. High concentrations of solvent vapors may have narcotic effect on the central nervous system. Repeated exposures may cause minor lung, liver, and kidney effects. In laboratory animal studies, birth defects and adverse effects in pregnancy have been observed for a component of this product. In laboratory animals, prolonged and repeated exposure has caused damage to male reproductive organs for a component of this product.

Avoid breathing fumes, vapors, mists or spray. Use with adequate ventilation and/or respiratory protection. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Wear proper protective equipment. Keep away from heat, sparks and open flames. Keep container closed when not in use and store in proper container.

Eye contact: flush with water for at least 15 minutes while holding eyelids open. Seek immediate medical attention. Skin contact: wash thoroughly with soap and water. Seek medical attention if irritation continues. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and seek medical attention. Ingestion: seek medical attention immediately.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review

these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.

MATERIAL SAFETY DATA SHEET

Clariant

RIANT CORPORATION
0 MONROE ROAD
RLOTTE, N.C. 28205

SUPRONIL HK DARK BROWN LIQUID
138632 VERSION: 02 REVISED DATE: 02/04/2003

Page: 1

Chemical Emergency
1 CHEMTREC - Day or Night
00-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 2
REACTIVITY 0
PERSONAL PROTECTION H

TION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK DARK BROWN LIQUID
PRODUCT CODE: 138632
RSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
MICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: PROPRIETARY
MARY PRODUCT USE: LEATHER DYE

TION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

MPONENT	CAS NO.	WT.%	PEL/TLV
ROMIUM (AS AN INTEGRAL PART OF DYE OLECULE)	7440-47-3	0.5-1	0.5 MG/M3 OSHA ACGIH
ROMIUM (III) COMPOUND	CRCMPD	9-30	25MG CR/M3 IDLH
ETHOXY-2-PROPANOL	1569-02-4	25-50	100 PPM SUPPLIER
LD50(ORAL)(RAT) 4400 MG/KG			
LD50(ORAL)(RABBIT) 8100 MG/KG			

TION 03 - HAZARDS IDENTIFICATION

ER TO SECTION 11 FOR ADDITIONAL INFORMATION)
CTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

CTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS

S = Serious

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SUPRONIL HK DARK BROWN LIQUID
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Clariant

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CTION 03 - HAZARDS IDENTIFICATION (CONT.)

OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

WN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

TED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

TION 04 - FIRST AID MEASURES

ST AID FOR EYES:

IMMEDIATELY WASH THE EYES WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK MEDICAL ATTENTION IMMEDIATELY.

ST AID FOR SKIN:

REMOVE CONTAMINATED CLOTHING WITHOUT DELAY. IMMEDIATELY WASH THE SKIN WITH SOAP AND WATER UNDER A SAFETY SHOWER. IF REDNESS OR SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

ST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

T AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

TO PHYSICIAN:

NONE KNOWN

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CTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLASH POINT ('F): 132.8 (56 C)
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

IOIGNITION TEMPERATURE ('F): 716 (380 C)

ZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

CIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

SUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

TION 06 - ACCIDENTAL RELEASE MEASURES

PS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

TION 07 - HANDLING AND STORAGE

LING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND

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CTION 07 - HANDLING AND STORAGE (CONT.)

WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

CTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

SPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

OTECTIVE GLOVES:
RUBBER

E PROTECTION:
CHEMICAL SPLASH GOGGLES

HER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

NTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

OSURE LIMITS: NONE ON PRODUCT

H (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

TION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: DARK BROWN LIQUID, WEAK SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 6.5 - 7.5
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.1 G/CM3
BOILING POINT (°F): 212 (100 C)
MELTING POINT (°F): NOT AVAILABLE
FREEZING POINT (°F): NOT AVAILABLE
POR PRESSURE (MM HG): 17.3
POR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE
(EPA METHOD 24/24A): 39%
OCTANOL/WATER PARTITION COEFFICIENT:

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CTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

HER PHYSICAL AND CHEMICAL PROPERTIES:

DENSITY: 8.51 LBS/GAL
VISCOSITY: < 50 MPA*S @ 68 F (20 C)
(DYNAMIC)

CTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

ZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

CTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
MAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

ER TOXICOLOGICAL VALUES:

ACUTE ORAL TOXICITY: LD50 > 2000 MG/KG (RAT)
METHOD: TEST RESULT OF A RELATED PREPARATION
IRRITANT EFFECT ON SKIN: NON-IRRITANT (RABBIT)
METHOD: TEST RESULT OF A RELATED PREPARATION
IRRITANT EFFECT ON EYES: NON-IRRITANT (RABBIT)
METHOD: TEST RESULT OF A RELATED PREPARATION

TION 12 - ECOLOGICAL INFORMATION

LOGICAL ELIMINATION:
IMATED FROM COMPONENTS < 10 % ANALYSIS: METHOD: NONE

ATIC TOXICITY:

CIES: NONE	LC100: NONE	MG/L	TIME:	H
CIES: ZEBRA FISH	LC 50: 1 - 10	MG/L	TIME:	96 H
CIES: NONE	LC 0: NONE	MG/L	TIME:	H

EVALUATED

TERIAL INHIBITION:

NO INHIBITION (MG/L): 1,000
50% INHIBITION (MG/L): NOT DETERMINED

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CTION 12 - ECOLOGICAL INFORMATION (CONT.)

RESPIRATION INHIBITION TEST: OECD 209 - 1984 (ACTIVATED SLUDGE)

OCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

CTION 13 - DISPOSAL CONSIDERATIONS

STE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24. DUE TO THE PRESENCE OF OTHER COMPONENTS, THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268 SUBPART D, BEFORE BEING LAND DISPOSED.

RA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001, D007

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

CTION 14 - TRANSPORT INFORMATION

T REGULATED: NO
ZARD CLASSIFICATION: NOT REGULATED

PPING NAME: PAINT: NOT REGULATED BY DOT

REGULATED BULK ONLY: YES
RQ MET AT: NONE
NA NUMBER : UN1263
KING GROUP: III
ZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SIDIARY RISK 1: NONE
SIDIARY RISK 2: NONE
SON INHALATION: NO HAZARD ZONE: NONE
INE POLLUTANT: NO
LABEL(S) REQUIRED: NONE
TH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 127

PPING NAME: PAINT

ADIAN TRANSPORT REGULATION: NOT DETERMINED

ERNATIONAL AIR TRANSPORTATION REGULATIONS:

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CTION 14 - TRANSPORT INFORMATION (CONT.)

UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
BSIDIARY RISK 1: NONE
BSIDIARY RISK 2: NONE
SSENGER AIRCRAFT FORBIDDEN: NO

IPPING NAME: PAINT

TERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
BSIDIARY RISK 1: NONE
BSIDIARY RISK 2: NONE
ARINE POLLUTANT: NO
PAGE/AMENDMENT#:

IPPING NAME: PAINT

CTION 15 - REGULATORY INFORMATION

CA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

RA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y
RA(SECTION 302):
ONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

RA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

EAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

EAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:

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(CONT.)

TION 15 - REGULATORY INFORMATION

:(EPA METHOD 24/24A): 39%
LOSS ON DRYING (%): NOT AVAILABLE

RCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

OMPONENT	CAS NO.	WT.%	RQ(LB)
HROMIUM (III) COMPOUND	CRCMPD	9-30	NO RQ
-ETHOXY-2-PROPANOL	1569-02-4	25-50	NO RQ

RA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001, D007

A: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

DA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

PA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: YES
LISTED ON NDSL: NO
CEPA STATUS:
PRODUCT NOT YET EVALUATED

MIS: NOT EVALUATED

CTION 16 - OTHER INFORMATION

HER PRECAUTIONS:
KEEP AWAY FROM IGNITION SOURCES. PROTECT AGAINST ELECTROSTATIC CHARGES. PREVENT FORMATION OF AEROSOLS.

TATE REGULATORY INFORMATION:
ENNSYLVANIA: AS NOTED PER SECTION 2.

ASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

THER STATE REGULATORY INFORMATION:
CALIFORNIA PROPOSITION 65 COMPONENTS:
THIS PRODUCT MAY CONTAIN A CHEMICAL (OR CHEMICALS) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS AND/OR OTHER REPRODUCTIVE HARM.

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(CONT.)

TION 16 - OTHER INFORMATION

- LEAD (7439-92-1) CONTAINS 3.38 PPM

BEL INFORMATION:

BEL HAZARDS:

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

BEL PRECAUTIONS:

DO NOT BREATHE VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: FLUSH WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS OPEN. SEEK IMMEDIATE MEDICAL ATTENTION.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED

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TION 16 - OTHER INFORMATION (CONT.)

HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

Clariant

MATERIAL SAFETY DATA SHEET
SUPRONIL HK LEMON LIQ

Substance key: KS7667
Version : 2 - / USA

Revision Date: 04/01/2008
Date of printing :04/04/2008

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name: SUPRONIL HK LEMON LIQ
Material number: 101733

Synonyms: Supronil HK Lemon
Chemical family: azo dyestuff
dispersed in organic solvents
Primary product use: Colourant for leather

Section 02 - Composition information on hazardous ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
Tetrahydro-2-Furanmethanol	97-99-4	5 - 10 %
1-Methoxy-2-propanol	107-98-2	30 - 40 %
Ethyl lactate	97-64-3	10 - 20 %
1-Ethoxy-2-Propanol	1569-02-4	1 - 5 %
1,2-Propanediol	57-55-6	2.5 - 10 %

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	yes
Skin contact:	yes
Eye contact:	yes
Ingestion:	yes
Skin absorption:	yes

Health effects of exposure:

2-Furanmethanol, tetrahydro- (97-99-4)
May be harmful by inhalation, ingestion, or skin absorption. Causes skin irritation. Is irritating to mucous membranes and upper respiratory tract. Exposure can cause nausea, dizziness and headache. Studies show that long term ingestion of high concentrations has caused adverse effects to reproductive systems in animals. These effects are similar to those noted with other alcohols.

1-Methoxy-2-Propanol (107-98-2)
Toxicity is low via oral and inhalation routes. No cases of human toxicity are known. A skin and eye irritant. Causes irritation to nose and throat, head-ache and nausea. Prolonged skin contact with very large amounts may cause drowsiness. Single dose oral toxicity is low. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm. Repeated excessive exposures may cause minor lung, liver and kidney effects. Central nervous system depressant. Signs and symptoms of excessive exposure may be anesthetic or narcotic effects. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. Results of in vitro (test tube) mutagenicity tests have been negative. In general, uncorroborated case reports and in vitro studies, such as Ames tests, are useful pieces of information, but not definitive findings of hazards. Commercial 1-methoxy-2-propanol contains a small amount (<3%) of the isomer, 2-methoxy-1-propanol. This isomer in animal studies has been reported to cause serious birth defects.

Ethyl Lactate (97-64-3)
May cause irritation to eyes, skin and mucous membranes. Inhalation may cause narcotic effects at excessive exposure levels.

2-Propanol, 1-ethoxy- (1569-02-4)
May cause moderate eye irritation. Vapors of this solvent may cause respiratory tract irritation resulting in coughing, sore throat and runny nose. Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage. Prolonged skin contact may cause defatting of the skin rendering it susceptible to irritation by other substances. LD50 (oral, rat): 4400 mg/kg; LD50 (skin, rabbit): 8100 mg/kg

Propylene Glycol (57-55-6)
May cause eye irritation. Skin irritation may occur in sensitive individuals after repeated or prolonged exposure. Chronic excessive ingestion may cause a reduction in red-blood cell count. Standard mutagenicity tests indicate it is not mutagenic or otherwise genotoxic. Reproductive and developmental toxicity studies indicate little or no hazard below maternally toxic doses.

Known effects on other illnesses: No known effects on other illnesses for this product.

Listed carcinogen:
IARC: No
NTP: No
OSHA: No
Other: No

HMIS:

Health: 2* Flammability: 2 Reactivity: 0 Personal protection: H

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Remove contaminated clothing without delay. Immediately wash the skin with soap and water for at least 15 minutes under a safety shower. If redness or skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush the eyes with large amounts of water, occasionally lifting the upper and lower eyelids, for at least 15 minutes. Seek medical attention immediately.

After ingestion:
If ingested, seek medical assistance immediately.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Flashpoint:	100 °F Method: DIN 51755 (closed cup)
Lower explosion limit:	1.5 %(V) Data relate to solvent
Upper explosion limit:	13.7 %(V) Data relate to solvent
Ignition temperature:	548 °F Data relate to solvent

Hazardous combustion products:
carbon oxides
nitrogen oxides

Extinguishing media:	water spray jet dry powder foam

Special fire fighting procedure:
Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.

Unusual fire and explosion hazards:	Cool container and metallic parts with water spray jet. Prevent runoff from getting into open rivers and ponds.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Contain spill. Wear proper protective equipment. Absorb with an acid- absorbent material (e.g. calcium carbonate, slaked lime cement). Place contaminated soil and other contaminated materials in marked disposal containers. Cleanup may be accomplished by flushing with limited quantities of water.

Section 07 - Handling and storage

Advice on safe handling:
Avoid getting on skin or in eyes when handling product.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

Occupational exposure limits:

Component	CAS number:	Regulatory list	Type of value	Values / Remarks
1-Methoxy-2-propanol	107-98-2	US ACGIH Threshold Limit Values	Threshold Limit Value_Time Weighted Average	100 ppm
1-Methoxy-2-propanol	107-98-2	US ACGIH Threshold Limit Values	Limit Value_Short_Term Exposure Limit	150 ppm

Occupational exposure limits:

Component	CAS number:	Regulatory list	Type of value	Values / Remarks
Propylene glycol	57-55-6	AIHA. Workplace Environmental Exposure Levels (WEEL)	Time-weighted average (8 hour)	10 mg/m3

Respiratory protection: Ensure adequate ventilation such as local exhaust. In poorly ventilated areas use NIOSH approved - chemical cartridge respirator with appropriate cartridge.

Hand protection: Butyl Rubber, PVC Or Neoprene.

Eye protection: Chemical splash goggles.

Other protective equipment: Coveralls are recommended.

Advice on system design: Local ventilation recommended - mechanical ventilation may be used.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form: liquid

Color: lemon

Odor: like solvents, weak

pH: not tested.

Solubility in water: miscible

Density: 1.05 g/cm3 (20 °C, 1,013 hPa)

Boiling point :	> 212 °F (1,013 hPa)
Vapor pressure:	approx. 8.25 Torr Data relate to solvent
Partitioning coef. octanol/water:	not tested.
Viscosity / (dynamic):	< 50 mPa.s (20 °C)

Section 10 - Stability and reactivity

Thermal decomposition:	No decomposition if used as prescribed.
Chemical stability:	Stable.
Hazardous Polymerization:	Will not occur. Conditions to avoid: None known.
Conditions to avoid:	None known. Heat, sparks, and open flames.

Section 11 - Toxicological information

Product information:

Acute oral toxicity:	LD50 > 2,000 mg/kg (rat) Method: 1999/45/EC
Skin irritation:	Non-irritating This product has not been tested as a separate entity. The hazards have been evaluated based on individual ingredients.
Eye irritation:	irritant - risk of serious damage to eyes This product has not been tested as a separate entity. The hazards have been evaluated based on individual ingredients.

Other relevant toxicity information:

The product was classified on the basis of the calculation procedure of the Dangerous Preparations Directive (1999/45/EC).

Section 12 - Ecological information

Remarks:

No data available.
According to the Conventional Method of Directive 1999/45/EC, this product should not be classified as Dangerous for the Environment.

Section 13 - Disposal considerations

Waste disposal information:

This product may be a RCRA hazardous waste when it becomes a waste material due to ignitability. Recommended disposal is by incineration in approved facilities. This product may have a flash point of <140 F, and consideration should be given to treating it as hazardous waste for disposal purposes; or make an independent determination of the flash point of the waste product or waste mixture for disposal classification purposes.

RCRA hazardous waste:

Yes -- If it becomes a waste as sold.
RCRA number: D001

Section 14 - Transport information

DOT Regulation:

Proper shipping name:	Paint
Hazard class:	3
Packing group:	III
UN/NA-number:	UN 1263
Primary hazard class:	3

IATA

Proper shipping name:	Paint
Class:	3
Packing group:	III
UN/ID number:	UN 1263
Primary risk:	3
Remarks:	Shipment permitted

IMDG

Proper shipping name:	Paint
Class:	3
Packing group:	III
UN no.:	UN 1263
Primary risk:	3
EmS:	F-E S-E

Further information:

Not regulated for surface transportation in non-bulk containers under 119 gallons.

Section 15 - Regulatory information

TSCA Status:

All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	yes
Immediate/acute:	yes
Delayed/chronic:	yes

SARA 313 information:

This product does not contain any toxic chemical listed under Section 313 of the Emergency

Planning and Community Right-To-Know Act of 1986.

Clean Water Act:
Contains no known priority pollutants at concentrations greater than 0.1%.

Volatile organic compounds VOC:

Content VOC (weight-%):	80 %
Remarks:	Estimated

FDA:

Permitted for Use per Section:	NONE
	This product is not registered with the FDA.

Section 16 - Other information

Other precautions:
Keep away from ignition sources. Protect against electrostatic charges. prevent formation of aerosols.

Label information:

CAUTION!

COMBUSTIBLE LIQUID AND VAPOR MAY CAUSE IRRITATION TO EYES. RISK OF SERIOUS DAMAGE TO EYES In laboratory animal studies, birth defects and adverse effects in pregnancy have been observed for a component of this product. In laboratory animals, prolonged and repeated exposure has caused damage to male reproductive organs for a component of this product. MAY BE HARMFUL IF INHALED

Avoid breathing fumes, vapors, mists or spray. Use with adequate ventilation and/or respiratory protection. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Wear proper protective equipment. Keep away from heat, sparks and open flames. Keep container closed when not in use and store in proper container.

Eye contact: flush with water for at least 15 minutes while holding eyelids open. Seek immediate medical attention. Skin contact: wash thoroughly with soap and water. Seek medical attention if irritation continues. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if respiratory irritation continues. Ingestion: seek medical attention immediately.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended

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MATERIAL SAFETY DATA SHEET

Finish Dept

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK LIGHT BROWN LIQUID
138712 VERSION: 02 REVISED DATE: 08/05/1996

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	2 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK LIGHT BROWN LIQUID
PRODUCT CODE: 138712
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: METAL COMPLEX OF AZO DYE
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
COBALT (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-48-4	<3.0	0.1 MG/M3 OSHA 0.02 MG/M3 ACGIH
COBALT COMPOUND	COCMPD	<25	20MG CO/M3 IDLH
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	37	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
DIETHYLENE GLYCOL MONOBUTYL ETHER; BUTYL CARBITOL LD50(ORAL)(RAT) - 6500-7300 MG/KG	112-34-5	37	NOT ESTABLISHED
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	37	NOT ESTABLISHED

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT:
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

COBALT AND COMPOUNDS OF COBALT: NO CHRONIC EFFECTS ARE KNOWN NOR HAVE BEEN REPORTED FOR THIS COMPOUND UNLESS THE COMPOUND IS SPECIFICALLY LISTED ELSEWHERE IN THIS SECTION.
SKIN AND EYE LESIONS SIMILAR TO ALLERGIC DERMATITIS HAVE BEEN REPORTED FOR COBALT METAL AND DUST. HEMATOLOGIC, DIGESTIVE, AND PULMONARY CHANGES DUE TO EXPOSURE TO COBALT CONTAINING DUST HAVE ALSO BEEN REPORTED. COBALT AND CERTAIN, MOSTLY INORGANIC COMPOUNDS OF OF COBALT HAVE BEEN REPORTED TO BE CARCINOGENIC IN ANIMAL STUDIES--HUMAN EVIDENCE IS INADEQUATE. NO SIMILAR EFFECTS HAVE BEEN REPORTED FOR THIS ORGANIC COBALT BASED PRODUCT.

COBALT COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION,BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

BUTYL CARBITOL: EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING. SKIN - CAN CAUSE SLIGHT IRRITATION. CAN BE ABSORBED IN TOXIC AMOUNTS, ESPECIALLY FROM PROLONGED OR REPEATED EXPOSURE. INHALATION - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, AND POSSIBLE UNCONSCIOUSNESS. INGESTION - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. CHRONIC EFFECTS: OVEREXPOSURE TO THIS MATERIAL HAS BEEN FOUND TO CAUSE LIVER AND KIDNEY EFFECTS.

GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL: GLYCOL ETHERS INCLUDE MONO- AND DI- ETHERS OF ETHYLENE GLYCOL, DIETHYLENE GLYCOL, AND TRIETHYLENE GLYCOL WHICH ARE REGULATED AS A CHEMICAL CATEGORY UNDER SARA SECTION 313

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

REGULATIONS. THE HEALTH EFFECTS OF GLYCOL ETHERS VARY WITH THE PARTICULAR GLYCOL ETHER. THESE EFFECTS MAY INCLUDE IRRITATION TO THE SKIN, EYES, RESPIRATORY TRACT, AND MUCOUS MEMBRANES. THEY MAY INCLUDE EFFECTS ON THE REPRODUCTIVE SYSTEM, INCLUDING REDUCTION OF SPERM COUNT OR BIRTH DEFECTS.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 131
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

AUTOIGNITION TEMPERATURE (°F): 806

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN COBALT.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS IT CONTAINS HEAVY METALS.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS HEAVY METALS. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF IN ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY FLUSHING WITH LIMITED QUANTITIES OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

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SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: LIGHT BROWN LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 6.0 - 7.0
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.0
BOILING POINT ('F): 208.4
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): 16.5
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 76.5
VOC(EPA METHOD 24/24A): 74%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

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SECTION 10 - STABILITY AND REACTIVITY (CONT.)

CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE RCRA LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268 SUBPART D BEFORE LAND DISPOSAL.

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

CLARIANT CORPORATION
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SUPRONIL HK LIGHT BROWN LIQUID
138712 VERSION: 02 REVISED DATE: 08/05/1996

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CLARIANT Corporation: (704) 331-7000

SECTION 14 - TRANSPORT INFORMATION (CONT.)

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : NA1993
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: NONE
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 128

SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#:

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CLARIANT CORPORATION
4000 MONROE ROAD
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SUPRONIL HK LIGHT BROWN LIQUID
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For MSDS Info: (704) 331-7710
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SECTION 15 - REGULATORY INFORMATION (CONT.)

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
NOT AVAILABLE

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 74%
LOSS ON DRYING (%): 76.5

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
COBALT (AS AN INTEGRAL PART OF DYE	7440-48-4	<3.0	NO RQ
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	37	NO RQ

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

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SECTION 15 - REGULATORY INFORMATION (CONT.)

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

LABEL PRECAUTIONS:

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

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SUPRONIL HK LIGHT BROWN LIQUID
138712 VERSION: 02 REVISED DATE: 08/05/1996

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SECTION 16 - OTHER INFORMATION (CONT.)

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

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SUPRONIL HK NAVY BLUE LIQUID
138642 VERSION: 02 REVISED DATE: 02/13/1998

For Chemical Emergency
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For MSDS Info: (704) 331-7710
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ATTN: Product Safety Manager

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HEALTH	2 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK NAVY BLUE LIQUID
PRODUCT CODE: 138642
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
1-ETHOXY-2-PROPANOL	1569-02-4	65-75	100 PPM
LD50(ORAL)(RAT) 4400 MG/KG			SUPPLIER
LD50(ORAL)(RABBIT) 8100 MG/KG			
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<3	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	< 23	25MG CR/M3 IDLH

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

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CHARLOTTE, N.C. 28205

SUPRONIL HK NAVY BLUE LIQUID
138642 VERSION: 02 REVISED DATE: 02/13/1998

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Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLASH POINT ('F): 129.2 CC
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): NOT AVAILABLE

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND

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SECTION 07 - HANDLING AND STORAGE (CONT.)

WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: BLUE LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 7.5 - 8.5
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.0
BOILING POINT ('F): 212
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): 93.8
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 79.0
VOC(EPA METHOD 24/24A): 57%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: PROLONGED OR EXCESSIVE HEAT

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24. DUE TO THE PRESENCE OF OTHER COMPONENTS, THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

SUBPART D, BEFORE BEING LAND DISPOSED.

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001, D007

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : UN1263
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: FLAMMABLE LIQUID
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 127

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S. (1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S. (1-METHOXY-2-PROPANOL)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1263
PACKING GROUP: III

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

HAZARD CLASS/DIVISION: 3.3 HIGH FLASHPOINT LIQUID HAVING A FLASHPOINT OF 73 F (23 C) UP TO 141 C), CLOSED CUP TEST

SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#:

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S. (1-METHOXY-2-PROPANOL)

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 57%
LOSS ON DRYING (%): 79.0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
1-ETHOXY-2-PROPANOL	1569-02-4	65-75	NO RQ
CHROMIUM (III) COMPOUND	CROMPD	< 23	NO RQ

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.

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SECTION 15 - REGULATORY INFORMATION (CONT.)

RCRA #: D001, D007

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

LABEL PRECAUTIONS:

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND

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SECTION 16 - OTHER INFORMATION (CONT.)

OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

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MATERIAL SAFETY DATA SHEET

Finish Dept.

Clariant

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SUPRONIL HK ORANGE LIQUID
138682 VERSION: 02 REVISED DATE: 05/19/1997

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1-800-424-9300

For MSDS Info: (704) 331-7710
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WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	2 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK ORANGE LIQUID
PRODUCT CODE: 138682
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<3.0	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	<27	25MG CR/M3 IDLH
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	<29	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
DIETHYLENE GLYCOL MONOBUTYL ETHER; BUTYL CARBITOL LD50(ORAL)(RAT) - 6500-7300 MG/KG	112-34-5	<28	NOT ESTABLISHED
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	<28	NOT ESTABLISHED
1-ETHOXY-2-PROPANOL LD50(ORAL)(RAT) 4400 MG/KG LD50(ORAL)(RABBIT) 8100 MG/KG	1569-02-4	12	100 PPM SUPPLIER

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION: X
EYE CONTACT:
INHALATION: X
INGESTION: X

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION,BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

BUTYL CARBITOL: EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING. SKIN - CAN CAUSE SLIGHT IRRITATION. CAN BE ABSORBED IN TOXIC AMOUNTS, ESPECIALLY FROM PROLONGED OR REPEATED EXPOSURE. INHALATION - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, AND POSSIBLE UNCONSCIOUSNESS. INGESTION - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. CHRONIC EFFECTS: OVEREXPOSURE TO THIS MATERIAL HAS BEEN FOUND TO CAUSE LIVER AND KIDNEY EFFECTS.

GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL: GLYCOL ETHERS INCLUDE MONO- AND DI- ETHERS OF ETHYLENE GLYCOL, DIETHYLENE GLYCOL, AND TRIETHYLENE GLYCOL WHICH ARE REGULATED AS A CHEMICAL CATEGORY UNDER SARA SECTION 313 REGULATIONS. THE HEALTH EFFECTS OF GLYCOL ETHERS VARY WITH THE

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

PARTICULAR GLYCOL ETHER. THESE EFFECTS MAY INCLUDE IRRITATION TO THE SKIN, EYES, RESPIRATORY TRACT, AND MUCOUS MEMBRANES. THEY MAY INCLUDE EFFECTS ON THE REPRODUCTIVE SYSTEM, INCLUDING REDUCTION OF SPERM COUNT OR BIRTH DEFECTS.

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

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SUPRONIL HK ORANGE LIQUID
138682 VERSION: 02 REVISED DATE: 05/19/1997

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1-800-424-9300

For MSDS Info: (704) 331-7710
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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLASH POINT ('F): 123.8
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): 698

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND

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SECTION 07 - HANDLING AND STORAGE (CONT.)

WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: ORANGE LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 7.0 - 9.5
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.04
BOILING POINT ('F): 212.0
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 75.0
VOC(EPA METHOD 24/24A): 68%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 5000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24. DUE TO THE PRESENCE OF OTHER COMPONENTS, THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

SUBPART D, BEFORE BEING LAND DISPOSED.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : NA1993
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: NONE
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 128

SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1993
PACKING GROUP: III

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#:

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 68%
LOSS ON DRYING (%): 75.0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CROMPD	<27	NO RQ
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHOMPD	<28	NO RQ
1-ETHOXY-2-PROPANOL	1569-02-4	12	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13

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SECTION 15 - REGULATORY INFORMATION (CONT.)

RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

CAUTION!
REPEATED EXPOSURES MAY RESULT IN LIVER OR KIDNEY DAMAGE.

LABEL PRECAUTIONS:

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SECTION 16 - OTHER INFORMATION (CONT.)

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

Finish Dept

MATERIAL SAFETY DATA SHEET

Clariant

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SUPRONIL HK RED LIQUID
138612 VERSION: 03 REVISED DATE: 05/19/1997

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WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	2 *
FLAMMABILITY	3
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK RED LIQUID
PRODUCT CODE: 138612
VERSION NUMBER: 03
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<3.0	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	<30	25MG CR/M3 IDLH
ISOPROPANOL LD50(ORAL)(RAT) - 5840 MG/KG LC50(RAT,8HR) - 12000 PPM	67-63-0	5	ACGIH/OSHA TWA: 400 PPM; ACGIH STEL: 500 PPM; NIOSH IDLH: 2000 PPM (LEL);
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	2.3	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
1-PROPANOL,2-ETHOXY-	19089-47-5	45-65	100 PPM SUPPLIER

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X
INGESTION: X

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

1-PROPANOL,2-ETHOXY- : VAPORS OF ETHOXYPROPANOL MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CENTRAL NERVOUS SYSTEM DEPRESSION WITH SYMPTOMS OF HEADACHE, NAUSEA AND DIZZINESS MAY ALSO BE A RESULT OF EXPOSURE TO VAPORS. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 82.4

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): 698

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
FLAMMABLE. DO NOT USE NEAR OPEN FLAMES, ELECTRIC SPARKS, OR ON HOT SURFACES.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND

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SECTION 07 - HANDLING AND STORAGE (CONT.)

WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: RED LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 5.5 - 7.0
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.02
BOILING POINT ('F): 212.0
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): NOT AVAILABLE
VOC(EPA METHOD 24/24A): 60%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: PROLONGED OR EXCESSIVE HEAT

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 3000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24. DUE TO THE PRESENCE OF OTHER COMPONENTS, THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

SUBPART D, BEFORE BEING LAND DISPOSED.

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001, D007

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: YES
RQ MET AT: NONE
UN/NA NUMBER : UN1263
PACKING GROUP: III
HAZARD CLASSIFICATION: 3
FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: FLAMMABLE LIQUID
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 127

SHIPPING NAME: PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: PAINT

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3.3 HIGH FLASHPOINT LIQUID HAVING A FLASHPOINT OF 73 F (23 C) UP TO 141 C), CLOSED CUP TEST
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE

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SUPRONIL HK RED LIQUID
138612 VERSION: 03 REVISED DATE: 05/19/1997

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

MARINE POLLUTANT: NO
PAGE/AMENDMENT#: 3372/25-89

SHIPPING NAME: PAINT

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 60%
LOSS ON DRYING (%): NOT AVAILABLE

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CROMPD	<30	NO RQ

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001, D007

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

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SECTION 15 - REGULATORY INFORMATION (CONT.)

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

WARNING!
FLAMMABLE.

LABEL PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT.

AVOID BREATHING FUMES AND VAPORS. KEEP CONTAINER CLOSED WHEN NOT IN USE. USE WITH ADEQUATE VENTILATION OR APPROPRIATE RESPIRATORY PROTECTION.

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SECTION 16 - OTHER INFORMATION (CONT.)

KEEP AWAY FROM HEAT AND FLAME. KEEP CONTAINER CLOSED WHEN NOT IN USE.

AVOID BREATHING FUMES AND VAPORS. USE WITH ADEQUATE VENTILATION OR RESPIRATORY PROTECTION. KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

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------ H M I S ------
HEALTH 2 *
FLAMMABILITY 2
REACTIVITY 0
PERSONAL PROTECTION H

SCTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK RED BROWN LIQUID
PRODUCT CODE: 138732
ERSION NUMBER: 03
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
EMICAL FAMILY: AZO DYESTUFF/COBALT COMPLEX MIXTURE IN AQUEOUS/ORGANIC DISPERSION
FORMULA: MIXTURE
IMARY PRODUCT USE: LEATHER DYE

CTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

MPONENT	CAS NO.	WT.%	PEL/TLV
BALT (AS AN INTEGRAL PART OF DYE OLECULE)	7440-48-4	0.5-1	0.1 MG/M3 OSHA 0.02 MG/M3 ACGIH
BALT COMPOUND	COCMPD	10-13	20MG CO/M3 IDLH
ETHYLENE GLYCOL MONOBUTYL ETHER; UTYL CARBITOL LD50(ORAL)(RAT) - 6500-7300 MG/KG	112-34-5	25-50	NOT ESTABLISHED
YCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	25-50	NOT ESTABLISHED
OPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	25-50	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
THOXY-2-PROPANOL LD50(ORAL)(RAT) 4400 MG/KG LD50(ORAL)(RABBIT) 8100 MG/KG	1569-02-4	2.5-10	100 PPM SUPPLIER

ION 03 - HAZARDS IDENTIFICATION

ER TO SECTION 11 FOR ADDITIONAL INFORMATION)
TED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X

S = Sales

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ECTION 03 - HAZARDS IDENTIFICATION (CONT.)

INGESTION: X

FFECTS OF EXPOSURE:

COBALT AND COMPOUNDS OF COBALT: NO CHRONIC EFFECTS ARE KNOWN NOR HAVE BEEN REPORTED FOR THIS COMPOUND UNLESS THE COMPOUND IS SPECIFICALLY LISTED ELSEWHERE IN THIS SECTION.
SKIN AND EYE LESIONS SIMILAR TO ALLERGIC DERMATITIS HAVE BEEN REPORTED FOR COBALT METAL AND DUST. HEMATOLOGIC, DIGESTIVE, AND PULMONARY CHANGES DUE TO EXPOSURE TO COBALT CONTAINING DUST HAVE ALSO BEEN REPORTED. COBALT AND CERTAIN, MOSTLY INORGANIC COMPOUNDS OF OF COBALT HAVE BEEN REPORTED TO BE CARCINOGENIC IN ANIMAL STUDIES-- HUMAN EVIDENCE IS INADEQUATE. NO SIMILAR EFFECTS HAVE BEEN REPORTED FOR THIS ORGANIC COBALT BASED PRODUCT.

COBALT COMPOUND: NOTE EFFECTS LISTED ABOVE.

BUTYL CARBITOL: EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING. SKIN - CAN CAUSE SLIGHT IRRITATION. CAN BE ABSORBED IN TOXIC AMOUNTS, ESPECIALLY FROM PROLONGED OR REPEATED EXPOSURE. INHALATION - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, AND POSSIBLE UNCONSCIOUSNESS. INGESTION - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. CHRONIC EFFECTS: OVEREXPOSURE TO THIS MATERIAL HAS BEEN FOUND TO CAUSE LIVER AND KIDNEY EFFECTS.

GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL: GLYCOL ETHERS INCLUDE MONO- AND DI- ETHERS OF ETHYLENE GLYCOL, DIETHYLENE GLYCOL, AND TRIETHYLENE GLYCOL WHICH ARE REGULATED AS A CHEMICAL CATEGORY UNDER SARA SECTION 313 REGULATIONS. THE HEALTH EFFECTS OF GLYCOL ETHERS VARY WITH THE PARTICULAR GLYCOL ETHER. THESE EFFECTS MAY INCLUDE IRRITATION TO THE SKIN, EYES, RESPIRATORY TRACT, AND MUCOUS MEMBRANES. THEY MAY INCLUDE EFFECTS ON THE REPRODUCTIVE SYSTEM, INCLUDING REDUCTION OF SPERM COUNT OR BIRTH DEFECTS.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC

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ECTION 03 - HAZARDS IDENTIFICATION

(CONT.)

EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION, BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

WN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

TED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

ION 04 - FIRST AID MEASURES

T AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

T AID FOR SKIN:

REMOVE CONTAMINATED CLOTHING WITHOUT DELAY. IMMEDIATELY WASH THE SKIN WITH SOAP AND WATER UNDER A SAFETY SHOWER. IF REDNESS OR SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

AID FOR INGESTION:

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SECTION 04 - FIRST AID MEASURES (CONT.)

IF INGESTED, SEEK MEDICAL ASSISTANCE.

OTE TO PHYSICIAN:

NONE KNOWN

ECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 115 (46 C)
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

TOIGNITION TEMPERATURE ('F): UNKNOWN

ZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN COBALT.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2:
DRY CHEMICAL: X
WATER/FOG SPRAY:
NO EXTINGUISHING MEDIA:

CIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

SUAL FIRE AND EXPLOSION HAZARDS:

COOL CONTAINER AND METALLIC PARTS WITH A WATER SPRAY JET. PREVENT RUNOFF FROM GETTING INTO OPEN RIVERS AND PONDS.

TION 06 - ACCIDENTAL RELEASE MEASURES

PS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

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ECTION 06 - ACCIDENTAL RELEASE MEASURES (CONT.)

ECTION 07 - HANDLING AND STORAGE

ANDLING AND STORAGE INFORMATION:

STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

CTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

SPIRATORY PROTECTION:

NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

OTECTIVE GLOVES:

RUBBER

E PROTECTION:

CHEMICAL SPLASH GOGGLES

ER PROTECTIVE EQUIPMENT:

CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

TILATION:

LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

OSURE LIMITS: NONE ON PRODUCT

H (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

ION 09 - PHYSICAL AND CHEMICAL PROPERTIES

PPEARANCE AND ODOR: RED BROWN LIQUID, MILD SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
H (% IN WATER): 7.0 - 9.0
OLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.1 G/CM3
BOILING POINT (°F): > 212 (100 C)
MELTING POINT (°F): NOT AVAILABLE

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ECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 86% (CALC)
OC(EPA METHOD 24/24A): 78-80 (CALC)
OCTANOL/WATER PARTITION COEFFICIENT:

THER PHYSICAL AND CHEMICAL PROPERTIES:
DENSITY: 9.18 LBS/GAL
VISCOSITY: < 50 MPA*S
(DYNAMIC)

CTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: PROLONGED OR EXCESSIVE HEAT

ZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

TION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
RMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

ER TOXICOLOGICAL VALUES:
THE PRODUCT WAS CLASSIFIED ON THE BASIS OF THE CALCULATIONS PROCEDURE OF THE PREPRARTIONS DIRECTIVE 88/379/EEC WITH THE BELOW RESULTS.
ACUTE ORAL TOXICITY: LD50 > 2000 MG/KG (RAT)
IRRITANT EFFECT ON SKIN: NON-IRRITANT (RABBIT)
IRRITANT EFFECT ON EYES: NON-IRRITANT (RABBIT)

TION 12 - ECOLOGICAL INFORMATION

LOGICAL ELIMINATION:
50-100 % ANALYSIS: METHOD: ESTIMATED FROM C

ATIC TOXICITY:
CIES: NONE LC100: NONE MG/L TIME: H

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ECTION 12 - ECOLOGICAL INFORMATION (CONT.)

PECIES: NONE LC 50: NONE MG/L TIME: H
PECIES: NONE LC 0: NONE MG/L TIME: H

ACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

OCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

CTION 13 - DISPOSAL CONSIDERATIONS

STE DISPOSAL INFORMATION:
DISPOSE OF IN AN APPROVED DISPOSAL SITE. DO NOT INCINERATE OR HEAT IN A CLOSED CONTAINER. PRODUCT WILL BE A RCRA HAZARDOUS WASTE MATERIAL DUE TO IGNITABILITY.

RA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

TION 14 - TRANSPORT INFORMATION

T REGULATED: NO
ZARD CLASSIFICATION: NOT REGULATED

PPING NAME: PAINT: NOT REGULATED BY DOT

REGULATED BULK ONLY: YES
RQ MET AT: NONE
NA NUMBER : UN1263
KING GROUP: III
ARD CLASSIFICATION: COMBUSTIBLE LIQUID
SIDIARY RISK 1: NONE
SIDIARY RISK 2: NONE
SON INHALATION: NO HAZARD ZONE: NONE
INE POLLUTANT: NO
LABEL(S) REQUIRED: NONE
TH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 127

PPING NAME: PAINT

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ECTION 14 - TRANSPORT INFORMATION (CONT.)

ANADIAN TRANSPORT REGULATION: NOT DETERMINED

NTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
JBSIDIARY RISK 1: NONE
JBSIDIARY RISK 2: NONE
ASSENGER AIRCRAFT FORBIDDEN: NO

HIPPING NAME: PAINT

TERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3.3 HIGH FLASHPOINT LIQUID HAVING A FLASHPOINT OF 73 F (23 C) UP TO 141 C), CLOSED CUP TEST
BSIDIARY RISK 1: NONE
BSIDIARY RISK 2: NONE
ARINE POLLUTANT: NO
PAGE/AMENDMENT#: 3372/25-89

IPPING NAME: PAINT

CTION 15 - REGULATORY INFORMATION

CA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

A (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y
A(SECTION 302):
NTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

A(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

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ECTION 15 - REGULATORY INFORMATION (CONT.)

LEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS NO KNOWN PRIORITY POLLUTANTS AT CONCENTRATIONS GREATER THAN 0.1%.

LEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
OC(EPA METHOD 24/24A): 78-80 (CALC)
LOSS ON DRYING (%): 86% (CALC)

ERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
COBALT (AS AN INTEGRAL PART OF DYE	7440-48-4	0.5-1	NO RQ
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	25-50	NO RQ
1-ETHOXY-2-PROPANOL	1569-02-4	2.5-10	NO RQ

RA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

A: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

DA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

PA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

MIS: NOT EVALUATED

TION 16 - OTHER INFORMATION

ER PRECAUTIONS:
KEEP AWAY FROM IGNITION SOURCES. PROTECT AGAINST ELECTROSTATIC CHARGES.
PREVENT FORMATION OF AEROSOLS.

TE REGULATORY INFORMATION:
NSYLVANIA: AS NOTED PER SECTION 2.

SACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

MATERIAL SAFETY DATA SHEET

ARIANT CORPORATION
00 MONROE ROAD
ARLOTTE, N.C. 28205
r Chemical Emergency
11 CHEMTREC - Day or Night
800-424-9300

SUPRONIL HK RED BROWN LIQUID
138732 VERSION: 03 REVISED DATE: 04/23/2003

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

ECTION 16 - OTHER INFORMATION (CONT.)

ABEL INFORMATION:

ABEL HAZARDS:

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
REPEATED EXPOSURES MAY RESULT IN LIVER OR KIDNEY DAMAGE.

ABEL PRECAUTIONS:

DO NOT BREATHE VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED

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ECTION 16 - OTHER INFORMATION (CONT.)

HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

MATERIAL SAFETY DATA SHEET

Clariant

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK RUBY LIQUID
138672 VERSION: 02 REVISED DATE: 08/07/2000

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

JANICE BURNSON
ATTN: JANICE BURNSON

------ H M I S ------
HEALTH 2 *
FLAMMABILITY 3
REACTIVITY 0
PERSONAL PROTECTION H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK RUBY LIQUID
PRODUCT CODE: 138672
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: METAL COMPLEX OF AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<1	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CRCMPD	<12	25MG CR/M3 IDLH
COBALT (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-48-4	<1	0.1 MG/M3 OSHA 0.02 MG/M3 ACGIH
COBALT COMPOUND	COCMPD	<12	20MG CO/M3 IDLH
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	25-50	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
DIETHYLENE GLYCOL MONOBUTYL ETHER; BUTYL CARBITOL LD50(ORAL)(RAT) - 6500-7300 MG/KG	112-34-5	21	NOT ESTABLISHED
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	21	NOT ESTABLISHED

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X

MATERIAL SAFETY DATA SHEET

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CHARLOTTE, N.C. 28205

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

INGESTION: X

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

COBALT AND COMPOUNDS OF COBALT: NO CHRONIC EFFECTS ARE KNOWN NOR HAVE BEEN REPORTED FOR THIS COMPOUND UNLESS THE COMPOUND IS SPECIFICALLY LISTED ELSEWHERE IN THIS SECTION.
SKIN AND EYE LESIONS SIMILAR TO ALLERGIC DERMATITIS HAVE BEEN REPORTED FOR COBALT METAL AND DUST. HEMATOLOGIC, DIGESTIVE, AND PULMONARY CHANGES DUE TO EXPOSURE TO COBALT CONTAINING DUST HAVE ALSO BEEN REPORTED. COBALT AND CERTAIN, MOSTLY INORGANIC COMPOUNDS OF OF COBALT HAVE BEEN REPORTED TO BE CARCINOGENIC IN ANIMAL STUDIES--HUMAN EVIDENCE IS INADEQUATE. NO SIMILAR EFFECTS HAVE BEEN REPORTED FOR THIS ORGANIC COBALT BASED PRODUCT.

COBALT COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION,BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

MATERIAL SAFETY DATA SHEET

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SECTION 04 - FIRST AID MEASURES (CONT.)

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 97
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): NOT AVAILABLE

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN COBALT.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS HEAVY METALS. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF IN ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY FLUSHING WITH LIMITED QUANTITIES OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

MATERIAL SAFETY DATA SHEET

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

BUTYL CARBITOL: EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING. SKIN - CAN CAUSE SLIGHT IRRITATION. CAN BE ABSORBED IN TOXIC AMOUNTS, ESPECIALLY FROM PROLONGED OR REPEATED EXPOSURE. INHALATION - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, AND POSSIBLE UNCONSCIOUSNESS. INGESTION - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. CHRONIC EFFECTS: OVEREXPOSURE TO THIS MATERIAL HAS BEEN FOUND TO CAUSE LIVER AND KIDNEY EFFECTS.

GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL: GLYCOL ETHERS INCLUDE MONO- AND DI- ETHERS OF ETHYLENE GLYCOL, DIETHYLENE GLYCOL, AND TRIETHYLENE GLYCOL WHICH ARE REGULATED AS A CHEMICAL CATEGORY UNDER SARA SECTION 313 REGULATIONS. THE HEALTH EFFECTS OF GLYCOL ETHERS VARY WITH THE PARTICULAR GLYCOL ETHER. THESE EFFECTS MAY INCLUDE IRRITATION TO THE SKIN, EYES, RESPIRATORY TRACT, AND MUCOUS MEMBRANES. THEY MAY INCLUDE EFFECTS ON THE REPRODUCTIVE SYSTEM, INCLUDING REDUCTION OF SPERM COUNT OR BIRTH DEFECTS.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

MATERIAL SAFETY DATA SHEET

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SECTION 06 - ACCIDENTAL RELEASE MEASURES (CONT.)

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:

BUTYL RUBBER

EYE PROTECTION:

CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:

CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:

LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: RUBY LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): NOT AVAILABLE
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 0.99 TYPICAL
BOILING POINT ('F): >200

MATERIAL SAFETY DATA SHEET

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 81.0
VOC(EPA METHOD 24/24A): 67%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: PROLONGED OR EXCESSIVE HEAT

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:

NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:

NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

MATERIAL SAFETY DATA SHEET

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SECTION 12 - ECOLOGICAL INFORMATION (CONT.)

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE RCRA LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268 SUBPART D BEFORE LAND DISPOSAL.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: YES
RQ MET AT: NONE
UN/NA NUMBER : UN1263
PACKING GROUP: III
HAZARD CLASSIFICATION: 3
FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: FLAMMABLE LIQUID
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 127

SHIPPING NAME: PAINT

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: PAINT

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:

MATERIAL SAFETY DATA SHEET

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

UN/NA NUMBER: UN1263
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3.3 HIGH FLASHPOINT LIQUID HAVING A FLASHPOINT OF 73 F (23 C) UP TO 141 C), CLOSED CUP TEST
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#: 3372/25-89

SHIPPING NAME: PAINT

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 67%
LOSS ON DRYING (%): 81.0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CRCMPD	<12	NO RQ
COBALT (AS AN INTEGRAL PART OF DYE	7440-48-4	<1	NO RQ
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	21	NO RQ

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SECTION 15 - REGULATORY INFORMATION (CONT.)

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

WARNING!
FLAMMABLE.

WARNING!
EXCESSIVE REPEATED EXPOSURES MAY RESULT IN EFFECTS TO THE LIVER, KIDNEYS, AND BLOOD.

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SECTION 16 - OTHER INFORMATION (CONT.)

CAUTION!
TERATOGENIC EFFECTS HAVE BEEN OBSERVED IN TESTS WITH LABORATORY ANIMALS FOR A COMPONENT OF THIS MATERIAL.

LABEL PRECAUTIONS:

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: FLUSH WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS OPEN. SEEK IMMEDIATE MEDICAL ATTENTION.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

SUPRONIL HK RUBY LIQUID
138672 VERSION: 02 REVISED DATE: 08/07/2000

Clariant

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1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 16 - OTHER INFORMATION (CONT.)

DESCRIBED HEREIN.

CLARIANT CORPORATION

Finish Dept.

Clariant

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WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	1 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK YELLOW LIQUID
PRODUCT CODE: 138652
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: TRIVALENT CHROMIUM COMPLEX OF AN AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
CHROMIUM (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-47-3	<1	0.5 MG/M3 OSHA ACGIH
CHROMIUM (III) COMPOUND	CROMPD	<15	25MG CR/M3 IDLH
1-ETHOXY-2-PROPANOL	1569-02-4	60	100 PPM SUPPLIER
LD50(ORAL)(RAT) 4400 MG/KG			
LD50(ORAL)(RABBIT) 8100 MG/KG			

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT:
SKIN ABSORPTION:
EYE CONTACT:
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

CHROMIUM: CHROMIUM AND CERTAIN COMPOUNDS OF CHROMIUM HAVE BEEN REPORTED TO CAUSE DAMAGE TO THE LUNGS RESULTING IN CUMULATIVE DAMAGE TO THE LUNGS. EVIDENCE FOR THE CARCINOGENICITY TO HUMANS IS INADEQUATE FOR CHROMIUM METAL AND TRIVALENT CHROMIUM COMPOUNDS PER IARC AND NTP. DERMATITIS HAS BEEN REPORTED FROM REPEATED, PROLONGED CONTACT WITH CHROMIUM COMPOUNDS. SENSITIZATION MAY OCCUR ON REPEATED CONTACT. THERE HAVE BEEN NO REPORTS

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

OF ANY OF THESE EFFECTS FROM THE USE OF THIS PRODUCT.

CHROMIUM COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-ETHOXY-2-PROPANOL: VAPORS OF THIS SOLVENT MAY CAUSE RESPIRATORY TRACT IRRITATION RESULTING IN COUGHING, SORE THROAT AND RUNNY NOSE. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. PROLONGED SKIN CONTACT MAY CAUSE DEFATTING OF THE SKIN RENDERING IT SUSCEPTIBLE TO IRRITATION BY OTHER SUBSTANCES.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLASH POINT ('F): 131.0
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): 734

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN CHROMIUM.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS PRODUCT CONTAINS CLEAN WATER ACT PRIORITY POLLUTANTS AND MAY BE CONSIDERED A RCRA HAZARDOUS WASTE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS THE PRIORITY POLLUTANT CHROMIUM. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY BY FLUSHING WITH LIMITED QUANTITY OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES., AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND

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SECTION 07 - HANDLING AND STORAGE (CONT.)

WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: YELLOW LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 7.0 - 9.0
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.0 TYPICAL
BOILING POINT ('F): 212.0
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 85.0
VOC(EPA METHOD 24/24A): 55%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: STRONG OXIDIZING AND REDUCING AGENTS

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT CONTAINS CHROMIUM PREDOMINANTLY IN THE TRIVALENT STATE. WASTES CONTAINING CHROMIUM MAY BE D007 RCRA HAZARDOUS WASTES PER 40 CFR 261.24. DUE TO THE PRESENCE OF OTHER COMPONENTS, THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

SUBPART D, BEFORE BEING LAND DISPOSED.

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : NA1993
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: NONE
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 128

SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1993
PACKING GROUP: III

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SECTION 14 - TRANSPORT INFORMATION (CONT.)

HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#:

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT CHROMIUM AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 55%
LOSS ON DRYING (%): 85.0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
CHROMIUM (III) COMPOUND	CROMPD	<15	NO RQ
1-ETHOXY-2-PROPANOL	1569-02-4	60	NO RQ

RCRA HAZARDOUS WASTE: SEE WASTE DISPOSAL INFORMATION IN SECTION 13
RCRA #:

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SECTION 15 - REGULATORY INFORMATION (CONT.)

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

LABEL PRECAUTIONS:

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

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SECTION 16 - OTHER INFORMATION (CONT.)

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

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SECTION 07 - HANDLING AND STORAGE (CONT.)

ADEQUATELY VENTILATED.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:
NIOSH APPROVED RESPIRATOR - CHEMICAL CARTRIDGE RESPIRATOR WITH APPROPRIATE CARTRIDGE, IF REQUIRED.

PROTECTIVE GLOVES:
BUTYL RUBBER

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES

OTHER PROTECTIVE EQUIPMENT:
CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:
LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: YELLOW BROWN LIQUID WITH SOLVENT ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (% IN WATER): 7.5 - 9.5
SOLUBILITY IN WATER: MISCIBLE
SPECIFIC GRAVITY: 1.0 TYPICAL
BOILING POINT ('F): > 200
MELTING POINT ('F): NOT AVAILABLE
FREEZING POINT ('F): NOT AVAILABLE
VAPOR PRESSURE(MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING(%): 82.0
VOC(EPA METHOD 24/24A): 74%
OCTANOL/WATER PARTITION COEFFICIENT: NO DATA AVAILABLE

SECTION 10 - STABILITY AND REACTIVITY

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SECTION 10 - STABILITY AND REACTIVITY (CONT.)

STABILITY: STABLE
CONDITIONS TO AVOID: PROLONGED OR EXCESSIVE HEAT

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NOT TESTED
EYE IRRITATION-RABBIT: NOT TESTED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NONE % ANALYSIS: METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 50: NONE	MG/L	TIME:	H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:
NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): NOT DETERMINED

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): NOT DETERMINED
CHEMICAL OXYGEN DEMAND(COD-MG/L): NOT DETERMINED

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:
THIS PRODUCT MAY YIELD WASTE SUBJECT TO THE RCRA LAND DISPOSAL RESTRICTIONS FOUND AT 40 CFR 268. THESE WASTES MUST BE TREATED ACCORDING TO THE TREATMENT STANDARDS AT 40 CFR 268 SUBPART D BEFORE LAND DISPOSAL.

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: DYESTUFFS, N.O.I.

DOT REGULATED BULK ONLY: YES
RQ MET AT: NONE
UN/NA NUMBER : NA1993
PACKING GROUP: III
HAZARD CLASSIFICATION: COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
POISON INHALATION: NO HAZARD ZONE: NONE
MARINE POLLUTANT: NO
DOT LABEL(S) REQUIRED: NONE
NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO.: 128

SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
PASSENGER AIRCRAFT FORBIDDEN: NO

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION:
UN/NA NUMBER: UN1993
PACKING GROUP: III
HAZARD CLASS/DIVISION: 3 FLAMMABLE AND COMBUSTIBLE LIQUID
SUBSIDIARY RISK 1: NONE
SUBSIDIARY RISK 2: NONE
MARINE POLLUTANT: NO
PAGE/AMENDMENT#:

CLARIANT CORPORATION
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CHARLOTTE, N.C. 28205

SUPRONIL HK YELLOW BROWN LIQUID
138722 VERSION: 02 REVISED DATE: 02/25/1997

For Chemical Emergency
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1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 14 - TRANSPORT INFORMATION (CONT.)

SHIPPING NAME: FLAMMABLE LIQUID, N.O.S.
(1-METHOXY-2-PROPANOL)

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: Y
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: N

SARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

CLEAN WATER ACT - PRIORITY POLLUTANTS:
NOT AVAILABLE

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): 74%
LOSS ON DRYING (%): 82.0

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
COBALT (AS AN INTEGRAL PART OF DYE	7440-48-4	<3.0	NO RQ
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	37	NO RQ

RCRA HAZARDOUS WASTE: YES - IF IT BECOMES A WASTE AS SOLD.
RCRA #: D001

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED

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SECTION 15 - REGULATORY INFORMATION (CONT.)

LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: NOT DETERMINED
LISTED ON NDSL: NOT DETERMINED
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

NONE KNOWN

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
MAY CAUSE EYE AND SKIN IRRITATION.

CAUTION!
MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.

CAUTION!
COMBUSTIBLE LIQUID AND VAPOR

LABEL PRECAUTIONS:

DO NOT BREATH VAPORS. USE WITH ADEQUATE VENTILATION. DO NOT GET IN EYES OR ON CLOTHING. WASH FROM SKIN AND EYES IMMEDIATELY. KEEP FROM HEAT AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

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SECTION 16 - OTHER INFORMATION (CONT.)

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
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SUPRONIL HK YELLOW BROWN LIQUID
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WOLVERINE WORLD WIDE INC
TANNING DIV/ATTN: NED TULGAR
123 N MAIN ST
ROCKFORD MI 493410000
ATTN: Product Safety Manager

------ H M I S ------

HEALTH	2 *
FLAMMABILITY	2
REACTIVITY	0
PERSONAL PROTECTION	H

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: SUPRONIL HK YELLOW BROWN LIQUID
PRODUCT CODE: 138722
VERSION NUMBER: 02
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: METAL COMPLEX OF AZO DYE
FORMULA: PROPRIETARY
PRIMARY PRODUCT USE: LEATHER DYE

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
COBALT (AS AN INTEGRAL PART OF DYE MOLECULE)	7440-48-4	<3.0	0.1 MG/M3 OSHA 0.02 MG/M3 ACGIH
COBALT COMPOUND	COCMPD	<19	20MG CO/M3 IDLH
PROPYLENE GLYCOL MONOMETHYL ETHER; 1-METHOXY-2-PROPANOL LD50(ORAL)(RAT) - 36000 MG/KG	107-98-2	37	TWA-100 PPM STEL-150 PPM OSHA 100 PPM ACGIH
DIETHYLENE GLYCOL MONOBUTYL ETHER; BUTYL CARBITOL LD50(ORAL)(RAT) - 6500-7300 MG/KG	112-34-5	37	NOT ESTABLISHED
GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL	GLYETHCMPD	37	NOT ESTABLISHED

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION:
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

COBALT AND COMPOUNDS OF COBALT: NO CHRONIC EFFECTS ARE KNOWN NOR HAVE BEEN REPORTED FOR THIS COMPOUND UNLESS THE COMPOUND IS SPECIFICALLY LISTED ELSEWHERE IN THIS SECTION.
SKIN AND EYE LESIONS SIMILAR TO ALLERGIC DERMATITIS HAVE BEEN REPORTED FOR COBALT METAL AND DUST. HEMATOLOGIC, DIGESTIVE, AND PULMONARY CHANGES DUE TO EXPOSURE TO COBALT CONTAINING DUST HAVE ALSO BEEN REPORTED. COBALT AND CERTAIN, MOSTLY INORGANIC COMPOUNDS OF OF COBALT HAVE BEEN REPORTED TO BE CARCINOGENIC IN ANIMAL STUDIES--HUMAN EVIDENCE IS INADEQUATE. NO SIMILAR EFFECTS HAVE BEEN REPORTED FOR THIS ORGANIC COBALT BASED PRODUCT.

COBALT COMPOUND: NOTE EFFECTS LISTED ABOVE.

1-METHOXY-2-PROPANOL: TOXICITY IS LOW VIA ORAL AND INHALATION ROUTES. NO CASES OF HUMAN TOXICITY ARE KNOWN. A SKIN AND EYE IRRITANT. CENTRAL NERVOUS SYSTEM DEPRESSANT. CAUSES IRRITATION TO NOSE AND THROAT, HEADACHE AND NAUSEA. THE LD50 FOR SKIN ABSORPTION IN RABBITS IS APPROXIMATELY 12 ML/KG. PROLONGED SKIN CONTACT WITH VERY LARGE AMOUNTS MAY CAUSE DROWSINESS. SINGLE DOSE ORAL TOXICITY IS LOW. THE ORAL LD50 FOR RATS IS 6.6 ML/KG. THE ODOR IS OBJECTIONABLE AT 100 PPM; HIGHER LEVELS PRODUCE EYE, NOSE, AND THROAT IRRITATION AND ARE INTOLERABLE AT 1000 PPM. ANESTHETIC EFFECTS ARE SEEN AT OR ABOVE 1000 PPM. REPEATED EXCESSIVE EXPOSURES MAY CAUSE MINOR LUNG, LIVER AND KIDNEY EFFECTS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE ANESTHETIC OR NARCOTIC EFFECTS. BIRTH DEFECTS ARE UNLIKELY. EXPOSURES HAVING NO ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. RESULTS OF IN VITRO (TEST TUBE) MUTAGENICITY TESTS HAVE BEEN NEGATIVE. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION,BUT NOT DEFINITIVE FINDINGS OF HAZARDS. COMMERCIAL 1-METHOXY-2-PROPANOL CONTAINS A SMALL AMOUNT (<3%) OF THE ISOMER, 2-METHOXY-1-PROPANOL. THIS ISOMER IN ANIMAL STUDIES HAS BEEN REPORTED TO CAUSE SERIOUS BIRTH DEFECTS.

BUTYL CARBITOL: EYES - CAN CAUSE MODERATE IRRITATION, REDNESS, TEARING. SKIN - CAN CAUSE SLIGHT IRRITATION. CAN BE ABSORBED IN TOXIC AMOUNTS, ESPECIALLY FROM PROLONGED OR REPEATED EXPOSURE. INHALATION - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, AND POSSIBLE UNCONSCIOUSNESS. INGESTION - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. CHRONIC EFFECTS: OVEREXPOSURE TO THIS MATERIAL HAS BEEN FOUND TO CAUSE LIVER AND KIDNEY EFFECTS.

GLYCOL ETHERS (SARA 313 CATEGORY), TOTAL: GLYCOL ETHERS INCLUDE MONO- AND DI- ETHERS OF ETHYLENE GLYCOL, DIETHYLENE GLYCOL, AND TRIETHYLENE GLYCOL WHICH ARE REGULATED AS A CHEMICAL CATEGORY UNDER SARA SECTION 313

SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

REGULATIONS. THE HEALTH EFFECTS OF GLYCOL ETHERS VARY WITH THE PARTICULAR GLYCOL ETHER. THESE EFFECTS MAY INCLUDE IRRITATION TO THE SKIN, EYES, RESPIRATORY TRACT, AND MUCOUS MEMBRANES. THEY MAY INCLUDE EFFECTS ON THE REPRODUCTIVE SYSTEM, INCLUDING REDUCTION OF SPERM COUNT OR BIRTH DEFECTS.

SUPRONIL HK YELLOW BROWN: TESTING OF THE DYESTUFF PRODUCED THE FOLLOWING: LD50 (ORAL, RAT) > 5000 MG/KG; EYE IRRITATION (RABBIT): NON-IRRITATING; SKIN IRRITATION (RABBIT): NON-IRRITATING.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

FLUSH IMMEDIATELY UNDER RUNNING WATER FOR FIFTEEN MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR SKIN:

WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

FIRST AID FOR INGESTION:

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): 122

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SECTION 05 - FIRE FIGHTING MEASURES (CONT.)

FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): 437

HAZARDOUS COMBUSTION PRODUCTS:
THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN, AND SULFUR. ASH WILL CONTAIN COBALT.

EXTINGUISHING MEDIA:
WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:
PREVENT RUN OFF TO SEWERS AND BODIES OF WATER FROM FIRE FIGHTING INVOLVING THIS PRODUCT AS IT CONTAINS HEAVY METALS.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE KNOWN

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:
CONTAIN SPILL. REMOVE SOURCES OF IGNITION. PREVENT RUNOFF TO SEWERS AND BODIES OF WATER AS PRODUCT CONTAINS HEAVY METALS. WEAR PROPER PROTECTIVE EQUIPMENT. VENTILATE IF IN ENCLOSED AREA. RECOVER AS LIQUID USING HAND OR EXPLOSION PROOF PUMP OR USE SUITABLE ABSORBANT TO COLLECT. CLEAN UP MAY BE ACCOMPLISHED BY FLUSHING WITH LIMITED QUANTITIES OF WATER IF APPROPRIATE OR BY REMOVAL OF CONTAMINATED SOILS.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:
STORE IN A COOL, WELL-VENTILATED AREA. KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED. USE ONLY DOT-APPROVED CONTAINERS. WHEN TRANSFERRING FOLLOW PROPER GROUNDING PROCEDURES. AVOID BREATHING VAPORS. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE RE-USE. DISCARD CONTAMINATED LEATHER CLOTHING. DO NOT ENTER STORAGE AREA UNLESS

DATE: 2/24/93

21-360 465

Rev

STAHL USA
MATERIAL SAFETY DATA SHEET

SECTION 1

01-600629

MANUFACTURERS NAME: STAHL USA
ADDRESS: 26 HOWLEY ST., P.O. BOX 3599,PEABODY,MA. 01960
EMERGENCY TELEPHONE NO.:
DAYS: /508/ 531-0371
NIGHTS:/508/ 531-6846
PRODUCT NAME: SW-812

HMIS RATING

HEALTH	1
FLAMMABILITY	1
REACTIVITY	0

SECTION 2-HAZARDOUS INGREDIENTS

INGREDIENTS	PERCENT	VAPOR PRESS. MM HG	VAPOR PRESS. DEG C	EXPOSURE LIMITS OSHA (PEL) ACGIH (TLV)
ETHOXYLATED ALCOHOLS (C11-15) CAS NO. 68131-40-8 SYN: ETHOX.ALCOHOLS	6.0	*	*	OSHA NOT ESTAB ACGIH NOT ESTAB
TREATED TRIMETHYLATED SILICA CAS NO. SYN: TRIMETHYLATED SILICA	3.0	9.99	*	OSHA NOT ESTAB. ACGIH NOT ESTAB.

* NOT APPLICABLE

SECTION 3-PHYSICAL DATA

EVAPORATION RATE
SLOWER THAN ETHYL ETHER.

VAPOR DENSITY: NOT APPLICABLE MOSTLY WAVAPOR

BOILING RANGE: APPROX. 212 F
PERCENT VOLATILE BY WEIGHT : LESS THAN 1 %
WEIGHT PER GALLON: 8.30 POUNDS PER U.S. GALLON

SECTION 4-FIRE AND EXPLOSION DATA

FLASH POINT (CLOSED CUP) GREATER THAN 199 DEGREES F

EXTINGUISHING MEDIA

THIS IS A WATER BASED PRODUCT AND SHOULD NOT SUPPORT COMBUSTION.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NONE KNOWN TO MANUFACTURER.

SPECIAL FIRE FIGHTING PROCEDURES

NONE KNOWN TO MANUFACTURER.

SECTION 4-FIRE AND EXPLOSION DATA - CONTINUED

SECTION 5 - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE -SEE SECTION 2

EFFECTS OF OVEREXPOSURE

**THE P O T E N T I A L HEALTH HAZARDS IDENTIFIED BELOW WILL NOT EXPRESS THEMSELVES IF EXPOSURE IS ELIMINATED. THIS PRODUCT WILL NOT PRESENT AN A C T U A L HEALTH RISK IN THE WORKPLACE IF IT IS HANDLED IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE PRACTICES AND IN ACCORD WITH THIS MSDS.

AS WITH ALL CHEMICAL PRODUCTS, SKIN, EYE, OR RESPIRATORY IRRITATION COULD OCCUR UNDER CERTAIN CONDITIONS. INDIVIDUALS WITH PRE-EXISTING SKIN OR RESPIRATORY DISORDERS MAY BE MORE SUSCEPTIBLE TO THESE EFFECTS.

EMERGENCY AND FIRST AID PROCEDURES

SKIN CONTACT

WASH WITH SOAPY WATER. RINSE THOROUGHLY. CONSULT A PHYSICIAN IF IRRITATION PERSISTS.

EYE CONTACT

FLUSH WITH LOTS OF CLEAN WATER FOR AT LEAST 15 MINUTES. CONSULT A PHYSICIAN.

INHALATION

REMOVE VICTIM TO FRESH AIR. GIVE MOUTH TO MOUTH BREATHING IF PERSON HAS STOPPED BREATHING. GET MEDICAL ATTENTION.

INGESTION

SEEK MEDICAL ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY DOCTOR OR POISON CONTROL CENTER.

OTHERS

SECTION 6 - REACTIVITY DATA

STABILITY

STABLE.

INCOMPATIBILITY

STRONG OXIDIZING AGENTS SUCH AS, BUT NOT LIMITED TO, NITRIC ACID, OZONE, AND LIQUID OXYGEN.

DECOMPOSITION PRODUCTS

SECTION 6 - REACTIVITY DATA - CONTINUED -

OXIDES OF SILICON.

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

CONDITIONS TO AVOID

NONE KNOWN TO MANUFACTURER.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILLS MAY BE ABSORBED ON APPROPRIATE ABSORBENT, SUCH AS VERMICULITE, CLAY-BASED ABSORBENTS, ETC. LARGE SPILLS SHOULD BE HANDLED BY STOPPING THE FLOW OF THE LIQUID AT ITS SOURCE, PREVENTING FURTHER SPREAD OF THE SPILL (AS BY DIKING), AND TRANSFERRING THE LIQUID AND ANY SPILL CLEAN-UP DEBRIS TO PROPER CONTAINERS.

WASTE DISPOSAL

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. ANY HAZARDOUS INGREDIENTS LISTED IN SECTION 2 MUST BE TAKEN INTO CONSIDERATION, BUT SINCE THESE ARE LISTED FOR SAFETY PURPOSES, THERE MAY BE OTHER INGREDIENTS OR PROPERTIES OF THIS PRODUCT THAT MUST BE CONSIDERED. CONTACT THE SUPPLIER IF MORE INFORMATION IS NEEDED.

USER RESPONSIBILITY FOR SPILLS AND WASTES

THE USER OF THIS PRODUCT WHO GENERATES A WASTE CONTAINING THIS PRODUCT IS SOLELY RESPONSIBLE FOR THAT WASTE.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

IN RESTRICTED VENTILATION AREAS USE NIOSH-APPROVED CHEMICAL CARTRIDGE RESPIRATORS FOR VAPORS, OR COMBINATION CHEMICAL CARTRIDGE AND SPRAY MIST FILTERS FOR MISTS FROM SPRAYING. IN CONFINED AREAS OR IN CASE OF VERY HIGH CONCENTRATIONS, AS FROM SPILLS INDOORS, USE NIOSH-APPROVED AIR-SUPPLIED OR SELF-CONTAINED BREATHING APPARATUS. THE HAZARDOUS INGREDIENTS LISTED IN SECTION 2 SHOULD BE CONSIDERED IN CHOOSING THE PROPER RESPIRATORY PROTECTION. FOR SOLVENTS, ORGANIC VAPOR CARTRIDGES ARE GENERALLY APPROPRIATE.

SECTION 8 - SPECIAL PROTECTION INFORMATION - CONTINUED -

VENTILATION

PROVIDE GENERAL DILUTION VENTILATION OR LOCAL EXHAUST AS NEEDED TO KEEP VAPOR CONCENTRATIONS OF THE INGREDIENTS LISTED IN SECTION 2 TO BELOW THEIR TLV'S. LOCAL EXHUAST IS ESSENTIAL FOR SPRAYING OPERATIONS. IF EFFECTS OF OVEREXPOSURE LISTED IN SECTION 5 ARE EVIDENT, VENTILATION MAY BE INADEQUATE.

PROTECTIVE GLOVES

PROTECTIVE GLOVES RECOMMENDED TO HELP PREVENT POSSIBLE EFFECTS OF SKIN CONTACT (SEE SECTION 5).

EYE PROTECTION

EYE PROTECTION SHOULD BE PROVIDED TO PREVENT A REASONABLE PROBABILITY OF EYE CONTACT.

OTHER PROTECTIVE EQUIPMENT

IT IS RECOMMENDED THAT A SAFETY SHOWER AND EYE WASH BE AVAILABLE WHEREVER THIS PRODUCT IS HANDLED OR USED.

SECTION 9 - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS

NORMAL GOOD HOUSEKEEPING AND GOOD INDUSTRIAL HYGIENE PROCEDURES SHOULD BE ADHERED TO. UNNECESSARY, EXCESSIVE, AND/OR PROLONGED PERSONAL CONTACT SHOULD BE AVOIDED. USE ONLY WITH ADEQUATE VENTILATION.

OTHER PRECAUTIONS OR NOTES

FOR INDUSTRIAL USE ONLY.

SECTION 10 -USER RESPONSIBILITY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.
MANUFACTURER SHOULD BE CONTACTED IF ADDITIONAL INFORMATION IS NEEDED REGARDING THIS PRODUCT

MATERIAL SAFETY DATA SHEETS

EMERGENCY PHONE NUMBERS

IN PLANT 1st: Janice Barnes ext 5709 or 866-2284
2nd: Madeleine Barnette ext 5766 or 361-5944

PHYSICIAN: Dr. Steve Ottenweller 456-9601

PARAMEDICS: days: nurse ext 5635
nights: Rockford Ambulance 173-013

FIRE DEPT: 173-012 451-2911

POLICE: state: 173-010 866-4411
city: 173-011 866-9557

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MATERIAL SAFETY DATA SHEET

TANICOR AS6-IN P

Substance key: 000000245934
Version : 2 - / USA

Revision Date: 02/16/2007
Date of printing :02/27/2007

Section 01 - Product Information

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 Telephone No.: +1 704 331 7000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**TANICOR AS6-IN P**
Material number:	215084
Primary product use:	Auxiliary for leather
Chemical family:	arylsulfonic acids/formaldehyde condensate with organic salts

Section 02 - Composition information on hazardous ingredients

Hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
Amorphous Silica	7631-86-9	< 2 %

Section 03 - Hazards identification

Expected Route of entry:

Inhalation:	yes
Skin contact:	yes
Eye contact:	yes
Ingestion:	no
Skin absorption:	no

Health effects of exposure:

Silica (7631-86-9)
Silica: Considered to be a nuisance dust and may cause irritation to the lungs. Has also been known to cause eye irritation in certain individuals. Prolonged inhalation of dusts containing free silica may result in the development of a disabling pulmonary fibrosis known as silicosis.

Known effects on other illnesses:	Existing respiratory conditions may be aggravated upon exposure to this material.
Listed carcinogen:	IARC: No NTP: No OSHA: No Other: No

HMIS:

Health: 1* Flammability: 1 Reactivity: 0 Personal protection: E

Section 04 - First aid measures

After inhalation:
Get victim to fresh air. Give artificial respiration or oxygen if breathing has stopped. Get prompt medical attention. Do not give fluids if victim is unconscious.

After contact with skin:
Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

After contact with eyes:
Immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation occurs.

After ingestion:
Rinse mouth thoroughly with water. Do not induce vomiting. Get immediate medical help.

Advice to doctor / Treatment:
None known.

Section 05 - Fire fighting measures

Hazardous combustion products:
In the event of fire the following can be released:
Sulphur oxides
carbon oxides

Extinguishing media: extinguishing measures to suit surroundings

Special fire fighting procedure:
Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.

Unusual fire and explosion hazards: Organic dusts have potential to be explosive with static spark or flame initiation. Maintain good housekeeping for control of dust.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:
Wear appropriate protective equipment. Avoid breathing and generating dusts. Sweep or scoop material into containers for reuse or disposal.

Section 07 - Handling and storage

Advice on safe handling:
Avoid breathing dust and contact with skin, eyes,and clothing.
Avoid dust formation. Keep away from sources of ignition. Lead off electrostatic charges.

Further info on storage conditions:
Keep containers closed.

Section 08 - Exposure controls / personal protection

PARTICULATES NOT OTHERWISE REGULATED RESPIRABLE FRACTION	7631-86-9	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		5 mg/m3
PARTICULATES NOT OTHERWISE REGULATED TOTAL DUST	7631-86-9	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		15 mg/m3
PARTICLES (INSOLUBLE OR POORLY SOLUBLE) NOT OTHERWISE SPECIFIED, RESPIRABLE PARTICLES	7631-86-9	US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):		3 mg/m3
PARTICLES (INSOLUBLE OR POORLY SOLUBLE) NOT OTHERWISE SPECIFIED, INHALABLE PARTICLES	7631-86-9	US ACGIH Threshold Limit Values Data	Time Weighted Average (TWA):		10 mg/m3
SILICA, AMORPHOUS, PRECIPITATED AND GEL	7631-86-9	US OSHA Table Z-1-A Data	Time Weighted Average (TWA):		6 mg/m3

Respiratory protection: None required under normal use. Use NIOSH approved respiratory protection where exposure levels exceed regulatory limits for particulate matter.

Hand protection: Butyl Rubber, PVC Or Neoprene.

Eye protection: Splash-proof or dust-resistant goggles

Other protective equipment: Clothing suitable to prevent skin contact.

Advice on system design: Use adequate exhaust ventilation and/or dust collection to keep dust levels below exposure limits.

IDLH:

Not Determined

Section 09 - Physical and chemical properties

Form: Powder

Color: white to light brown

Odor: characteristic

pH: approx. 8.5 (20 °C, 100 g/l)

Solubility in water: soluble

Bulk density: approx. 500 kg/m3

Section 10 - Stability and reactivity

Thermal decomposition: No decomposition if used as prescribed.

Chemical stability: Stable.

Hazardous Polymerization: Will not occur.
Conditions to avoid: None known.

Conditions to avoid: None known.

Section 11 - Toxicological information

Product information:

Acute oral toxicity: LD50 > 2,000 mg/kg (rat)

Skin irritation: Non-irritating

Eye irritation: Non-irritating

Sensitization: No evidence of sensitizing properties.

Other relevant toxicity information:
By analogy with products of similar composition

Section 12 - Ecological information

Remarks:
Do not allow to enter soil, waterways or waste water
By analogy with comparable substances, a low toxicity to aquatic organisms may be expected.

Section 13 - Disposal considerations

Waste disposal information:
Recommended disposal is by incineration in approved systems equipped with appropriate scrubbing devices. Material may be landfilled in chemical waste landfills.

RCRA hazardous waste:
No -- Not as sold.
RCRA number: NONE

Section 14 - Transport information

DOT not restricted

IATA not restricted

IMDG not restricted

Section 15 - Regulatory information

TSCA Status:

All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	yes
Delayed/chronic:	yes

SARA 313 information:

This product does not contain any toxic chemical listed under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986.

Clean Water Act:

Contains no known priority pollutants at concentrations greater than 0.1%.

Volatile organic compounds VOC:

Remarks: Not applicable

FDA:

This product has not been evaluated for FDA regulatory requirements.

Section 16 - Other information

Other precautions:

Handle with care. Organic dusts have the potential to be explosive with static spark or flame initiation.

State regulatory information:

California (Proposition 65): This product may contain a component or components known to the State of California to cause cancer or reproductive toxicity.
Formaldehyde (50-00-0)

Label information:

CAUTION!

IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

Maintain good housekeeping for dust control. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Wear proper protective equipment. Keep container closed when not in use. Use with ventilation and/or respiratory protection to keep exposure to a minimum. Wash thoroughly after handling.

Skin contact: wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention. Wash contaminated clothing before reuse. Eye contact: immediately flush eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek prompt medical attention if redness or irritation

occurs. Inhalation: remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if respiratory irritation continues. Ingestion: do not induce vomiting. Seek immediate medical assistance.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.

60-120126
(old name Parvol PRA)

MATERIAL SAFETY DATA SHEET

CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

TANICOR APR
208118 VERSION: 01 REVISED DATE: 01/20/2003

Clariant

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

------ H M I S ------
HEALTH 1 *
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION F

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: TANICOR APR
PRODUCT CODE: 208118
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: PRODUCT HAS NO SYNONYMS
CHEMICAL FAMILY: PHENOLSULFONIC ACID/FORMALDEHYDE CONDENSATE MIXED SALTS
FORMULA: MIXTURE
PRIMARY PRODUCT USE: AUXILIARY FOR LEATHER

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
PHENOL	108-95-2	< 1	5 PPM SKIN OSHA/ACGIH
LD50 (ORAL, RAT) - 350 - 530 MG/KG			
LD50 (DERMAL, RABBIT) - 850 MG/KG			

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

PHENOL: LD50 (SKIN) (ABSORPTION) (RABBITS) - 850 MG/KG. SINGLE DOSE ORAL TOXICITY IS MODERATE. MAY CAUSE SEVERE EYE IRRITATION WITH CORNEAL INJURY WHICH MAY RESULT IN PERMANENT IMPAIRMENT OF VISION, EVEN BLINDNESS. SHORT SINGLE EXPOSURE MAY CAUSE SKIN BURNS. RAPIDLY ABSORBED THROUGH THE SKIN IN AMOUNTS WHICH COULD CAUSE DEATH. AMOUNTS INGESTED INCIDENTAL TO INDUSTRIAL HANDLING MAY CAUSE SERIOUS EFFECTS; INGESTION OF LARGER AMOUNTS COULD CAUSE DEATH. MAY CAUSE SEVERE BURNS OF THE MOUTH AND THROAT. INGESTION OF AMOUNTS AS SMALL AS 1 GRAM MAY BE LETHAL TO HUMANS. EXCESSIVE VAPOR CONCENTRATIONS ARE READILY ATTAINABLE AND

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

MAY CAUSE SERIOUS ADVERSE EFFECTS, EVEN DEATH. EXCESSIVE EXPOSURE TO VAPORS MAY ALSO CAUSE IRRITATION TO THE UPPPER RESPIRATORY TRACT AND LUNGS. REPEATED EXCESSIVE EXPOSURES MAY CAUSE LIVER AND KIDNEY EFFECTS. REPEATED EXCESSIVE EXPOSURES IN SMALLER AMOUNTS MAY CAUSE RESPIRATORY DIFFICULTY AND SIGNS OF PARALYSIS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE CENTRAL NERVOUS SYSTEM EFFECTS. DID NOT CAUSE CANCER IN LONG-TERM ANIMAL STUDIES. HAS BEEN SHOWN TO PROMOTE THE GROWTH OF SKIN TUMORS INDUCED BY A CARCINOGEN. AT EXCESSIVE LEVELS TOXIC TO THE MATERNAL ANIMAL, TOXICITY AND LETHALITY TO THE NEONATES WAS OBSERVED. HOWEVER, BIRTH DEFECTS ARE UNLIKELY; EVEN EXPOSURES HAVING ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. IN ANIMAL STUDIES, HAS BEEN SHOWN NOT TO INTERFERE WITH REPRODUCTION. HAS BEEN SHOWN TO BE A MUTAGEN IN BACTERIA. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION, BUT NOT DEFINITIVE FINDINGS OF HAZARDS.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

ECTION 04 - FIRST AID MEASURES

IRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

IRST AID FOR SKIN:

REMOVE CONTAMINATED CLOTHING WITHOUT DELAY. IMMEDIATELY WASH THE SKIN WITH SOAP AND WATER FOR AT LEAST 15 MINUTES UNDER A SAFETY SHOWER. IF REDNESS OR SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

RST AID FOR INHALATION:

GET VICTIM TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION OR OXYGEN IF BREATHING HAS STOPPED. GET PROMPT MEDICAL ATTENTION. DO NOT GIVE FLUIDS IF VICTIM IS UNCONSCIOUS.

RST AID FOR INGESTION:

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SECTION 04 - FIRST AID MEASURES (CONT.)

IF INGESTED, SEEK MEDICAL ASSISTANCE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT ('F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE ('F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN AND SULFUR.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

TAKE UP AS SUCH AND CONSIDER RECYCLING.
MUST NOT BE RELEASED INTO SEWERS, DRAINS OR WELLS.
CLEAN EQUIPMENT WITH WATER.

SECTION 07 - HANDLING AND STORAGE

HANDLING AND STORAGE INFORMATION:

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SECTION 07 - HANDLING AND STORAGE (CONT.)

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

NONE REQUIRED UNDER NORMAL USE. USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:

BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:

DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:

CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:

USE ADEQUATE EXHAUST VENTILATION AND/OR DUST COLLECTION TO KEEP DUST LEVELS BELOW EXPOSURE LIMITS.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: CREAM POWDER, MILD ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (5 % IN WATER): 6.5 - 7.5
SOLUBILITY IN WATER: 400 G/L @ 68 F
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT (°F): NOT AVAILABLE
MELTING POINT (°F): NOT AVAILABLE
FREEZING POINT (°F): NOT AVAILABLE
VAPOR PRESSURE (MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING (%): NOT AVAILABLE
VOC (EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

OTHER PHYSICAL AND CHEMICAL PROPERTIES:

BULK DENSITY: 500 KG/M3
THERMAL DECOMPOSITION: > 302 F (150 C)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): > 2000 MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: NON-IRRITATING
EYE IRRITATION-RABBIT: NON-IRRITATING

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:

6 % ANALYSIS: BOD/COD*100 METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: RAINBOW TROUT	LC 50: > 100	MG/L	TIME:	96 H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:

NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): >1000
ACTIVATED SLUDGE

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): 75 MG/G (5 D)
CHEMICAL OXYGEN DEMAND(COD-MG/L): 1,237 MG/G

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL INFORMATION:

RECOMMENDED DISPOSAL IS BY INCINERATION IN APPROVED FACILITIES.

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: CHEMICALS N.O.I.

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

ARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

ARA(SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: Y

ARA(SECTION 313 - TOXIC CHEMICAL):
THIS PRODUCT DOES NOT CONTAIN ANY TOXIC CHEMICAL LISTED UNDER SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

EAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT PHENOL AT CONCENTRATIONS GREATER THAN 0.1%.

EAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
C(EPA METHOD 24/24A): NOT AVAILABLE

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SECTION 15 - REGULATORY INFORMATION (CONT.)

LOSS ON DRYING (%): NOT AVAILABLE

CERCLA REGULATED COMPONENTS (AS LISTED IN SECTION 2):

COMPONENT	CAS NO.	WT.%	RQ(LB)
PHENOL	108-95-2	< 1	1000

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

CEPA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: YES
LISTED ON NDSL: NO
CEPA STATUS:
PRODUCT NOT YET EVALUATED

WHMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:

HANDLE WITH CARE. ORGANIC DUSTS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:
CALIFORNIA (PROPOSITION 65)
THIS PRODUCT MAY CONTAIN TRACE LEVELS OF A COMPONENT OR COMPONENTS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER:
FORMALDEHYDE (50-00-0) (GAS)

LABEL INFORMATION:

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SECTION 16 - OTHER INFORMATION (CONT.)

LABEL HAZARDS:

CAUTION!
IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

CAUTION!
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

WARNING
MAY BE HARMFUL TO KIDNEY AND LIVER ON SWALLOWING, INHALING OR ABSORBING THROUGH SKIN
MAY CASUE CYANOSIS

LABEL PRECAUTIONS:

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

AVOID CONTACT WITH PRODUCT. WEAR PROTECTIVE GLOVES AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: DO NOT INDUCE VOMITING. SEEK IMMEDIATE MEDICAL ASSISTANCE.

MATERIAL SAFETY DATA SHEET

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SECTION 16 - OTHER INFORMATION (CONT.)

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

19-120337
(old name Paralene PWG)

MATERIAL SAFETY DATA SHEET

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TANICOR PW
208112 VERSION: 01 REVISED DATE: 12/12/2002

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------ H M I S ------
HEALTH 1 *
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION C

SECTION 01 - PRODUCT IDENTIFICATION

TRADE NAME: TANICOR PW
PRODUCT CODE: 208112
VERSION NUMBER: 01
ALPHA CODE: NOT AVAILABLE
CAS NUMBER: PROPRIETARY MIXTURE
SYNONYMS: FORMERLY KNOWN AS PARALENE PWG
CHEMICAL FAMILY: UREA FORMALDEHYDE DERIVATIVE
FORMULA: MIXTURE
PRIMARY PRODUCT USE: LEATHER TANNING AGENT

SECTION 02 - COMPOSITION INFORMATION ON HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	WT.%	PEL/TLV
PHENOL	108-95-2	< 1	5 PPM SKIN OSHA/ACGIH
LD50 (ORAL, RAT) - 350 - 530 MG/KG			
LD50 (DERMAL, RABBIT) - 850 MG/KG			

SECTION 03 - HAZARDS IDENTIFICATION

(REFER TO SECTION 11 FOR ADDITIONAL INFORMATION)
EXPECTED ROUTE OF ENTRY:

SKIN CONTACT: X
SKIN ABSORPTION: X
EYE CONTACT: X
INHALATION: X
INGESTION: X

EFFECTS OF EXPOSURE:

PHENOL: LD50 (SKIN) (ABSORPTION) (RABBITS) - 850 MG/KG. SINGLE DOSE ORAL TOXICITY IS MODERATE. MAY CAUSE SEVERE EYE IRRITATION WITH CORNEAL INJURY WHICH MAY RESULT IN PERMANENT IMPAIRMENT OF VISION, EVEN BLINDNESS. SHORT SINGLE EXPOSURE MAY CAUSE SKIN BURNS. RAPIDLY ABSORBED THROUGH THE SKIN IN AMOUNTS WHICH COULD CAUSE DEATH. AMOUNTS INGESTED INCIDENTAL TO INDUSTRIAL HANDLING MAY CAUSE SERIOUS EFFECTS; INGESTION OF LARGER AMOUNTS COULD CAUSE DEATH. MAY CAUSE SEVERE BURNS OF THE MOUTH AND THROAT. INGESTION OF AMOUNTS AS SMALL AS 1 GRAM MAY BE LETHAL TO HUMANS. EXCESSIVE VAPOR CONCENTRATIONS ARE READILY ATTAINABLE AND

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SECTION 03 - HAZARDS IDENTIFICATION (CONT.)

MAY CAUSE SERIOUS ADVERSE EFFECTS, EVEN DEATH. EXCESSIVE EXPOSURE TO VAPORS MAY ALSO CAUSE IRRITATION TO THE UPPPER RESPIRATORY TRACT AND LUNGS. REPEATED EXCESSIVE EXPOSURES MAY CAUSE LIVER AND KIDNEY EFFECTS. REPEATED EXCESSIVE EXPOSURES IN SMALLER AMOUNTS MAY CAUSE RESPIRATORY DIFFICULTY AND SIGNS OF PARALYSIS. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE CENTRAL NERVOUS SYSTEM EFFECTS. DID NOT CAUSE CANCER IN LONG-TERM ANIMAL STUDIES. HAS BEEN SHOWN TO PROMOTE THE GROWTH OF SKIN TUMORS INDUCED BY A CARCINOGEN. AT EXCESSIVE LEVELS TOXIC TO THE MATERNAL ANIMAL, TOXICITY AND LETHALITY TO THE NEONATES WAS OBSERVED. HOWEVER, BIRTH DEFECTS ARE UNLIKELY; EVEN EXPOSURES HAVING ADVERSE EFFECTS ON THE MOTHER SHOULD HAVE NO EFFECT ON THE FETUS. IN ANIMAL STUDIES, HAS BEEN SHOWN NOT TO INTERFERE WITH REPRODUCTION. HAS BEEN SHOWN TO BE A MUTAGEN IN BACTERIA. IN GENERAL, UNCORROBORATED CASE REPORTS AND IN VITRO STUDIES, SUCH AS AMES TESTS, ARE USEFUL PIECES OF INFORMATION, BUT NOT DEFINITIVE FINDINGS OF HAZARDS.

KNOWN EFFECTS ON OTHER ILLNESSES:

NO KNOWN EFFECTS ON OTHER ILLNESSES FOR THIS PRODUCT.

LISTED CARCINOGEN:

NONE: X
OSHA:
NTP:
IARC:
OTHER:

SECTION 04 - FIRST AID MEASURES

FIRST AID FOR EYES:

IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

FIRST AID FOR SKIN:

REMOVE CONTAMINATED CLOTHING WITHOUT DELAY. IMMEDIATELY WASH THE SKIN WITH SOAP AND WATER FOR AT LEAST 15 MINUTES UNDER A SAFETY SHOWER. IF REDNESS OR SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

FIRST AID FOR INHALATION:

REMOVE SUBJECT TO FRESH AIR. SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.

FIRST AID FOR INGESTION:

IF CONSCIOUS, GIVE THE PATIENT 1-2 GLASSES OF WATER (8-16 OZ.) AND CALL A

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CLARIANT CORPORATION
4000 MONROE ROAD
CHARLOTTE, N.C. 28205

TANICOR PW
208112 VERSION: 01 REVISED DATE: 12/12/2002

Clariant

For Chemical Emergency
Call CHEMTREC - Day or Night
1-800-424-9300

For MSDS Info: (704) 331-7710
CLARIANT Corporation: (704) 331-7000

SECTION 04 - FIRST AID MEASURES (CONT.)

DOCTOR. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. INDUCE VOMITING ONLY AT THE INSTRUCTIONS OF A DOCTOR OR NURSE.

NOTE TO PHYSICIAN:

NONE KNOWN

SECTION 05 - FIRE FIGHTING MEASURES

FLASH POINT (°F): NOT AVAILABLE
FLAMMABLE LIMITS:
LEL: UNKNOWN
UEL: UNKNOWN

AUTOIGNITION TEMPERATURE (°F): UNKNOWN

HAZARDOUS COMBUSTION PRODUCTS:

THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON, NITROGEN AND SULFUR.

EXTINGUISHING MEDIA:

WATER: X
ALCOHOL FOAM: X
CO2: X
DRY CHEMICAL: X
WATER/FOG SPRAY: X
NO EXTINGUISHING MEDIA:

SPECIAL FIRE FIGHTING PROCEDURES:

EXERCISE CAUTION WHEN FIGHTING ANY CHEMICAL FIRE. USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION 06 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

CONTAIN SPILLED MATERIALS. IF SOLID MATERIAL, SHOVEL OR SWEEP UP AND PLACE IN A PROPER DISPOSAL CONTAINER OR RECOVER FOR RECYCLING/REUSE. IF MOLTEN, IT MAY BE ABSORBED ON AN ABSORBANT LIKE OIL DRY OR SAND, OR ALLOWED TO COOL AND SOLIDIFY, THEN REMOVED BY SCRAPING.

SECTION 07 - HANDLING AND STORAGE

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SECTION 07 - HANDLING AND STORAGE (CONT.)

HANDLING AND STORAGE INFORMATION:

KEEP CONTAINERS CLOSED. AVOID GETTING ON SKIN OR IN EYES WHEN HANDLING PRODUCT.

SECTION 08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

USE NIOSH APPROVED RESPIRATORY PROTECTION WHERE EXPOSURE LEVELS EXCEED REGULATORY LIMITS FOR HAZARDOUS COMPONENTS AND/OR FOR PARTICULATE MATTER.

PROTECTIVE GLOVES:

BUTYL RUBBER, PVC OR NEOPRENE

EYE PROTECTION:

DUST GOGGLES

OTHER PROTECTIVE EQUIPMENT:

CLOTHING SUITABLE TO PREVENT SKIN CONTACT.

VENTILATION:

LOCAL VENTILATION RECOMMENDED - MECHANICAL VENTILATION MAY BE USED.

EXPOSURE LIMITS: NONE ON PRODUCT

IDLH (IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION):
NOT DETERMINED

ECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: WHITE POWDER, SLIGHTLY PHENOLIC ODOR
ODOR THRESHOLD: NOT AVAILABLE
PH (10 % IN WATER): 2.8 - 3.4
SOLUBILITY IN WATER: 400 G/L @ 68 F
SPECIFIC GRAVITY: NOT AVAILABLE
BOILING POINT (°F): NOT AVAILABLE
MELTING POINT (°F): 572 (300 C)
FREEZING POINT (°F): NOT AVAILABLE
VAPOR PRESSURE (MM HG): NOT AVAILABLE
VAPOR DENSITY (AIR=1): NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
LOSS ON DRYING (%): 0-10% WATER
VOC (EPA METHOD 24/24A): NOT AVAILABLE
OCTANOL/WATER PARTITION COEFFICIENT:

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SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES (CONT.)

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: STABLE
CONDITIONS TO AVOID: NONE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR
CONDITIONS TO AVOID: NONE KNOWN

INCOMPATIBILITY: NONE KNOWN

SECTION 11 - TOXICOLOGICAL INFORMATION

LD50 (ORAL-RAT): UNKNOWN MG/KG BODY WEIGHT
DERMAL IRRITATION-RABBIT: SEE BELOW
EYE IRRITATION-RABBIT: SEE BELOW

OTHER TOXICOLOGICAL VALUES:

ACUTE ORAL TOXICITY: LD50 > 2000 MG/KG (RAT)
METHOD: EVALUATED
IRRITANT EFFECT ON SKIN: SLIGHTLY IRRITANT (RABBIT)
METHOD: EVALUATED
IRRITANT EFFECT ON EYES: SLIGHTLY IRRITANT (RABBIT)
METHOD: EVALUATED

SECTION 12 - ECOLOGICAL INFORMATION

BIOLOGICAL ELIMINATION:
NOT READILY DEGRADED 2.5 % ANALYSIS: BOD IN % OF COD METHOD: NONE

AQUATIC TOXICITY:

SPECIES: NONE	LC100: NONE	MG/L	TIME:	H
SPECIES: RAINBOW TROUT	LC 50: > 100	MG/L	TIME:	96 H
SPECIES: NONE	LC 0: NONE	MG/L	TIME:	H

BACTERIAL INHIBITION:

NO INHIBITION (MG/L): NOT DETERMINED
50% INHIBITION (MG/L): > 100
ACTIVATED SLUDGE

BIOCHEMICAL OXYGEN DEMAND(BOD5-MG/L): 27 MG/G (BOD, 5D)
CHEMICAL OXYGEN DEMAND(COD-MG/L): 1,093 MG/G

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SECTION 13 - DISPOSAL CONSIDERATIONS (CONT.)

WASTE DISPOSAL INFORMATION:

RECOMMENDED DISPOSAL IS BY INCINERATION IN APPROVED FACILITIES.

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION 14 - TRANSPORT INFORMATION

DOT REGULATED: NO
HAZARD CLASSIFICATION: NOT REGULATED

SHIPPING NAME: CHEMICALS N.O.I.

DOT REGULATED BULK ONLY: NO

CANADIAN TRANSPORT REGULATION: NOT DETERMINED

INTERNATIONAL AIR TRANSPORTATION REGULATIONS: NOT REGULATED

INTERNATIONAL MARITIME DANGEROUS GOODS REGULATION: NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT.

SARA (SECTION 311/312):
REACTIVE HAZARD: N
PRESSURE HAZARD: N
FIRE HAZARD: N
IMMEDIATE/ACUTE: Y
DELAYED/CHRONIC: Y

SARA (SECTION 302):
CONTAINS AN EXTREMELY HAZARDOUS SUBSTANCE: Y

SARA (SECTION 313 - TOXIC CHEMICAL):

THIS PRODUCT CONTAINS TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND 40 CFR 372. ANY SUCH TOXIC CHEMICAL(S) ARE SHOWN IN SECTION 02 OF THIS MSDS. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS'S THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

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SECTION 15 - REGULATORY INFORMATION (CONT.)

CLEAN WATER ACT - PRIORITY POLLUTANTS:
CONTAINS PRIORITY POLLUTANT PHENOL AT CONCENTRATIONS GREATER THAN 0.1%.

CLEAN AIR ACT - VOLATILE ORGANIC COMPOUNDS:
VOC(EPA METHOD 24/24A): NOT AVAILABLE
LOSS ON DRYING (%): 0-10% WATER

CERCLA (FOR COMPONENTS LISTED IN SECTION 2): NO
LOWEST RQ: NONE

RCRA HAZARDOUS WASTE: NO - NOT AS SOLD.
RCRA #: NONE

FDA: THIS PRODUCT IS NOT REGISTERED WITH THE FDA

USDA: THIS PRODUCT IS NOT REGISTERED WITH THE USDA

TSCA: LISTED AS PRIORITY SUBSTANCE: NOT DETERMINED
LISTED AS TOXIC SUBSTANCE: NOT DETERMINED
EXPORT IS NOTIFIABLE: NOT DETERMINED
LISTED ON DSL: YES
LISTED ON NDSL: NO
CEPA STATUS:
PRODUCT NOT YET EVALUATED

HMIS: NOT EVALUATED

SECTION 16 - OTHER INFORMATION

OTHER PRECAUTIONS:
HANDLE WITH CARE. ORGANIC DUSTS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

STATE REGULATORY INFORMATION:
PENNSYLVANIA: AS NOTED PER SECTION 2.

MASSACHUSETTS: ANY COMPONENT OF THIS PRODUCT WHICH IS A HAZARDOUS CHEMICAL AS LISTED IN THE MASSACHUSETTS SUBSTANCE LIST IS SHOWN ABOVE IN SECTION 2 OF THIS MSDS. NON-HAZARDOUS COMPONENTS ARE BEING WITHHELD AS TRADE SECRET INFORMATION.

OTHER STATE REGULATORY INFORMATION:
CALIFORNIA (PROPOSITION 65)
THIS PRODUCT MAY CONTAIN TRACE LEVELS OF A COMPONENT OR COMPONENTS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER:

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SECTION 16 - OTHER INFORMATION (CONT.)

FORMALDEHYDE (50-00-0) (GAS)

LABEL INFORMATION:
LABEL HAZARDS:

CAUTION!
IF A DUST CLOUD IS GENERATED DURING USAGE, ORGANIC POWDERS HAVE THE POTENTIAL TO BE EXPLOSIVE WITH STATIC SPARK OR FLAME INITIATION.

CAUTION:
AIRBORNE DUST MAY BE IRRITATING TO EYES, NOSE, THROAT AND SKIN.

LABEL PRECAUTIONS:

MAINTAIN GOOD HOUSEKEEPING FOR DUST CONTROL. KEEP CONTAINER CLOSED WHEN NOT IN USE.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING. WEAR PROPER PROTECTIVE EQUIPMENT. KEEP CONTAINER CLOSED WHEN NOT IN USE.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. SEEK PROMPT MEDICAL ATTENTION IF REDNESS OR IRRITATION OCCURS.

SKIN CONTACT: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION. WASH CONTAMINATED CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION IF RESPIRATORY IRRITATION CONTINUES.

INGESTION: IF CONSCIOUS, GIVE THE PATIENT 1-2 GLASSES OF WATER (8-16 OZ.) SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. INDUCE VOMITING ONLY AT THE INSTRUCTIONS OF A DOCTOR OR NURSE.

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SECTION 16 - OTHER INFORMATION

(CONT.)

IN ACCORDANCE WITH GOOD PRACTICES OF PERSONAL CLEANLINESS AND HYGIENE, HANDLE WITH DUE CARE AND AVOID UNNECESSARY CONTACT WITH THIS PRODUCT.

THIS INFORMATION IS BEING SUPPLIED TO YOU UNDER OSHA "RIGHT TO KNOW" REGULATION 29 CFR 1910.1200 AND IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE TRUE AND ACCURATE.

NO WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OF THIS DATA, THE HAZARDS CONNECTED WITH THE USE OF THE MATERIAL, OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, IS MADE. CLARIANT CORPORATION ASSUMES NO RESPONSIBILITY FOR DAMAGE OR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

CLARIANT CORPORATION

MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
PRODUCT SAFETY & REGULATORY AFFAIRS
100 Bayer Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (412) 923-1800
BAYER INFORMATION PHONE.: (800) 662-2927

I. PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Tanigan BN
PRODUCT CODE.....: 78923
CHEMICAL FAMILY.....: Methylene-linked condensation product of hydroxyarylsulfone and arylsulphonic acids

II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)

This product contains no hazardous ingredients as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

III. PHYSICAL PROPERTIES:

PHYSICAL FORM.....: Powder
COLOR.....: Yellowish
ODOR.....: Odorless
pH .....: Approx. 3.3 at 100 g/l water
BOILING POINT.....: Not Applicable
MELTING/FREEZING POINT....: Not Applicable
SOLUBILITY IN WATER .....: 100 g/l at 68 F (20 C)
SPECIFIC GRAVITY .....: Not Established
BULK DENSITY.....: 600 - 700 kg/m3
VAPOR PRESSURE .....: Not Applicable

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IV. FIRE AND EXPLOSION DATA:

FLASH POINT.....: Not Applicable
EXTINGUISHING MEDIA.....: Water; Dry Chemical; Carbon Dioxide; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Avoid dusting. Dust can form explosive mixtures with air.

V. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY.....: Eye and skin contact; inhalation of dusts; accidental ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE EFFECTS OF EXPOSURE.....: Based on animal toxicity testing on a similar product (see Section XII), we would expect this product to be non-irritating to the skin and eyes and slightly toxic by ingestion.
CHRONIC EFFECTS OF EXPOSURE...: No applicable information was found concerning any adverse chronic health effects from overexposure to this product.

CARCINOGENICITY.....: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE.....: Although we have no data available on the effects of inhaling this product, persons with impaired pulmonary function may be more susceptible to the effects of inhaling any type of dusty material.
EXPOSURE LIMITS.....: Although no exposure limit has been established for this product, the OSHA-PEL for nuisance dust of 15 mg/m3-total dust, 5 mg/m3-respirable dust is recommended. In addition, the ACGIH-TLV for nuisance dust of 10 mg/m3 is recommended.

VI. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES.....: In case of contact, immediately flush eyes with plenty of water. Call a physician.
FIRST AID FOR SKIN.....: In case of contact, flush skin with plenty of soap and water. Remove contaminated clothing and wash before reuse. If irritation develops, contact a physician.

Continued on next page

VI. FIRST AID PROCEDURES (Continued)

FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
FIRST AID FOR INGESTION.: If swallowed, call a physician.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles
SKIN PROTECTION REQUIREMENTS.....: Rubber gloves and long sleeved shirts and pants to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.
RESPIRATOR REQUIREMENTS.....: Work ambient concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved dust respirator should be worn.
VENTILATION REQUIREMENTS.....: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.
ADDITIONAL PROTECTIVE MEASURES.....: Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product.

VIII. REACTIVITY DATA:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: Oxidizing and reducing agents.
INSTABILITY CONDITIONS.....: None known
DECOMPOSITION TEMPERATURE..: From 473 F (245 C)
DECOMPOSITION PRODUCTS.....: CO, CO2, oxides of nitrogen, sulfur and other potentially toxic fumes.

IX. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES....: Utilize recommended protective clothing and equipment. Spills should be swept up and placed in containers. Spill area can be washed with water. Collect wash water for approved disposal.
WASTE DISPOSAL METHOD.....: Waste disposal should be in accordance with existing federal, state and local environmental regulations.

Continued on next page

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X. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE(MIN/MAX): Ambient
SHELF LIFE.....: Not Established
SPECIAL SENSITIVITY.....: Avoid contact with moisture to keep product from caking.
HANDLING/STORAGE PRECAUTIONS: Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Store in a dry place away from excessive heat, in original or similar waterproof containers. Reseal containers immediately after use.

XI. SHIPPING INFORMATION:

DOT

D.O.T. SHIPPING NAME.....: None
TECHNICAL SHIPPING NAME.....: Methylene-linked condensation product
D.O.T. HAZARD CLASS.....: Non-Regulated
U.N./N.A. NUMBER.....: None
PRODUCT RQ (lbs.) .....: None
D.O.T. LABEL.....: None
D.O.T. PLACARD.....: None
FREIGHT CLASS BULK.....: Chemicals, NOI
FREIGHT CLASS PACKAGE.....: Chemicals, NOI (NMFC 60000)
PRODUCT LABEL .....: Tanigan BN

IMO / IMDG CODE

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

XII. ANIMAL TOXICITY DATA:

ACUTE TOXICITY
ORAL LD50.....: Greater than 2000 mg/kg (Rat)*
EYE EFFECTS.....: Non-irritating to rabbit eyes
SKIN EFFECTS.....: Non-irritating to rabbit skin
AQUATIC TOXICITY.....: LCo: 1-10 mg/1 (96 h) Brachydanio rerio

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XII. ANIMAL TOXICITY DATA (Continued)

* Based on testing on a similar product

XIII. FEDERAL REGULATORY INFORMATION:

OSHA STATUS.....: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: On TSCA Inventory
CERCLA REPORTABLE QUANTITY..: None
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None
SECTION 311/312
HAZARD CATEGORIES.....: Non-hazardous under Section 311/312
SECTION 313
TOXIC CHEMICALS.....: None
RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

XIV. OTHER REGULATORY INFORMATION:

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Trade Secret Ingredient NJTSRN (31765300002)-6777P	Greater than 1 %	PA3, NJ4
Ethylenediaminetetraacetic acid, tetrasodium salt 64-02-8	Greater than 1 %	PA3, NJ4
Trade Secret Ingredient NJTSRN (31765300002)-6778P	Greater than 1 %	PA3, NJ4

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XIV. OTHER REGULATORY INFORMATION (Continued)

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Water 7732-18-5	Greater than 1 %	PA3, NJ4

NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
NJTSRN = New Jersey Trade Secret Registry Number
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

MASSACHUSETTS SUBSTANCE LIST (MSL)
Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. To the best of our knowledge, this product contains no substances at a level which could require reporting under the statute.

HMIS RATINGS:	Health	Flammability	Reactivity
	0	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer Corporation as a customer service.

XV. APPROVALS:

REASON FOR ISSUE.....: Update to new format.
PREPARED BY.....: M. Sharma
APPROVED BY.....: J. M. Mostowy
APPROVAL DATE.....: 02/26/92
SUPERSEDES DATE.....: 07/11/88
MSDS NUMBER.....: 02690

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19-120 549

Bayer

MATERIAL SAFETY DATA SHEET

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PRODUCT SAFETY & REGULATORY AFFAIRS
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Pittsburgh, PA 15205-9741

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CALL CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (412) 923-1800
BAYER INFORMATION PHONE.: (800) 662-2927

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Tanigan BN Liquid
PRODUCT CODE.....: 78955
CHEMICAL FAMILY.....: Methylene-linked condensation product of arylsulfonic acids and hydroxyarylsulfone. aqueous preparation

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
***** HAZARDOUS INGREDIENTS *****		
Pentanedioic acid 110-94-1	OSHA : Not Established ACGIH: Not Established	Less than 5 %
Inorganic salt Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	Less than 5 %
Adipic Acid 124-04-9	OSHA : Not Established ACGIH: 5.00 mg/m3 TWA	Less than 5 %
Organic Acid Specific chemical identity is withheld as a trade secret.	OSHA : Not Established ACGIH: Not Established	Less than 5 %

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3. HAZARDS IDENTIFICATION:

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*************************************************************
*                    EMERGENCY OVERVIEW                     *
*                                                           *
* WARNING!  Color: Brownish;  Form: Liquid;  Odor: Weak odor;  *
* May cause respiratory tract irritation; Causes eye        *
* irritation.                                               *
*************************************************************
```

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Eye Contact; Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION.....: The inorganic salt, adipic acid, and organic acid in this product may cause respiratory tract irritation with symptoms of coughing, sore throat, and runny nose.

ACUTE SKIN CONTACT.....: Based on animal toxicity testing (see Section 11) on a similar product, we would expect this product to be non-irritating to the skin.

ACUTE EYE CONTACT.....: Based on animal toxicity testing (see Section 11) on a similar product, we would expect this product to be irritating to the eyes resulting in tearing, reddening, swelling and stinging.

ACUTE INGESTION.....: Based on animal toxicity testing (see Section 11) on a similar product, we would expect this product to be essentially non-toxic by ingestion.

CHRONIC EFFECTS OF EXPOSURE...: No applicable information was found concerning any adverse chronic health effects from overexposure to this product.

CARCINOGENICITY.....: The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE.....: Persons with pre-existing eye disorders may be more susceptible to the effects of this product.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician immediately.

Continued on next page

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4. FIRST AID MEASURES (Continued)

FIRST AID FOR SKIN.....: In case of contact, flush skin with plenty of water for at least 15 minutes.. Remove contaminated clothing and wash before reuse. If irritation develops, contact a physician.
FIRST AID FOR INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
FIRST AID FOR INGESTION.: If swallowed, call a physician.

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Greater than 212 F (100 C) DIN 51758
EXTINGUISHING MEDIA.....: Water; Dry Chemical; Carbon Dioxide; Foam
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Utilize recommended protective clothing. Spills should be taken up with an appropriate absorbent and placed in approved containers. Spill area can be washed with water. Collect wash water for approved disposal.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): 40 F (5 C) Minimum
SHELF LIFE.....: Not Established
SPECIAL SENSITIVITY.....: None known.
HANDLING/STORAGE PRECAUTIONS: Avoid breathing mist and vapors. Avoid contact with eyes and skin. Wash thoroughly after handling. Store in a dry place away from excessive heat, in original or similar waterproof containers. Reseal containers immediately after use. Keep from freezing.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Chemical safety goggles
SKIN PROTECTION REQUIREMENTS.....: Rubber gloves and long sleeved shirts and pants to minimize skin contact. Employees should wash their hands and face before eating, drinking or using tobacco products.

Continued on next page

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15. REGULATORY INFORMATION (Continued)

SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None
SECTION 311/312
HAZARD CATEGORIES.....: Immediate Health Hazard
SECTION 313
TOXIC CHEMICALS.....: None
RCRA STATUS.....: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Water 7732-18-5	Greater than 1 %	PA3, NJ4
Pentanedioic acid 110-94-1	Less than 5 %	PA3, NJ4
Trade Secret Ingredient NJTSRN (31765300002)-9378P	Greater than 1 %	PA3, NJ4
Inorganic salt NJTSRN (31765300002)-9524P	Less than 5 %	PA1, PA4, MA, NJ1
Adipic Acid 124-04-9	Less than 5 %	PA1, PA4, MA, NJ1
Organic Acid NJTSRN (31765300002)-9525P	Less than 5 %	PA3, NJ4

MA = Massachusetts Hazardous Substance List
NJ1 = New Jersey Hazardous Substance List
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
NJTSRN = New Jersey Trade Secret Registry Number
PA1 = Pennsylvania Hazardous Substance List
PA3 = Pennsylvania Non-hazardous present at 3% or greater.
PA4 = Pennsylvania Environmental Hazardous Substance List.

Continued on next page

16. OTHER INFORMATION:

HMIS RATINGS:	Health	Flammability	Reactivity
	2	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Revised Sections 2, 3 and 15
PREPARED BY.....: S. Van Volkenburg
APPROVED BY.....: J. M. Mostowy
APPROVAL DATE.....: 10/15/1999
SUPERSEDES DATE.....: 06/11/1999
MSDS NUMBER.....: 37047

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

19-120658

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
100 Bayer Road
Pittsburgh, PA 15205-9741
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) 662-2927

1. Product and Company Identification

Product Name:	TANIGAN F
Material Number:	2873846
Chemical Family:	Methylene-linked condensation product of hydroxyarylsulfone and arylsulphonic acids

2. Hazards Identification

Emergency Overview

Color: Yellow **Form:** solid Powder **Odor:** Odorless.
Dust/air mixtures may be a fire and explosion hazard when exposed to high temperature or ignition sources.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure:	Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: TANIGAN F
Not expected to be irritating.

Skin
Acute Skin
For Product: TANIGAN F
Not expected to be irritating.

Eye

WWW_104(e)_018792

Acute Eye
For Product: TANIGAN F
Not expected to be irritating.

Ingestion
Acute Ingestion
For Product: TANIGAN F
Expected to be essentially non-toxic.

General Effects of Exposure
Chronic Effects of Exposure
For Product: TANIGAN F
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

Unsuitable Extinguishing Agents: carbon dioxide (CO_2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Dust may form explosive mixtures with air.

WWW_104(e)_018793

6. Accidental release measures

Spill and Leak Procedures
Remove all sources of ignition, including flames, heat, and sparks. Use explosion-proof equipment. Use grounded or non-sparking tools and equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Do not use compressed air for cleaning.

7. Handling and Storage

Storage Period
6 Months

Handling/Storage Precautions
This product may form explosible dust/air mixtures. Avoid creating dust. Remove all sources of ignition, including flames, heat, and sparks. Ground and bond containers and equipment before transferring to avoid static sparks. Use non-sparking tools and equipment. Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Store in a cool dry place. Store in original or similar containers. Minimize dust generation and accumulation. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection
Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m3 - respirable particles and 10 mg/m3 - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

Eye Protection
safety glasses with side-shields.

Skin and body protection
No special skin protection requirements during normal handling and use.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

WWW_104(e)_018794

9. Physical and chemical properties

Form:	solid
Appearance:	Powder
Color:	Yellow
Odor:	Odorless
pH:	3 - 3.5 @ 10 g/l
Melting Point:	Approximately 145 °C (293 °F)
Boiling Point/Range:	Not Applicable
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	Not Established
Solubility in Water:	Approximately 200 g/l @ 20 °C (68 °F)
Decomposition Temperature:	Begins at 245 °C (473 °F)
Viscosity, Dynamic:	not applicable
Bulk Density:	500 - 600 kg/m3

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Reducing agents

Conditions to avoid
Heat, flames and sparks. Avoid contact with moisture / water.

Hazardous decomposition products
By Fire: Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for TANIGAN F
Toxicity Note
Toxicity data is based on a similar product.

Acute Oral Toxicity
LD50: > 5,000 mg/kg (rat)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, No eye irritation

Toxicity Data for Lignosulfonic acid, sodium salt
Acute Oral Toxicity

WWW_104(e)_018795

LD50: > 40,000 mg/kg (rat)
LD50: 6,030 mg/kg (mouse)

Acute Inhalation Toxicity
LC50: > 480 mg/m3, 4 hrs (rat)

Mutagenicity

Genetic Toxicity in Vivo:
Cytogenetic assay: positive (Rat,)

Toxicity Data for Sodium Sulfate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute dermal toxicity
LD50: > 4,000 mg/kg (rabbit)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, OECD Test Guideline 405, Slightly irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
rat, male, oral, 27 or 44 weeks, daily
negative

Toxicity to Reproduction/Fertility
Fertility Screening, oral, (rabbit, female) NOAEL (F1): < 14,000 mg/kg,
Reproductive effects have been observed in animal studies.
One generation study, oral, (mouse, female) NOAEL (F2): 5000 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
mouse, female, oral, gestation, daily,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for TANIGAN F
Acute and Prolonged Toxicity to Fish
LC0: 10 - 100 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Additional Ecotoxicological Remarks
Information given is based on data on the components and the ecotoxicology of similar products.

Ecological Data for Lignosulfonic acid, sodium salt
Bioaccumulation
approximately 0.26 BCF

Acute and Prolonged Toxicity to Fish
LC50: 7300 ppm (Rainbow trout (Salmo gairdneri), 48 h)

Ecological Data for Sodium Sulfate
Chemical Oxygen Demand (COD)
< 3 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 13,500 - 14,500 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC0: 8,700 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 578 - 2,564 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 1,900 mg/l, (other: algae, 5 Days)
EC50: 2,305 - 3,313 mg/l, End Point: biomass (Water-milfoil (Myriophyllum spicatum), 32 Days)
EC50: 1,335 - 3,360 mg/l, End Point: growth (Water-milfoil (Myriophyllum spicatum), 32 Days)

Toxicity to Microorganisms
EC0: 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Non-Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

WWW_104(e)_018797

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Non-hazardous under Section 311/312

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=1%	Lignosulfonic acid, sodium salt	8061-51-6
>=1%	Trade Secret Ingredient	Specific chemical identity is withheld as a trade secret
>=1%	Trade Secret Ingredient	Specific chemical identity is withheld as a trade secret
>=1%	Sodium Sulfate	7757-82-6

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	0
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

WWW_104(e)_018798

HMIS Rating

Health	0
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(412) 777-2835
MSDS Number:	R305539
Version Date:	06/30/2004
Report Version:	1.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

WWW_104(e)_018799

19-120489

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION
LANXESS Emergency Phone: (800) 410-3063
LANXESS Information Phone: (800) LANXESS

1. Product and Company Identification

Product Name:	TANIGAN OS
Material Number:	1124610
Chemical Family:	Sulfonated condensation product
Chemical Name:	Synthetic tanning agent

2. Hazards Identification

Emergency Overview

Color: Yellow **Form:** solid Powder **Odor:** Odorless.
Dust/air mixtures may be a fire and explosion hazard when exposed to high temperature or ignition sources.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure:	Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: TANIGAN OS
Not expected to be irritating.

Skin
Acute Skin
For Product: TANIGAN OS
Not expected to be irritating.

Eye

WWW_104(e)_018800

Acute Eye
For Product: TANIGAN OS
Not expected to be irritating.

Ingestion
Acute Ingestion
For Product: TANIGAN OS
Expected to be essentially non-toxic.

General Effects of Exposure
Chronic Effects of Exposure
For Product: TANIGAN OS
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

3. Composition/Information on Ingredients

Hazardous Components
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

Unsuitable Extinguishing Agents: carbon dioxide (CO_2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Dust may form explosive mixtures with air.

WWW_104(e)_018801

6. Accidental release measures

Spill and Leak Procedures
Remove all sources of ignition, including flames, heat, and sparks. Use explosion-proof equipment. Use grounded or non-sparking tools and equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Do not use compressed air for cleaning.

7. Handling and Storage

Storage Period
Not Established

Handling/Storage Precautions
This product may form explosible dust/air mixtures. Avoid creating dust. Remove all sources of ignition, including flames, heat, and sparks. Ground and bond containers and equipment before transferring to avoid static sparks. Use non-sparking tools and equipment. Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Store in a cool dry place. Store in original or similar containers. Minimize dust generation and accumulation. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection
Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m3 - respirable particles and 10 mg/m3 - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

Eye Protection
safety glasses with side-shields.

Skin and body protection
No special skin protection requirements during normal handling and use.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

WWW_104(e)_018802

9. Physical and chemical properties

Form:	solid
Appearance:	Powder
Color:	Yellow
Odor:	Odorless
pH:	Not Applicable
Melting Point:	Approximately 280 °C (536 °F)
Boiling Point/Range:	Not Applicable
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	Not Applicable
Solubility in Water:	100 g/l @ 20 °C (68 °F)
VOC Content:	1.792 % Tested by EPA Method 24A
Viscosity, Dynamic:	not applicable
Bulk Density:	Approximately 650 kg/m3

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Reducing agents

Conditions to avoid
Heat, flames and sparks. Avoid contact with moisture / water.

Hazardous decomposition products
By Fire: Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for TANIGAN OS
Acute Oral Toxicity
LD50: > 5,000 mg/kg (rat)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, No eye irritation

Toxicity Data for Sodium Naphthalene Sulfonate
Acute Oral Toxicity
LD50: 3,800 mg/kg (Rat)

Skin Irritation

WWW_104(e)_018803

rabbit, Non-irritating

Eye Irritation
rabbit, Non-irritating

Toxicity Data for Trade Secret Ingredient
Toxicity Note
Toxicity data is based on a similar product.

Acute Oral Toxicity
LD50: > 2,000 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, No eye irritation

Toxicity Data for Formaldehyde, polymers with sulfonated 1,1'-oxybis[methylbenzene], sodium salts
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, Non-irritating

Toxicity Data for Sodium Sulfate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute dermal toxicity
LD50: > 4,000 mg/kg (rabbit)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, OECD Test Guideline 405, Slightly irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
rat, male, oral, 27 or 44 weeks, daily
negative

Toxicity to Reproduction/Fertility
Fertility Screening, oral, (rabbit, female) NOAEL (F1): < 14,000 mg/kg,
Reproductive effects have been observed in animal studies.
One generation study, oral, (mouse, female) NOAEL (F2): 5000 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
mouse, female, oral, gestation, daily,

WWW_104(e)_018804

No Teratogenic effects observed at doses tested.

Toxicity Data for Trade Secret Ingredient

Toxicity Note
Toxicity data is based on a similar product.

Acute Oral Toxicity
LD50: 2,210 mg/kg (Rat)

Acute Inhalation Toxicity
LC50: >30 mg/m3, dust/particulate, 4 h (rat)

Acute dermal toxicity
LD50: > 200 mg/kg (rabbit)

Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, Severely irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium)

Toxicity Data for Organic salt

Acute Oral Toxicity
LD50: > 2,000 mg/kg (Rat)
LD50: 30 mg/kg (mouse)

Skin Irritation
rabbit, Draize, Exposure Time: 24 hrs, Moderately irritating

Eye Irritation
rabbit, Draize, Exposure Time: 24 hrs, Moderately irritating

Sensitization
dermal: non-sensitizer (Guinea pig, Maximization Test)

Repeated Dose Toxicity
90 - 365 Days, oral: NOAEL: 250 mg/kg, (Dog)
There were no adverse effects seen at highest dose tested.

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:

Positive and negative results were seen in various in vitro and in vivo studies.

12. Ecological Information

Ecological Data for TANIGAN OS

Biodegradation

WWW_104(e)_018805

15 %, Exposure time: 30 Days

Biological Oxygen Demand (BOD)
0 mg/g

Chemical Oxygen Demand (COD)
1,200 mg/g

Acute and Prolonged Toxicity to Fish
LC0: > 10 - 100 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Toxicity to Microorganisms
Respiration inhibition, EC50: > 100 mg/l, (Activated sludge microorganisms)

Ecological Data for Trade Secret Ingredient
Biodegradation
10 - 25 %, Exposure time: 28 d, Not readily biodegradable.

Biological Oxygen Demand (BOD)
261 mg/g

Chemical Oxygen Demand (COD)
1,450 mg/g

Acute and Prolonged Toxicity to Fish
LC50: > 1 - 10 mg/l (Zebra fish (Brachydanio rerio), 96 h)

Toxicity to Microorganisms
EC50: > 1,000 mg/l, (Wastewater bacteria)

Ecological Data for Sodium Sulfate
Chemical Oxygen Demand (COD)
< 3 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 13,500 - 14,500 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC0: 8,700 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 578 - 2,564 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 1,900 mg/l, (other: algae, 5 Days)
EC50: 2,305 - 3,313 mg/l, End Point: biomass (Water-milfoil (Myriophyllum spicatum), 32 Days)
EC50: 1,335 - 3,360 mg/l, End Point: growth (Water-milfoil (Myriophyllum spicatum), 32 Days)

Toxicity to Microorganisms
EC0: 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

Ecological Data for Trade Secret Ingredient
Biodegradation
> 95 %, Readily biodegradable.

Acute and Prolonged Toxicity to Fish
LC50: 150 - 220 mg/l (Golden orfe (Leuciscus idus), 96 h)

Acute Toxicity to Aquatic Invertebrates

WWW_104(e)_018806

EC50: 88.4 mg/l (Water flea (Daphnia magna), 48 h)

Toxicity to Aquatic Plants
EC50: 35 mg/l, (Green algae (Scenedesmus subspicatus), 96 h)

Toxicity to Microorganisms
EC50: 91 mg/l, (Pseudomonas putida)

Ecological Data for Organic salt
Biodegradation
Aerobic, 10 %, Exposure time: 28 Days
Under test conditions no biodegradation observed.
Aerobic, < 20 %, Exposure time: 28 Days
Inherently biodegradable.

Chemical Oxygen Demand (COD)
550 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 59.8 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC50: 1,030 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 610 mg/l (Water flea (Daphnia magna), 24 hrs)
EC50: 930 mg/l (Water flea (Daphnia magna), 24 hrs)

Toxicity to Aquatic Plants
EC50: > 100 mg/l, End Point: other (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms
EC10: > 1,000 mg/l, (Other bacteria, 30 min)
EC10: 663 mg/l, (Other bacteria, 48 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

WWW_104(e)_018807

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Non-Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Non-hazardous under Section 311/312

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=1%	Sodium Naphthalene Sulfonate	9084-06-4
>=1%	Trade Secret Ingredient	CAS# is a trade secret
>=1%	Formaldehyde, polymers with sulfonated 1,1'-oxybis[methylbenzene], sodium salts	73378-66-2
>=1%	Sodium Sulfate	7757-82-6
>=1%	Trade Secret Ingredient	CAS# is a trade secret

California Prop. 65:
Warning! This product contains chemical(s) known to the State of California to be Carcinogenic.

Weight %	Components	CAS-No.
0.1 - 1%	o-Phenylphenol	90-43-7

WWW_104(e)_018808

16. Other Information

NFPA 704M Rating

Health	0
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	0
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	R304655
Version Date:	03/09/2006
Report Version:	3.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

WWW_104(e)_018809

Version 11-17-04

19-120662

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) LANXESS

1. Product and Company Identification

Product Name:	TANIGAN PR
Material Number:	1126605
Chemical Family:	Methylene linked condensation product of arylsulfonic acids

2. Hazards Identification

Emergency Overview

Color: Brown **Form:** solid Powder **Odor:** Odorless.
Dust/air mixtures may be a fire and explosion hazard when exposed to high temperature or ignition sources.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure:	Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: TANIGAN PR
Not expected to be irritating.

Skin
Acute Skin
For Product: TANIGAN PR
Not expected to be irritating.

Eye
Acute Eye

WWW_104(e)_018810

For Product: TANIGAN PR
Not expected to be irritating.

Ingestion
Acute Ingestion
For Product: TANIGAN PR
Expected to be essentially non-toxic.

General Effects of Exposure
Chronic Effects of Exposure
For Product: TANIGAN PR
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

Unsuitable Extinguishing Agents: carbon dioxide (CO_2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Dust may form explosive mixtures with air.

WWW_104(e)_018811

6. Accidental release measures

Spill and Leak Procedures
Remove all sources of ignition, including flames, heat, and sparks. Use explosion-proof equipment. Use grounded or non-sparking tools and equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Do not use compressed air for cleaning.

7. Handling and Storage

Storage Period
24 Months

Handling/Storage Precautions
This product may form explosible dust/air mixtures. Avoid creating dust. Remove all sources of ignition, including flames, heat, and sparks. Ground and bond containers and equipment before transferring to avoid static sparks. Use non-sparking tools and equipment. Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Store in a cool dry place. Store in original or similar containers. Minimize dust generation and accumulation. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection
Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m3 - respirable particles and 10 mg/m3 - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

Eye Protection
safety glasses with side-shields.

Skin and body protection
No special skin protection requirements during normal handling and use.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

WWW_104(e)_018812

Form:	solid
Appearance:	Powder
Color:	Brown
Odor:	Odorless
pH:	7 @ 100 g/l
Melting Point:	Not Applicable
Boiling Point/Range:	Not Applicable
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	Not Established
Solubility in Water:	100 g/l @ 20 °C (68 °F)
Decomposition Temperature:	Approximately 230 °C (446 °F)
Viscosity, Dynamic:	not applicable
Bulk Density:	660 kg/m3

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Reducing agents

Conditions to avoid
Heat, flames and sparks. Avoid contact with moisture / water.

Hazardous decomposition products
By Fire: Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for TANIGAN PR
Acute Oral Toxicity
LD50: > 5,000 mg/kg (rat)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, No eye irritation

Toxicity Data for Sodium Naphthalene Sulfonate
Acute Oral Toxicity
LD50: 3,800 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation

WWW_104(e)_018813

rabbit, Non-irritating

Toxicity Data for Sodium Sulfate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute dermal toxicity
LD50: > 4,000 mg/kg (rabbit)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, OECD Test Guideline 405, Slightly irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
rat, male, oral, 27 or 44 weeks, daily
negative

Toxicity to Reproduction/Fertility
Fertility Screening, oral, (rabbit, female) NOAEL (F1): < 14,000 mg/kg,
Reproductive effects have been observed in animal studies.
One generation study, oral, (mouse, female) NOAEL (F2): 5000 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
mouse, female, oral, gestation, daily,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for TANIGAN PR
Biodegradation
< 10 %,
Zahn-Wellens Test, 72 %, Exposure time: 28 Days

Biological Oxygen Demand (BOD)
0 mg/g

Chemical Oxygen Demand (COD)
1,400 mg/g

Acute and Prolonged Toxicity to Fish
LC0: 100 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Toxicity to Microorganisms
EC0: 1,000 mg/l, (Wastewater bacteria)

Ecological Data for Sodium Sulfate
Chemical Oxygen Demand (COD)

WWW_104(e)_018814

< 3 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 13,500 - 14,500 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC0: 8,700 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 578 - 2,564 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 1,900 mg/l, (other: algae, 5 Days)
EC50: 2,305 - 3,313 mg/l, End Point: biomass (Water-milfoil (Myriophyllum spicatum), 32 Days)
EC50: 1,335 - 3,360 mg/l, End Point: growth (Water-milfoil (Myriophyllum spicatum), 32 Days)

Toxicity to Microorganisms
EC0: 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Non-Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

WWW_104(e)_018815

SARA Section 311/312 Hazard Categories:
Non-hazardous under Section 311/312

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=1%	Sodium Naphthalene Sulfonate	9084-06-4
>=1%	Sodium Sulfate	7757-82-6
>=1%	Water	7732-18-5

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	0
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	0
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

WWW_104(e)_018816

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	R304695
Version Date:	11/17/2004
Report Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

WWW_104(e)_018817

Version 11-17-04

19-120662

MATERIAL SAFETY DATA SHEET

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) LANXESS

1. Product and Company Identification

Product Name:	TANIGAN PR
Material Number:	1126605
Chemical Family:	Methylene linked condensation product of arylsulfonic acids

2. Hazards Identification

Emergency Overview

Color: Brown **Form:** solid Powder **Odor:** Odorless.
Dust/air mixtures may be a fire and explosion hazard when exposed to high temperature or ignition sources.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure:	Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: TANIGAN PR
Not expected to be irritating.

Skin
Acute Skin
For Product: TANIGAN PR
Not expected to be irritating.

Eye
Acute Eye

WWW_104(e)_018818

For Product: TANIGAN PR
Not expected to be irritating.

Ingestion
Acute Ingestion
For Product: TANIGAN PR
Expected to be essentially non-toxic.

General Effects of Exposure
Chronic Effects of Exposure
For Product: TANIGAN PR
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

Unsuitable Extinguishing Agents: carbon dioxide (CO_2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Dust may form explosive mixtures with air.

WWW_104(e)_018819

6. Accidental release measures

Spill and Leak Procedures
Remove all sources of ignition, including flames, heat, and sparks. Use explosion-proof equipment. Use grounded or non-sparking tools and equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Ensure vacuum cleaners are approved for explosible dusts. Do not use compressed air for cleaning.

7. Handling and Storage

Storage Period
24 Months

Handling/Storage Precautions
This product may form explosible dust/air mixtures. Avoid creating dust. Remove all sources of ignition, including flames, heat, and sparks. Ground and bond containers and equipment before transferring to avoid static sparks. Use non-sparking tools and equipment. Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Store in a cool dry place. Store in original or similar containers. Minimize dust generation and accumulation. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

8. Exposure Controls / Personal Protection

Country specific exposure limits have not been established or are not applicable

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection
Although no exposure limit has been established for this product, the OSHA PEL for Particulates Not Otherwise Regulated (PNOR) of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction is recommended. In addition, the ACGIH recommends 3 mg/m3 - respirable particles and 10 mg/m3 - inhalable particles for Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS)., The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

Eye Protection
safety glasses with side-shields.

Skin and body protection
No special skin protection requirements during normal handling and use.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

WWW_104(e)_018820

Form:	solid
Appearance:	Powder
Color:	Brown
Odor:	Odorless
pH:	7 @ 100 g/l
Melting Point:	Not Applicable
Boiling Point/Range:	Not Applicable
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	Not Established
Solubility in Water:	100 g/l @ 20 °C (68 °F)
Decomposition Temperature:	Approximately 230 °C (446 °F)
Viscosity, Dynamic:	not applicable
Bulk Density:	660 kg/m3

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Reducing agents

Conditions to avoid
Heat, flames and sparks. Avoid contact with moisture / water.

Hazardous decomposition products
By Fire: Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for TANIGAN PR
Acute Oral Toxicity
LD50: > 5,000 mg/kg (rat)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, No eye irritation

Toxicity Data for Sodium Naphthalene Sulfonate
Acute Oral Toxicity
LD50: 3,800 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation

WWW_104(e)_018821

rabbit, Non-irritating

Toxicity Data for Sodium Sulfate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute dermal toxicity
LD50: > 4,000 mg/kg (rabbit)

Skin Irritation
rabbit, No skin irritation

Eye Irritation
rabbit, OECD Test Guideline 405, Slightly irritating

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
rat, male, oral, 27 or 44 weeks, daily
negative

Toxicity to Reproduction/Fertility
Fertility Screening, oral, (rabbit, female) NOAEL (F1): < 14,000 mg/kg,
Reproductive effects have been observed in animal studies.
One generation study, oral, (mouse, female) NOAEL (F2): 5000 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
mouse, female, oral, gestation, daily,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for TANIGAN PR
Biodegradation
< 10 %,
Zahn-Wellens Test, 72 %, Exposure time: 28 Days

Biological Oxygen Demand (BOD)
0 mg/g

Chemical Oxygen Demand (COD)
1,400 mg/g

Acute and Prolonged Toxicity to Fish
LC0: 100 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Toxicity to Microorganisms
EC0: 1,000 mg/l, (Wastewater bacteria)

Ecological Data for Sodium Sulfate
Chemical Oxygen Demand (COD)

WWW_104(e)_018822

< 3 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 13,500 - 14,500 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC0: 8,700 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 578 - 2,564 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 1,900 mg/l, (other: algae, 5 Days)
EC50: 2,305 - 3,313 mg/l, End Point: biomass (Water-milfoil (Myriophyllum spicatum), 32 Days)
EC50: 1,335 - 3,360 mg/l, End Point: growth (Water-milfoil (Myriophyllum spicatum), 32 Days)

Toxicity to Microorganisms
EC0: 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Non-Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

WWW_104(e)_018823

SARA Section 311/312 Hazard Categories:
Non-hazardous under Section 311/312

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=1%	Sodium Naphthalene Sulfonate	9084-06-4
>=1%	Sodium Sulfate	7757-82-6
>=1%	Water	7732-18-5

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	0
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	0
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	R304695
Version Date:	11/17/2004
Report Version:	2.0

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Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

WWW_104(e)_018825

Exp January

Specialty Products

Bayer

Safety Data Sheet

956701/00

Date of issue: June 26, 2001

VOC's n/a

1. Identification of the substance/preparation and the company

Tanigan SR

Bayer AG, SP-KT QUS Produktsicherheit
D-51368 Leverkusen, Telephone: (0214) 3071681
In case of emergency: (0214) 303030 (Werkfeuerwehr Bayer Leverkusen)

2. Composition/information on ingredients

Preparation based on of arylsulphonic acids, sodium salts ; sodium sulfite

contains :
sodiumbisulfite (sodium metabisulfite)
CAS No.: 7681-57-4
EINECS No.: 231-673-0
weight % : 20-40

3. Hazards identification

Harmful if swallowed. Contact with acids liberates toxic gas. Irritating to respiratory system. Risk of serious damage to eyes.

4. First-aid measures

FOLLOWING SKIN CONTACT:
After contact with skin, wash immediately with plenty of water and soap.

FOLLOWING EYE CONTACT:
After eye contact rinse with plenty of water immediately. Consult an eye specialist.

UPON SWALLOWING:
In case of swallowing drink plenty of water. Seek medical advice immediately.

5. Fire-fighting measures

Extinguishing media: water

Further information: In case of fire SOx may develop.

6. Accidental release measures

If larger product quantities are released it may not be allowed to enter into sewage systems, biological sewage treatment plants, surface waters and/or groundwater.
Take up mechanically, fill into labelled, closable containers.
Avoid formation and deposition of dust.
To clean the floor and all objects contaminated by this material, use plenty of water.

7. Handling and storage

INFORMATION ON SAFE HANDLING:
If dust is generated ensure effective ventilation.

INFORMATION ON FIRE AND EXPLOSION PREVENTION:
No special measures required.

(to be continued)

7. Handling and storage (Continuation)

INFORMATION ON STORAGE:
Store in a cool, dry place.
For storage suitable stores with adequate product-reception volume must be used.

VCI storage class: 13

8. Exposure controls/Personal protection

Unless the product is entirely enclosed, do not handle it until you have studied the respiratory precautions issued by the appropriate authority or accident prevention association.
Recommended respiratory protection: full mask with filter ABEK-ST
Eye protection: closely fitting goggles
Hand protection: gloves of rubber
Other protective equipment: Wear protective clothing.

Wash hands before breaks and at end of work.
After contact with skin, wash immediately with plenty of water and soap.
To clean the floor and all objects contaminated by this material, use plenty of water.

9. Physical and chemical properties

Form:	powder	No VOC
Colour:	beige	
Odour:	pungent	
Density:	0,93 g/cm³ at +20 °C	
Solubility in water:	soluble	
pH value:	6 - 7 at 10 g/l water at +20 °C	

tested in accordance with

10. Stability and reactivity

Thermal decomposition: approx. 150 °C or higher

Hazardous decomposition products:
Formation of sulphur dioxide in the event of fire or during thermal decomposition.

Hazardous reactions:
Avoid contact with acids, nitrite, nitrates, sulphide and oxidizing agents.

Further information: reducing agents

11. Toxicological information

Data on sodiumbisulfite:
Acute toxicity:
LD_{50} oral, rat: 1540 mg/kg

Irritation of the skin/rabbit: non-irritant
Irritation of the eyes/rabbit: severely irritant
Irritating to respiratory system.

Contact with the product or with product containing articles may cause skin sensitization.

12. Ecological information

Data on sodiumbisulfite:
Acute fish toxicity:
LC_0 on Leuciscus idus: 147 mg/l; Duration of test: 48 h
LC_{50} on Leuciscus idus: 200 mg/l; Duration of test: 48 h
LC_{50} on Rainbow trout: > 150 mg/l; Duration of test: 96 h

Toxicity to bacteria:
EC_{50}: 56 mg/l 17 h (Pseudomonas putida)

Inhibition of activity of waste water bacteria:: >5000 mg/l

COD value: 168 mg/g

Water pollution class (WGK): 1 - slightly hazardous to water
WGK = Classification in accordance with the German Water Resources Act (VwVwS 17.05.1999)

13. Disposal considerations

May be disposed of in approved landfills provided local regulations are observed.

14. Transport information

GGVSee/IMDG Code: -- UN No.: -- MFAG: -- EmS: --
PG: -- MPO: --
GGVE/GGVS: Class -- No. -- RID/ADR: Class -- No. --
ADNR: Class -- No. -- Cat -- ICAO/IATA-DGR: not restr.
Declaration for land shipment: --
Declaration for sea shipment: --
Declaration for shipment by air: --
Other information:
Not dangerous cargo. Irritating to the eyes. Keep dry. Keep away from acids and oxidizing agents. Keep separated from foodstuffs.

15. Regulatory information

Labelling in accordance with directive 79/831/EEC (definition principle) and its amendments and adaptations:
Symbol: Xn, hazard description: harmful
R 22: Harmful if swallowed.
R 31: Contact with acids liberates toxic gas.
R 37: Irritating to respiratory system.
R 41: Risk of serious damage to eyes.
S 25: Avoid contact with eyes.
S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 39: Wear eye/face protection.

16. Other information

The instructions given here are valid only for the product as supplied, not for derivatives resulting from its use.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the

TFL USA/CANADA INC.

4214 Beechwood Drive
Greensboro, NC 27410
(910) 297-2702

24-Hour Emergency Phone: 1-800-424-9300

Effective Date: 05/19/98

TOGETHER FOR LEATHER

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Trade Name: TANNESCO® H GRANULES
Product Code: 102650
Chemical Family: Preparation Based On Phenol Sulfonic Acid Condensation Product

2. COMPOSITION / INFORMATION ON INGREDIENTS

There are no OSHA hazardous ingredients.

3. HAZARDS IDENTIFICATION

HMIS Hazard Classification:

Health:	0
Flammability:	1
Reactivity:	0
Personal Protection:	E

Route(s) of Entry: Inhalation and dermal

Acute Exposure: Not known

Eye: (Rabbits) Not an irritant

Skin Contact: (Rabbits) Not an irritant

Skin Absorption: Not evaluated

Ingestion: (Rat) LD50 > 5,000 mg/kg

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Wash with mild soap and water. If irritation occurs get medical attention. If clothing is contaminated, remove and wash before reuse.

Ingestion: If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.

Inhalation: Remove to fresh air. Get medical attention.

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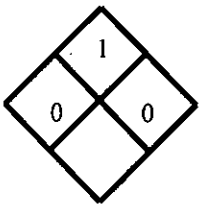
5. FIRE FIGHTING MEASURES

NFPA Hazard Classification:



Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical, foam, water.

Fire and Explosion Hazards: No unusual hazards.

Emergency Response Guidebook Information: None

Fire Fighting Instructions: Use self contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Shovel into approved disposal container. Vacuum contaminated area. Avoid creating dusty conditions.

7. HANDLING AND STORAGE

Precautions: Handle with care. Avoid ingestion, inhalation, eye and skin contact. Keep container closed. For industrial use only.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protective Equipment: Wear appropriate equipment to prevent probability of exposure and personal contact. Deluge safety shower and eye wash should be located near work area.

Eye Protection: Wear side-shield safety glasses.

Skin Protection: Wear impervious gloves as a standard handling procedure.

Respiratory Protection: In cases where there is a likelihood of inhalation exposure to the powder (dust), wear a NIOSH approved dust respirator.

Engineering Controls: Local exhaust recommended, mechanical exhaust acceptable.

Emergency Response Protection: No additional specialized equipment should be required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear granules
Odor:	Odorless

Solubility in Water:	> 100 g/l at 20 ° C (68. ° F)
Decomposition Temperature:	> 500 ° C (>932. ° F)
pH:	3 - 4 (1 g/l) water

Volatile(s): Not evaluated

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: None known.

Hazardous Decomposition Products: Burning may produce oxides of carbon, nitrogen or sulfur.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Inhalation Toxicity: Not evaluated

Toxicology Information: None

12. ECOLOGICAL INFORMATION

Biological Oxygen Demand (BOD5): 0 mg 02/g

Chemical Oxygen Demand (COD): 400 mg 02/g

Activated Sludge Respiration Inhibition Test: Inhibition @ 300 mg/l

Aquatic Toxcicity: (Trout) LC50 > 1,000 mg/l (48h)

Ecological Information: TOC: 14.5% biological elimination < 10%, toc/doc analysis, OECD 303a (mod) metal content: 7.9% Chromium

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Bury or incinerate in approved site or facility in accordance with local, state and federal regulations.

Disposal Information: Emptied container may contain product residue and should not be reused.

14. TRANSPORT INFORMATION

Reportable Quantity: Not applicable
Department of Transportation: Not regulated

15. REGULATORY INFORMATION

TSCA Inventory Status: All components are listed in TSCA inventory.

CERCLA: Contains Chromium Compound(s). For reportable quantity see (40 CFR 302.4).

RCRA: Compound per se hazardous waste under RCRA (40CFR 261.24) EP Toxicity D007 (Chromium).

Additional Information: None

SARA Title III: Section 311/312 - Hazardous Chemical(s): None

Clean Water Act (CWA): Contains Chromium.

16. OTHER INFORMATION

MSDS No:	325
Approved By:	Eric Massey
Title:	Regulatory Affairs
Approved Date:	10/19/97
Supersedes Date:	07/31/97

Disclaimer: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein. This material safety data sheet was prepared to comply with the OSHA Hazard Communication standard (29 CFR 1910.1200).

This supersedes any previous information.

19-120 673

Boehme Filatex

Material Safety Data Sheet

Protective Clothing	HCS	DOT
	Class: Irritating substance.	

Section I. Product Identification and Uses

Synonyms	Not available.	HMIS	H 2 F 1 R 0 PE B
Common/Trade name	**Tannit VGS-R**	TSCA	TSCA inventory: All components listed. TSCA 12(b) one time export: Not Listed. TSCA 12(b) annual export notification: Not Listed.
Chemical name	Not applicable.		
Chemical formula	Not applicable.		
Chemical family	Phenol-Aldehyde Condensate	DSL	CEPA DSL: Listed. CEPA NDSL: Not Listed.
Manufactured/Supplied	Boehme Filatex Inc. 209 Watlington Industrial Drive, Reidsville NC 27320-8147 336-342-6631	CAS#	Mixture.
Material uses	Not available.	Code	**FXL-0850**
Validation Date	**Validated on 8/16/2006.**	Molecular weight	Not applicable.
		Revision Number	1.0

Section IA. First Aid Measures — *Tannit VGS-R*

Eye contact	Immediately flush with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
Skin contact	Wash with soap and water. Get medical attention if irritation develops or persists.
Hazardous inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
Hazardous ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Section II. Hazardous Ingredients — *Tannit VGS-R*

Name	CAS #	% by Weight	TLV/PEL	LC_{50}/LD_{50}
1) Proprietary Condensate		45-60	Not available.	Not available.
2) Proprietary organic and inorganic salt blend		7-15	Not available.	Not available.

Section III. Physical Data — *Tannit VGS-R*

Physical state and appearance	Liquid. (Clear)	Odor	Sweet. Aromatic.
pH and Solution Conc.	4 to 5 (10% solution)	Taste	Not available.
Odor threshold	Not available.	Color	Brown.
Volatility	35 to 37% (w/w).		
Melting point	<20°C (68°F)		
Boiling point	100°C (212°F)		
Specific gravity	1.27 (Water = 1)		

Continued on Next Page

Vapor density	Not available.
Vapor pressure	Not available.
Evaporation rate	Not available.
Viscosity	Not available.
Ionicity (surface active agent)	Anionic.
Critical temperature	Not available.
Instability temperature	Not available.
Conditions of instability	Not available.
Dispersion properties	See solubility in water.
Solubility	Soluble in water.
VOC's (g/L)(EPA 24/24A)	Not determined.
HAPs or TAPs	Clean air act (CAA) 112 accidental release prevention: Not Listed. Clean air act (CAA) 112 regulated flammable substances: Not Listed. Clean air act (CAA) 112 regulated toxic substances: Not Listed.

Section IV. Fire and Explosion Data *Tannit VGS-R*

The product is:	Non-flammable.
Auto-ignition temperature	Not applicable.
Fire degradation products	Not applicable.
Flash points	Not applicable.
Flammable limits	Not applicable.
Fire extinguishing procedures	Not applicable.
Flammability	Not applicable.
Risks of explosion	Non-explosive in presence of open flames and sparks, of shocks.

Section V. Reactivity Data *Tannit VGS-R*

Stability	The product is stable.	
Freeze/Thaw Stability	Not available.	
Hazardous decomp. products	Oxides of carbon	Not available.
Degradability	Not available.	
Products of degradation	Oxides of carbon	These products are carbon oxides (CO, CO2) and water, nitrogen oxides (NO, NO2...). The product itself and its products of degradation are not toxic.
Corrosivity	Slightly corrosive in presence of steel, of aluminum, of zinc, of copper. Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316).	
Reactivity	Slightly reactive to reactive with oxidizing agents, alkalis.	

Continued on Next Page

Section VI. Toxicological Properties — Tannit VGS-R

Routes of entry	Eye contact. Inhalation. Ingestion.
TLV	Refer to Section II. Hazardous Ingredients.
Toxicity to animals	LD50: Not available. LC50: Not available.
Chronic effects on humans	**CARCINOGENIC EFFECTS**: Not available. **MUTAGENIC EFFECTS**: Not available. **TERATOGENIC EFFECTS**: Not available. **DEVELOPMENTAL TOXICITY**: Not toxic.
Acute effects on humans	Slightly hazardous in case of eye contact (irritant), of ingestion. Repeated skin exposure can produce local skin destruction or dermatitis. Over-exposure by inhalation may cause respiratory irritation.
Aquatic Toxicity (LC50)	Not available.

Section VII. Preventive Measures — Tannit VGS-R

Waste information	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	Not available.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.
Precautions	Do not ingest. Do not breathe gas/fumes/vapor/spray. If ingested, seek medical advice immediately and show the container or the label.
Small spill and leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large spill and leak	If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.
Protective clothing in case of large spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Section VIII. Classification — Tannit VGS-R

DOT	Not a DOT controlled material (United States).
	Not applicable.
	Not regulated. RQ Not available. Not available.
Maritime transportation	Not available.
HCS	Class: Irritating substance. Not available.
Federal and State Regulations	Note: California Prop. 65 requires the listing of reportable chemicals that is believed to exist in this product at any detected, or suspected, level no matter how minute.

Continued on Next Page

CERCLA: Hazardous substances.: Not Listed.

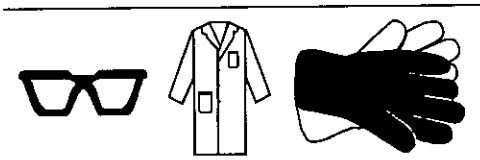
SARA 313 toxic chemical notification and release reporting: Not Listed.

Not available.

International Lists Not Listed.

Section IX. Protective Clothing *Tannit VGS-R*

Safety glasses. Lab coat. Gloves (impervious).



Section X. Other Information *Tannit VGS-R*

References Not available.

Special Test Results	Not available.	Not available.	Not available.	Not available.
	Not available.	Not available.	Not available.	Not available.

Validated by Sandy Carter on 8/16/2006.

Verified by Sandy Carter.

Printed 5/4/2007.

CHEMTREC (24 HR) 1-800-424-9300

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

19-120 674

Boehme Filatex

Material Safety Data Sheet

Protective Clothing	HCS	DOT
	Class: Irritating substance.	

Section I. Product Identification and Uses

Synonyms	Not available.	HMIS	H 1 F 1 R 0 PE B
Common/Trade name	**Tannit VWL-R**	TSCA	TSCA inventory: All components listed. TSCA 12(b) one time export: Not Listed. TSCA 12(b) annual export notification: Not Listed.
Chemical name	Not applicable.		
Chemical formula	Not applicable.		
Chemical family	Not available.	DSL	CEPA DSL: Not Listed. CEPA NDSL: Listed.
Manufactured/Supplied	Boehme Filatex Inc. 209 Watlington Industrial Drive, Reidsville NC 27320-8147 336-342-6631	CAS#	Mixture.
Material uses	Not available.	Code	**FXL-0800**
Validation Date	**Validated on 1/18/2007.**	Molecular weight	Not applicable.
		Revision Number	1.0

Section IA. First Aid Measures — *Tannit VWL-R*

Eye contact	Immediately flush with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
Skin contact	Wash with soap and water. Get medical attention if irritation develops or persists.
Hazardous inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if irritation occurs.
Hazardous ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Section II. Hazardous Ingredients — *Tannit VWL-R*

Name	CAS #	% by Weight	TLV/PEL	LC_{50}/LD_{50}
1) Proprietary Additive		10-20	Not available.	Not available.
2) Proprietary Organic Acid Salt		2-5	Not available.	Not available.
3) Proprietary mixture of condensation polymers and organic salts		20-35	Not available.	Not available.
4) Sodium EDTA	64-02-8	<2	Not available.	Not available.

Section III. Physical Data — *Tannit VWL-R*

Physical state and appearance	Liquid.	Odor	Not available.
pH and Solution Conc.	3.5-4.5 (10% solution)	Taste	Not available.
Odor threshold	Not available.	Color	Brownish-red.
Volatility	49 to 53% (w/w).		
Melting point	May start to solidify at 0°C (32°F) based on data for: Water.		
Boiling point	The lowest known value is 100°C (212°F) (Water).		

Continued on Next Page

Specific gravity	The only known value is 1 (Water = 1) (Water).
Vapor density	Not available.
Vapor pressure	Not available.
Evaporation rate	Not available.
Viscosity	Not available.
Ionicity (surface active agent)	Anionic.
Critical temperature	Not available.
Instability temperature	Not available.
Conditions of instability	Not available.
Dispersion properties	See solubility in water.
Solubility	Easily soluble in cold water, hot water.
VOC's (g/L)(EPA 24/24A)	Not available.
HAPs or TAPs	Clean air act (CAA) 112 accidental release prevention: Not Listed. Clean air act (CAA) 112 regulated flammable substances: Not Listed. Clean air act (CAA) 112 regulated toxic substances: Not Listed.

Section IV. Fire and Explosion Data — Tannit VWL-R

The product is:	May be combustible at high temperature.
Auto-ignition temperature	Not available.
Fire degradation products	Not available.
Flash points	Not available.
Flammable limits	Not available.
Fire extinguishing procedures	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Flammability	Not considered to be flammable.
Risks of explosion	Non-explosive in presence of open flames and sparks, of shocks.

Section V. Reactivity Data — Tannit VWL-R

Stability	The product is stable.	
Freeze/Thaw Stability	Not available.	
Hazardous decomp. products	Oxides of carbon	Not available.
Degradability	Not available.	
Products of degradation	Oxides of carbon Not available.	Not available.
Corrosivity	Not considered to be corrosive for metals and glass.	
Reactivity	Non-reactive with acids, alkalis.	

Continued on Next Page

Section VI. Toxicological Properties — Tannit VWL-R

Routes of entry	Eye contact. Inhalation. Ingestion.
TLV	Refer to Section II. Hazardous Ingredients.
Toxicity to animals	LD50: Not available. LC50: Not available.
Chronic effects on humans	Over-exposure by inhalation may cause respiratory irritation.
Acute effects on humans	Slightly hazardous in case of eye contact (irritant), of ingestion.
Aquatic Toxicity (LC50)	Not available.

Section VII. Preventive Measures — Tannit VWL-R

Waste information	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	Not available.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.
Precautions	Keep locked up. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible.
Small spill and leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large spill and leak	Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
Protective clothing in case of large spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Section VIII. Classification — Tannit VWL-R

DOT	Not a DOT controlled material (United States).
	Not applicable.
	Not regulated. RQ Not available. Not available.
Maritime transportation	Not available.
HCS	Class: Irritating substance. Not available.
Federal and State Regulations	Note: California Prop. 65 requires the listing of reportable chemicals that is believed to exist in this product at any detected, or suspected, level no matter how minute.

LISTED COMPONENTS EXIST ONLY IN TRACE AMOUNTS

Continued on Next Page

CERCLA: Hazardous substances.: Not Listed.

SARA 313 toxic chemical notification and release reporting: Not Listed.

Not available.

International Lists Not Listed.

Section IX. Protective Clothing *Tannit VWL-R*

Safety glasses. Gloves (impervious).

Section X. Other Information *Tannit VWL-R*

References Not available.

Special Test Results	Not available.	Not available.	Not available.	Not available.
	Not available.	Not available.	Not available.	Not available.

Validated by Sandy Carter on 1/18/2007.

Verified by Sandy Carter.

Printed 5/21/2007.

CHEMTREC (24 HR) 1-800-424-9300

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

BUCKMAN LABORATORIES, INC.

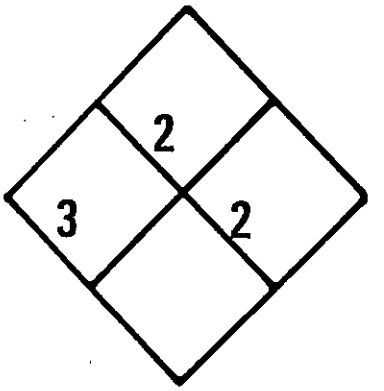
MATERIAL SAFETY DATA SHEET

Nuo

24-

TCMTB

Revision Date: 11/13/92



Phone 1-800-BUCKMAN

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

24 Hour Emergency Phone
(901) 767-2722

SECTION 1	OSHA HAZARD CLASSIFICATIONS

Toxic by ingestion. Combustible. Highly toxic by inhalation of mist. Corrosive to eyes and skin. Sensitizer.

SECTION 2	HAZARDOUS COMPONENTS

Chemical Name	CAS Number	% by Weight	TLV
2-(Thiocyanomethylthio)benzothiazole	21564-17-0	80 %	N/A

Total listed: 80 %

The remainder of the components comprise proprietary information.

SECTION 3	PRECAUTIONARY LABEL INFORMATION AS PRESCRIBED BY THE U.S. EPA

DANGER: Fatal if inhaled, harmful if swallowed or absorbed through the skin, causes eye damage and skin irritation. This product may cause allergic skin reactions. Workmen handling the product should wear rubber gloves and goggles and should avoid contact of the product with clothing or skin.

STATEMENT OF PRACTICAL TREATMENT: Ingestion: DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of internal ingestion of the product seek medical assistance immediately; take individual to nearest medical facility. In case of skin contact, wash promptly and thoroughly with an abrasive soap and cool water and finally with glycerin. In case of persistent irritation of the skin, obtain medical attention. If product gets in the eyes, it causes eye damage. Flood eyes immediately and thoroughly with cool water for 15 to 30 minutes. See a physician if any irritation persists. If inhaled remove person to a well ventilated place and apply artificial respiration if required. Call a physician.

ENVIRONMENTAL HAZARDS: This product is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES

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permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

SECTION 4 FIRST AID INFORMATION

Eye exposure: Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.
Skin exposure: Wash exposed area with plenty of soap and water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.
Inhalation: If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.
Ingestion: DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.
NOTE TO PHYSICIAN: No specific antidote is known. Probable mucosal damage may contraindicate the use of gastric lavage. Treat Symptoms. Medical Consultation is available 24 hours a day. Call the Buckman Center for Product Information at (901) 767-2722.

SECTION 5 PRIMARY ROUTES OF EXPOSURE

1. Effects from Acute Exposure:

Eye exposure: Severe eye irritant. Corrosive. Causes irreversible eye damage. Effects may range from moderate to severe (possible corrosion) depending on the length of exposure, solution concentration, and first aid measures.
Skin exposure: Severe dermal irritant, corrosive. These effects may be delayed for hours. Moderate to severe skin irritation depending on length of exposure, solution concentration and first aid measures. Exposure to skin may cause allergic reactions. This product has caused allergic reactions in animal studies and has been reported to cause allergic reactions in people.
Inhalation: May cause irritation or corrosion of the mucous membranes and the lungs. Exposed individuals should be monitored for respiratory distress, bronchitis or pneumonia.
Ingestion: No data is available on human ingestion. May be harmful.

2. Effects from Chronic Exposure:

In vitro mutagenicity tests were reported with both positive and negative results.
Animal tests for birth defects were negative.
Repeated exposure to skin may cause allergic reactions. This product has caused allergic reactions in animal studies.
Chronic dietary studies did not reveal any adverse effects.

SECTION 6 TOXICOLOGICAL INFORMATION

Acute effects: Inhalation toxicity was conducted with a 4 hour exposure under misting conditions. Normal use of this product under non-misting conditions should not present occupational hazards.
Acute Oral LD50: 750.0 mg/kg
Acute Dermal LD50: > 2,000.0 mg/kg
Acute Inhalation LC50: < 0.2 mg/L

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Irritant effects: Corrosive to skin and eyes. May cause irreversible eye damage.
Sensitization effects: Strong sensitizer.
Carcinogenic potential: Not listed in any of OSHA Standard, Section 1910.1200 as carcinogenic. Lifetime oncogenicity studies did not show the material to be an animal carcinogen.
Other health effects: In vitro mutagenicity tests were reported with both positive and negative results. Animal tests for birth defects were negative. Chronic dietary studies did not reveal any adverse effects. Repeated exposure to skin may cause allergic reactions. This product has caused allergic reactions in animal studies.

SECTION 7 ENVIRONMENTAL TOXICOLOGICAL INFORMATION

Acute Aquatic LC50's
48 Hr. Daphnia Magna: 0.022 mg/L
96 Hr. Bluegill sunfish: 0.008 mg/L
96 Hr. Rainbow trout: 0.021 mg/L

Avian Acute Oral LD50's
Mallard ducks: 1,310.0 mg/kg
Avian Dietary LC50's
Mallard ducks: > 5,620.0 ppm
Bobwhite quail: > 5,620.0 ppm

SECTION 8 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	dark brown liquid
Odor	pungent
Density @ 25°C	1.38 g/mL
Flash Point	172 °F (P-M CC)
Freezing Point	30 - 35°C
Boiling Point	decomp. above 300°F
Solubility	Insoluble in water. Soluble in most organic solvents.
pH	N/A
pH (100 ppm in water)	6-7
Vapor Pressure	5.5 mm Hg @ 20°C
o/w Partition Coefficient	25
Oxidizing/Reducing Properties	Neither a strong oxidizer nor a strong reducing agent.

NOTE: N/A = Not Applicable, N/T = Not Tested

SECTION 9 FIRE AND EXPLOSION INFORMATION

Flammable limits: Not applicable.
Extinguishing media: Dry chemical, alcohol foam, water fog or carbon dioxide.
Special firefighting procedures: Self contained breathing apparatus is required. Water spray may be used to cool containers.

SECTION 10 REACTIVITY INFORMATION

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Stability: stable greater than 30 days @ 50°C (122°F)
Incompatibility: Strong alkali, strong acids, strong oxidizers, mercaptans, hydrogen sulfide.
Hazardous Decomposition Products: Cyanide salts are formed when product contacts strong alkali. Thermal decomposition generates hydrogen cyanide and sulfur dioxide. Exposure to fire or flame may generate oxides of sulfur, nitrogen and/or carbon.

SECTION 11 HANDLING PRECAUTIONS

Body-protective clothing and rubber safety shoes are required.
Respiratory protection is required for work areas where misting may occur.
Rubber gloves and safety glasses or goggles required.
Eye wash fountains in the work place are strongly recommended.
When splashing can occur, a protective face shield is required.

SECTION 12 SATISFACTORY MATERIALS OF CONSTRUCTION

Tested Satisfactory Materials

This product has not been tested for Materials of Construction data. This Material Safety Data Sheet will be updated after this product is tested.

NOTE: The materials listed above have been tested with TCMTB. With respect to all other materials not listed above, user should be aware that use of such materials with TCMTB may be hazardous and result in damages to such materials and other property and personal injuries. No data concerning such materials not listed above should be implied by the user.

SECTION 13 SPILL, LEAK, AND DISPOSAL PROCEDURES

SPILL AND LEAK RESPONSE GUIDELINES

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722.

Initially minimize area effected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do

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not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 14 TRANSPORTATION AND SHIPPING INFORMATION

DOT Shipping Name: CORROSIVE LIQUID,N.O.S., (2-(Thiocyanomethylthio)benzothiazole), UN 1760

The shipping name listed above applies only to a 55 gallon drum of the product. This product may have more than one proper shipping name, depending on packaging, product properties, and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous shipping regulations that apply for that particular shipment. If any alteration of packaging, product, or mode of transportation if further intended, different shipping names and labeling may apply. If there are any questions pertaining to hazardous shipping requirements, contact the Buckman transportation department for further details.

SECTION 15 REGULATORY INFORMATION

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act):
SARA 302 Extremely Hazardous Substances List (40 CFR 300): No components of this product are listed.

SARA 312 Hazard Category: Immediate (Acute) Health Hazard and Fire Hazard.
SARA 313 Toxic Chemicals List: No Section 313 listed substances are present above de minimus levels.
CERCLA (Comprehensive Environmental Response, Compensation and Liability Act: No components of this product are listed.

RCRA (Resource Conservation and Recovery Act) Listed Hazardous Wastes: No components of this product are listed.
CWA (Clean Water Act, 40 CFR 401.15) Listed Substances: No components of this product are listed.
FDA (Food and Drug Administration): This product is approved under the following FDA (21 CFR) sections:
21 CFR 176.300

TSCA (Toxic Substances Control Act) Applicability: Registered pesticides are exempt from the requirements of TSCA. All components may not be listed on TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act): This product is a registered pesticide.
EPA Reg. No. 1448-29

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HMIS/NPCA Ratings: Health 3; Flammability 2; Reactivity 2
NFPA Ratings: Health 3; Flammability 2; Reactivity 2

STATE REGULATIONS

Various State Right to Know Acts: Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary chemicals or inerts please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Product Data Sheet is the responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazard Communication regulations.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

TCMTB

KEEP OUT OF REACH OF CHILDREN
WARNING

ACTIVE INGREDIENTS:

2-(Thiocyanomethylthio)benzothiazole 80.0%

INERT INGREDIENTS 20.0%

TOTAL 100.0%

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING: Harmful if swallowed. May be harmful or fatal if absorbed through the skin. This product may cause allergic skin reactions. Workmen handling the product should wear rubber gloves and goggles and should avoid contact of the product with clothing or skin.

STATEMENT OF PRACTICAL TREATMENT: Ingestion: DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of internal ingestion of the product seek medical assistance immediately; take individual to nearest medical facility. In case of skin contact, wash promptly and thoroughly with an abrasive soap and cool water and finally with glycerin. In case of persistent irritation of the skin, obtain medical attention. If product gets in the eyes, it causes eye damage. Flood eyes immediately and thoroughly with cool water for 15 to 30 minutes. See a physician if any irritation persists. If inhaled remove person to a well ventilated place and apply artificial respiration if required. Call a physician.

ENVIRONMENTAL HAZARDS: This product is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

STORAGE: Do not stack more than five drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at your EPA Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

This product is for FORMULATING USE ONLY. Information on the composition, toxicity, methods of formulation, limitations and restrictions, and effectiveness of the product for pesticide purposes is readily available from Buckman Laboratories, Inc.

Formulators are responsible for obtaining registrations and preparing labeling in compliance with EPA guidelines for formulations based on this product.

HMIS/NPCA RATING
Health 3 Flammability 2 Reactivity 2

Product Weight: 11.5 lbs./gal. 1.38 kg/l
NET CONTENTS MARKED ON CONTAINER

EPA Reg. No. 1448-29

Manufactured By EPA Est. No. 1448-TN-1
BUCKMAN LABORATORIES, INC.
1256 N. McLEAN BLVD., MEMPHIS, TN 38108 USA
(901) 278-0330 or 1-800-BUCKMAN

Rev. 11/13/92

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New

17-120165

731802-00 TELURA 612
MATERIAL SAFETY DATA BULLETIN

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: TELURA 612
SUPPLIER: EXXONMOBIL OIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA 22037
24 - Hour Health and Safety Emergency (call collect): 609-737-4411
24 - Hour Transportation Emergency (Primary) CHEMTREC: 800-424-9300
(Secondary) 281-834-3296
Product and Technical Information: 800-662-4525 703-846-6693
MSDS Fax on Demand: 613-228-1467, other MSDS information: 856-224-4644

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAMES AND SYNONYMS: BASE OIL AND ADDITIVES
GLOBALLY REPORTABLE MSDS INGREDIENTS:
None.
OTHER INGREDIENTS:

Substance Name	Approx. Wt%
SOLVENT DEWAXED LIGHT PARAFFINIC DISTILLATE (PETROLEUM) (64742-56-9)	100

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

This product is considered hazardous according to regulatory guidelines (See Section 15).
EMERGENCY OVERVIEW: Dark Amber Liquid. DOT ERG No. : NA
POTENTIAL HEALTH EFFECTS: On prolonged repeated contact, this material may defat the skin resulting in possible irritation and dermatitis. Low viscosity material-if swallowed may enter the lungs and cause lung damage. Excessive exposure may result in eye, skin or respiratory irritation.
For further health effects/toxicological data, see Section 11.

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.
SKIN CONTACT: Wash contact areas with soap and water. Remove and clean oil soaked clothing daily and wash affected area. (See Section 16 - Injection Injury)

INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.
INGESTION: Seek immediate medical attention. Do not induce vomiting.
NOTE TO PHYSICIANS: Material if aspirated into the lungs may cause chemical pneumonitis.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None.
COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.
Flash Point C(F): > 183(361) (ASTM D-93).
Flammable Limits (approx.% vol.in air) - LEL: NE, UEL: NE
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/releases that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National Response Center toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800) 424-9300.
PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:
LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.
WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.
ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers, water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.
PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: Avoid prolonged repeated skin contact. See Section 8 for additional personal protection advice when handling this product.
STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.
SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.
EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:
When mists/aerosols can occur, the following are recommended: 5 mg/m3 (as oil mist)- ACGIH Threshold Limit Value (TLV), 10 mg/m3 (as oil mist) - ACGIH Short Term Exposure Limit (STEL), 5 mg/m3 (as oil mist) - OSHA Permissible Exposure Limit (PEL)
VENTILATION: If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.
RESPIRATORY PROTECTION: If mists are generated, and/or when ventilation is not adequate, wear approved respirator.
EYE PROTECTION: If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.
SKIN PROTECTION: If prolonged or repeated skin contact is likely, oil impervious gloves should be worn. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.
APPEARANCE: Liquid
COLOR: Dark Amber
ODOR: Mild
ODOR THRESHOLD-ppm: NE
pH: NA
BOILING POINT C(F): > 316(600)
MELTING POINT C(F): NA
FLASH POINT C(F): > 183(361) (ASTM D-93)
FLAMMABILITY (solids): NE
AUTO FLAMMABILITY C(F): NA
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: < 0.1
VAPOR DENSITY: > 2.0
EVAPORATION RATE: NE

RELATIVE DENSITY, 15/4 C: 0.86-1
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 3.5
VISCOSITY AT 40 C, cSt: > 10.0
VISCOSITY AT 100 C, cSt: NE
POUR POINT C(F): < -6(21)
FREEZING POINT C(F): NE
VOLATILE ORGANIC COMPOUND: NE
DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only
NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES
FOR FURTHER TECHNICAL INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE

10. STABILITY AND REACTIVITY

STABILITY (THERMAL, LIGHT, ETC.): Stable.
CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
DERMAL TOXICITY (RABBITS): Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
INHALATION TOXICITY (RATS): Practically non-toxic (LC50: greater than 5 mg/l). ---Based on testing of similar products and/or the components.
EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less). ---Based on testing of similar products and/or the components.
SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3). ---Based on testing of similar products and/or the components.
OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: This product is expected to be inherently biodegradable. Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal. Available ectoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product. When released into the environment, adsorption to sediment and soil will be the predominant behavior.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity. The unused product is not formulated with substances covered by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

14. TRANSPORT INFORMATION

USA DOT: NOT REGULATED BY USA DOT.

RID/ADR: NOT REGULATED BY RID/ADR.
IMO: NOT REGULATED BY IMO.
IATA: NOT REGULATED BY IATA.
STATIC ACCUMULATOR (50 picosiemens or less): YES

15. REGULATORY INFORMATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.
EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives.
Symbol: Not applicable.
Risk Phrase(s): Not applicable.
Safety Phrase(s): S24-62.
Avoid contact with skin. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
Contains: Base Oil-unspecified.
Governmental Inventory Status: All components comply with TSCA and AICS.
U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".
SARA (311/312) REPORTABLE HAZARD CATEGORIES:
CHRONIC ACUTE
This product contains no chemicals subject to the supplier notification requirements of SARA (313) toxic release program.
The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
*** NO REPORTABLE INGREDIENTS ***		

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	16=CA P65 CARC	21=LA RTK
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	17=CA P65 REPRO	22=MI 293
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	18=CA RTK	23=MN RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	19=FL RTK	24=NJ RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	20=IL RTK	25=PA RTK
				26=RI RTK

Code key: CARC=Carcinogen; SUS=Suspected Carcinogen; REPRO=Reproductive

16. OTHER INFORMATION

USE: INDUSTRIAL OIL
NOTE: PRODUCTS OF EXXON MOBIL CORPORATION AND ITS AFFILIATED COMPANIES ARE NOT FORMULATED TO CONTAIN PCBS.
Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:
INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
Precautionary Label Text:

WARNING!
MAY CAUSE SKIN IRRITATION ON PROLONGED, REPEATED CONTACT. LOW VISCOSITY MATERIAL-IF SWALLOWED, MAY BE ASPIRATED AND CAN CAUSE SERIOUS OR FATAL LUNG DAMAGE. EXCESSIVE EXPOSURE MAY RESULT IN EYE, SKIN OR RESPIRATORY IRRITATION.
Avoid prolonged, repeated contact which may defat skin.
FIRST AID: In case of contact, wash skin with soap and water. Remove contaminated clothing. Call a physician if irritation persists. Wash or dispose of contaminated clothing. If swallowed, seek immediate medical attention. Do not induce vomiting. Only induce vomiting at the instruction of a physician.
For industrial use only. Not intended or suitable for use in or around a household or dwelling.
Refer to product Material Safety Data Sheet for further safety and health information.

****
For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: C, TRN: 731802-00, CMCS97: 97P862, REQ: PETROLEUM SPECIALTIES, SAFE USE: L
EHS Approval Date: 24MAY2002
****

****
Legally required information is given in accordance with applicable
Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending any license under valid patents. Appropiate warnings and safe handling procedures should be providedto handlers and users. Use or re-transmission of the information contained herein in any other format than the format as presented is strictly prohibited. Mobil neither represents nor warrants that the format, content or product formulas contained in this document comply with the laws of any other country except the United States of America.
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EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED: 01/24/97
SUPERSEDES DATE: 02/22/95

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
TERESSTIC 100

PRODUCT CODE
376045 - 01180

PRODUCT CATEGORY
Petroleum Lubricating Oil

PRODUCT APPEARANCE AND ODOR
Clear liquid, light orange color
Faint petroleum hydrocarbon odor

MEDICAL EMERGENCY TELEPHONE NUMBER
(713) 656-3424
TRANSPORTATION EMERGENCY TELEPHONE NUMBERS:
(BAYTOWN) (281) 834-3296 (CHEMTREC) 1-800-424-9300

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Greater than 99%
or	or	
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	
Proprietary additives	Mixture	Less than 1%

This product, as manufactured by Exxon, does not contain polychlorinated biphenyls (PCB's).
All components of this product are listed on the U.S. TSCA inventory.
See Section E for Health and Hazard Information.
See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT	BASIS
5 mg/m3 for oil mist (aerosol) for an 8-hour workday	OSHA Regulation 29 CFR 1910.1000 and recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). ACGIH states that the air is to be sampled by a method that does not collect vapor; in addition, it lists a 10 mg/m3 STEL.

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN

In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry-clean clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION

Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION

If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
244°C (471°F)
ASTM D 92, Cleveland Open Cup

AUTOIGNITION TEMPERATURE
Greater than 260°C (500°F)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

HANDLING PRECAUTIONS

Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)

Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam or carbon dioxide to extinguish the fire. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop a leak. Water spray may be used to flush spills

away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, sulfur oxides, nitrogen oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING
"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
Prolonged or repeated skin contact may cause skin irritation.

NATURE OF HAZARD AND TOXICITY INFORMATION
Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection.
In accordance with the current OSHA Hazard Communication Standard criteria, this product does not require a cancer hazard warning. This is because the product is formulated from base stocks which are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. Alternatively, it may consist of components not otherwise affected by IARC criteria, such as atmospheric distillates or synthetically derived materials, and as such is not characterized by current IARC classification criteria.
Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria.
Product contacting the eyes may cause eye irritation.
Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.
This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.
PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE
None recognized

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE
IBP Approximately 291~C (555~F)
by ASTM D 2887

SPECIFIC GRAVITY (15.6~C/15.6~C)
0.89

MOLECULAR WEIGHT
Not determined

pH
Essentially neutral

POUR, CONGEALING OR MELTING POINT
-18~C (0~F)
Pour Point by ASTM D 97

VISCOSITY
105 cSt @ 40~C

VAPOR PRESSURE
Less than 0.01 mm Hg @ 20~C

VAPOR DENSITY (AIR = 1)
Greater than 5

PERCENT VOLATILE BY VOLUME
Negligible from open container in 4 hours @ 38~C (100~F)

EVAPORATION RATE @ 1 ATM. AND 25~C (77~F) (n-BUTYL ACETATE = 1)
Less than 0.01

SOLUBILITY IN WATER @ 1 ATM. AND 25~C (77~F)
Negligible; less than 0.1%

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc., as this presents a serious explosion hazard.

H. ENVIRONMENTAL INFORMATION

CLEAN WATER ACT / OIL POLLUTION ACT
This product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface waters that cause a sheen must be reported to the National Response Center (1-800-424-8802).

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Open all windows and doors. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.
Assure conformity with applicable governmental regulations.

THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES:

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355
(SARA Sections 301-304)
No TPQ for product or any constituent greater than 1% or 0.1% (carcinogen).

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Section 313)
No toxic chemical is present greater than 1% or 0.1% (carcinogen).
HAZARDOUS CHEMICAL REPORTING, EPA REGULATION 40 CFR 370 (SARA Sections 311-312)

EPA HAZARD CLASSIFICATION CODE:	Acute Hazard	Chronic Hazard	Fire Hazard	Pressure Hazard	Reactive Hazard	Not Applicable
						XXX

I. PROTECTION AND PRECAUTIONS

VENTILATION
Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, or use of flame or other ignition sources.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS
Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.
In order to prevent fire or explosion hazards, use appropriate equipment. Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

PERSONAL HYGIENE
Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

TRANSPORTATION INCIDENT INFORMATION
For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.

U.S. DOT HAZARDOUS MATERIALS SHIPPING DESCRIPTION

Not regulated

OSHA REQUIRED LABEL INFORMATION
In compliance with hazard and right-to-know requirements, where applicable OSHA Hazard Warnings may be found on the label, bill of lading or invoice accompanying this shipment.
Note: Product label may contain non-OSHA related information also.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR LUBRICANTS TECHNICAL ASSISTANCE CALL: 1-800-443-9966

FOR FUELS TECHNICAL ASSISTANCE CALL: 713-656-4955

FOR AN MSDS OR ASSISTANCE WITH AN MSDS, DIRECT INQUIRIES TO THE ADDRESS BELOW OR CALL:
MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
ROOM 2344
P. O. BOX 2180
HOUSTON, TX 77252-2180
(713) 656-5949
IF YOU HAVE AN IMMEDIATE NEED FOR AN MSDS, DIAL 1-800-298-4007 FOR A FAXED COPY.

19-120365 new N/H

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(As Used on Label and List)* TEXOL C

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name: SALEM OIL & GREASE CO.	Emergency Telephone Number: 978-745-0585
Address *(Number, Street, City, State, and ZIP Code)*: 60 Grove St., Salem, MA 01970	Telephone Number for Information: 978-745-0585
	Date Prepared: 1/16/97
	Signature of Preparer *(optional)*

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
NONE				

HEALTH 1
FLAMMABILITY 1
REACTIVITY 0
PERSONAL PROTECTION B
345

EPA Hazard Classification Not Applicable

This product contains no toxic chemicals reportable under SARA Title III, Section 313.

Section III — Physical/Chemical Characteristics

Boiling Point	N. A.	Specific Gravity (H_2O = 1)	0.98
Vapor Pressure (mm Hg.)	N. A.	Melting Point	N. A.
Vapor Density (AIR = 1)	N. A.	Evaporation Rate (Butyl Acetate = 1)	N. A.

Solubility in Water: EMULSIFIES

Appearance and Odor: CLEAR REDDISH BROWN LIQUID WITH PLEASANT ODOR.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
Over 200°F (TCC)		N. A.	N. A.

Extinguishing Media: CO_2, Dry Chemical, Foam

Special Fire Fighting Procedures: Treat as burning oil

Unusual Fire and Explosion Hazards: N. A.

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	Spontaneous heating may occur in rags or trash soaked with this material and exposed to air.

Incompatibility (*Materials to Avoid*)
N. A.

Hazardous Decomposition or Byproducts
N. A.

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	N. A.

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? No Skin? Yes (Primary) Ingestion? Yes (Possible but not likely)

Health Hazards (*Acute and Chronic*)
None expected but avoid prolonged contact with skin to minimize possibility of skin irritation. No chronic effects known or expected.

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Signs and Symptoms of Exposure
Itchy skin

Medical Conditions Generally Aggravated by Exposure Not known but might cause slight irritation to sensitive skin.

Emergency and First Aid Procedures
Eyes: Flush with running water. Call physician if irritation occurs.
Skin: Wash with soap and water. Ingestion: Call physician.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Soak up small spills with absorbent material. Salvage in metal containers. Dike larger spills to keep out of sewers and watercourses.

Waste Disposal Method
Dispose of in accordance with all applicable local, state and federal regulations.

Precautions to Be Taken in Handling and Storing
Wear appropriate personal protective equipment.

Other Precautions
N. A.

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)
N. A.

Ventilation	Local Exhaust	Special
	N. A.	N. A.
	Mechanical (*General*) X	Other N. A.

Protective Gloves	Eye Protection
Oil Resistant	Safety Glasses

Other Protective Clothing or Equipment
N. A.

Work/Hygienic Practices Avoid prolonged or repeated contact with skin. Use normal personal hygiene and housekeeping

* U.S.G.P.O. 1986-491-529/45775

new Spray finish 01-in U

BASF Corporation

Material Safety Data Sheet

Original Date: 06/07/1994
Revision Date: 05/30/2001

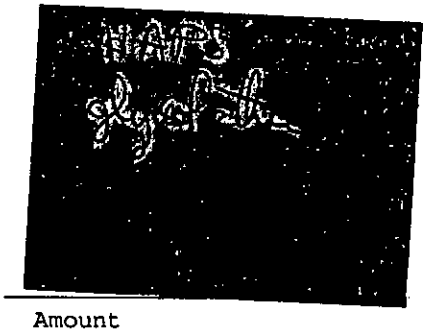
BASF CORPORATION
PERFORMANCE CHEMICALS
4330 CHESAPEAKE DRIVE
CHARLOTTE, NC 28216
(800) 556-6742

EMERGENCY TELEPHONE: (800) 424-9300 CHEMTREC
(800) 832-HELP (BASF Hotline)
BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS.

SECTION 1 - PRODUCT INFORMATION

Thinner EP

Product ID: NLE 592068
Common Chemical Name:
2-Propoxyethanol
Synonyms:
Ethylene glycol monopropyl ether
Molecular Formula:
C(5)H(12)O(3)
Product Use:
Sales Product
Chemical Family: Glycol Ethers
Molecular Wt.: 104.5



SECTION 2 - INGREDIENTS

Chemical Name:	CAS	Amount
2-Propoxyethanol	2807-30-9	100.0 %

PEL/TLV NOT ESTABLISHED
Remaining components proprietary, unknown or <1%. See section 10B.

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview
Color: Clear
Form/Appearance: Liquid
Odor: Glycol
WARNING STATEMENT:
CAUTION:
CONTACT RESULTS IN SEVERE IRRITATION OF THE EYES, SKIN AND RESPIRATORY TRACT. MAY CAUSE BURNS AND PERMANENT INJURY TO EYES ON PROLONGED CONTACT. INGESTION CAUSES SEVERE GASTRIC DISTURBANCES. ANIMAL STUDIES INDICATE THAT CONTACT WITH 2-PROPOXYETHANOL MAY RESULT IN SENSITIZATION. IN ORAL AND INHALATION STUDIES, 2-PROPOXYETHANOL CAUSED DAMAGE TO THE LIVER, KIDNEYS, SPLEEN AND RED BLOOD CELLS OF RATS.
Potential Health Effects
Primary Routes of Exposure:
Routes of entry for solids and liquids include eye and skin

SECTION 3 - HAZARDS IDENTIFICATION (cont)

contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute Overexposure Effects:

Contact with the liquid or its mists results in severe irritation of the eyes, skin and respiratory tract. Prolonged or repeated eye contact may result in brrns and permanent injury.

An animal study indicates that contact with 2-propoxyethanol may result in sensitization in some individuals.

Chronic Overexposure Effects:

In subchronic studies, 2-propoxyethanol caused damage to the liver, kidneys, spleen, and red blood cells of rats. Rats exposed to air-borne concentrations of 400 to 800 ppm for two weeks exhibited spleen and red blood cell damage. In a study involving rats exposed to vapors as high as 400 ppm, it was shown that propyl cellosolve did not cause teratogenic and reproductive effects.

There are no other known chronic effects associated with this material.

First Aid Procedures - Aggravated Medical Conditions:

No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to Section 5 (Effects of Overexposure) for effects observed in animals.

SECTION 4 - FIRST AID MEASURES

First Aid Procedures - Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. If irritation develops, get medical attention.

First Aid Procedures - Eyes:

Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.

First Aid Procedures - Ingestion:

If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

First Aid Procedures - Inhalation:

Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

First Aid Procedures - Notes to Physicians:

None known.

First Aid Procedures - Aggravated Medical Conditions:

No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to Section 5 (Effects of Overexposure) for effects observed in animals.

First Aid Procedures - Special Precautions:

None

Other First Aid Procedures:

No other first aid needed.

SECTION 5 - FIRE FIGHTING MEASURES

	Typical.	Low/High	Deg.	Method
Flash Point:	120		F	TAG CLOSED CUP
Autoignition:	455		F	NOT SPECIFIED
Flam. Limits:		1.26- 15.8	%	

Extinguishing Media:
Use water fog, foam, CO2 or dry chemical extinguishing media.

Fire Fighting Procedures:
Firefighters should be equipped with self-contained breathing apparatus and turn out gear.

Unusual Hazards:
There are no known unusual fire or explosion hazards.

Additional Fire and Explosion Data:
Use water spray to cool containers.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General:
Spills should be contained, solidified and placed in suitable containers for disposal in a RCRA licensed facility. This material is RCRA hazardous due to its properties and is regulated by CERCLA ("Superfund").

Other Spill/Leak Procedures:
No other spill procedures necessary.

SECTION 7 - STORAGE AND HANDLING

General:
None.

Other Storage and Handling Data:
No other specific storage requirements.

SECTION 8 - PERSONAL PROTECTION

Clothing:
Gloves, coveralls, apron, boots as necessary to prevent skin contact.

Eyes:
Chemical goggles; also wear a face shield if splashing hazard exists.

Respiration:
If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator or an air-supplied respirator as appropriate.

Ventilation:
Use local exhaust to control vapors/mists.

Explosion Proofing:
None required.

Other Personal Protection Data:
Eyewash fountains and safety showers must be easily accessible.

SECTION 9 - PHYSICAL PROPERTIES

Color:	Clear
Form/Appearance:	Liquid
Odor:	Glycol
Odor Intensity:	Mild

SECTION 9 - PHYSICAL PROPERTIES (cont)

	Typical	Low/High	U.O.M.
Specific Gravity:	NOT AVAILABLE		
Bulk Density:	0.9125		G/CC
pH:	NOT AVAILABLE		

	Typical	Low/High	Deg.	@	Pressure
Boiling Pt:		149.5- 153.3	C	1	ATMOSPHERES
Freezing Pt:	NOT AVAILABLE				
Decomp. Tmp:	NOT AVAILABLE				

Solubility in Water Description: Soluble

SECTION 10 - STABILITY AND REACTIVITY

Stability Data:
Stable
Incompatability:
Strong oxidizers.
Conditions/Hazards to Avoid:
None known.
Hazardous Decomposition/Polymerization:
Hazardous decomposition products: CO and CO2.
Polymerization: Does not occur.
Corrosive Properties:
Not corrosive.
Oxidizer Properties:
Not an oxidizer
Other Reactivity Data:
None known.

SECTION 11 - TOXICOLOGICAL INFORMATION

No applicable data for this section.

SECTION 12 - ECOLOGICAL INFORMATION

No applicable data for this section.

SECTION 13 - DISPOSAL CONSIDERATION

Waste Disposal:
Incinerate or bury as a solid in a RCRA-licensed facility. Do not discharge into waterways or sewer systems without proper authority.
Container Disposal:
Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing or other means to prevent unauthorized reuse. Other containers must be disposed of in a RCRA licensed facility.

SECTION 14 - TRANSPORTATION INFORMATION

DOT Proper Shipping Name:
FOR THE MOST ACCURATE AND RECENT SHIPPING INFORMATION SEE BASF B.O.L.
DOT Technical Name:

SECTION 14 - TRANSPORTATION INFORMATION (cont)

DOT Primary Hazard Class:
SEE BILL OF LADING
DOT Secondary Hazard Class:

DOT Label Required:
SEE BILL OF LADING
DOT Placard Required:

DOT Poison Constituent:

BASF Commodity Codes: UN/NA Code: E/R Guide:

SECTION 15 - REGULATORY INFORMATION

TSCA Inventory Status
Listed on Inventory: YES
SARA - 313 Listed Chemicals:
CAS: 4 AMOUNT: 100.0 %
NAME: GLYCOL ETHERS

RCRA Haz. Waste No.: D001
CERCLA: YES Reportable Qty.: (If YES)
XXXXXXX XXXXXXXXXXXXXX 1 LB
The reportable quantity shown above is for glycol ethers.
State Regulatory Information: (By Component) NJ/PA/MA RTK
CAS: 2807-30-9 YES
NAME: 2-Propoxyethanol

SECTION 16 - OTHER INFORMATION

Hazard Ratings:
BASF currently uses the National Paint & Coating Association (NPCA) rating system. The use of an asterisk (*) in the HMIS rating indicates the potential for chronic health effects.

	Health:	Fire:	Reactivity:	Special:
HMIS	3*	2	0	NA

WHILE BASF CORPORATION BELIEVES THE DATA SET FORTH HEREIN ARE ACCURATE AS THE DATE HEREOF, BASF CORPORATION MAKES NO WARRANTY WITH RESPECT THERETO AND EXPRESSINGLY DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. SUCH DATA ARE OFFERED SOLELY FOR CONSIDERATION, INVESTIGATION, AND VERIFICATION.

END OF DATA SHEET

**TITANIUM TRICHLORIDE SO
**TITANIUM TRICHLORIDE SO
**TITANIUM TRICHLORIDE SO

MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY CONTACTS:
GASTON L. PILLORI: (201) 796-7100
AFTER BUSINESS HOURS, HOLIDAYS:
(201) 796-7523
CHEMTREC ASSISTANCE:(800) 424-9300

DATE: 04/10/89
PO NBR: 15-241875
ACCT: 889490-01
INDEX: 05890801006
CAT NO: ST43500

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SUBSTANCE IDENTIFICATION

SUBSTANCE: **TITANIUM TRICHLORIDE SOLUTION, 20%**

TRADE NAMES/SYNONYMS:
ST-43; ACC40194

CHEMICAL FAMILY:
INORGANIC SALT

CERCLA RATINGS (SCALE 0-3): HEALTH=U FIRE=0 REACTIVITY=0 PERSISTENCE=3
NFPA RATINGS (SCALE 0-4): HEALTH=U FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: TITANIUM TRICHLORIDE TI-CL3 PERCENT: 20
CAS 7705-07-9

COMPONENT: WATER PERCENT: 80

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: DARK PURPLE LIQUID BOILING POINT: 212 F (100 C)

MELTING POINT: -4 F (-20 C) SPECIFIC GRAVITY: 1.24

VAPOR PRESSURE: 14 MMHG (WATER) EVAPORATION RATE: (ETHER = 1) >1

SOLUBILITY IN WATER: SOLUBLE VAPOR DENSITY: 0.7 (WATER)

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR STANDARD FOAM (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:
MOVE CONTAINERS FROM FIRE AREA IF POSSIBLE. COOL CONTAINERS EXPOSED TO FLAMES WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM STORAGE TANK ENDS (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 60).

EXTINGUISH USING AGENTS INDICATED; DO NOT USE WATER DIRECTLY ON MATERIAL. IF LARGE AMOUNTS OF COMBUSTIBLE MATERIALS ARE INVOLVED, USE WATER SPRAY OR FOG IN FLOODING AMOUNTS. USE WATER SPRAY TO ABSORB CORROSIVE VAPORS. COOL CONTAINERS WITH FLOODING AMOUNTS OF WATER FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING CORROSIVE VAPORS; KEEP UPWIND.

TOXICITY

CARCINOGEN STATUS: NONE.
TITANIUM CHLORIDE IS A SEVERE EYE, SKIN AND MUCOUS MEMBRANE IRRITANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
TITANIUM TRICHLORIDE:
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION TO MUCOUS MEMBRANES WITH SORE THROAT, COUGHING, SHORTNESS OF BREATH, AND LABOURED BREATHING.
EXPOSURE.

CHRONIC EXPOSURE- NO DATA AVAILABLE. MAY CAUSE MUCOUS MEMBRANE IRRITATION AFTER REPEATED OR PROLONGED EXPOSURE.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
TITANIUM TRICHLORIDE:
CORROSIVE.
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION AND/OR BURNS WITH REDNESS AND PAIN.
CHRONIC EXPOSURE- MAY CAUSE DERMATITIS AFTER REPEATED OR PROLONGED EXPOSURE.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). IN CASE OF CHEMICAL BURNS, COVER AREA WITH STERILE, DRY DRESSING. BANDAGE SECURELY, BUT NOT TOO TIGHTLY. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
TITANIUM TRICHLORIDE:
CORROSIVE.
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION AND/OR BURNS WITH REDNESS, PAIN, AND BLURRED VISION.
CHRONIC EXPOSURE- MAY CAUSE CONJUNCTIVITIS AFTER REPEATED OR PROLONGED EXPOSURE.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). CONTINUE IRRIGATING WITH NORMAL SALINE UNTIL THE PH HAS RETURNED TO NORMAL (30-60 MINUTES). COVER WITH STERILE BANDAGES. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
TITANIUM TRICHLORIDE:
CORROSIVE.
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION TO THE GASTROINTESTINAL TRACT WITH ABDOMINAL SPASMS, NAUSEA, VOMITING AND DIARRHEA.
CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- IF VICTIM IS CONSCIOUS, GIVE HIM LARGE QUANTITIES OF WATER IMMEDIATELY TO DILUTE THE ACID. DO NOT INDUCE VOMITING. GIVE PATIENT 1 OUNCE (30 ML) OF MILK OF MAGNESIA. GET MEDICAL ATTENTION IMMEDIATELY.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
NONE KNOWN.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC AND CORROSIVE FUMES OF CHLORIDES.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

****

CONDITIONS TO AVOID

NO REPORTS FOUND.

****

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
COVER WITH SODA ASH. SCOOP UP AND PLACE IN A SUITABLE CONTAINER.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION SYSTEM.

RESPIRATOR:
HIGH LEVELS- SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE, HELMET, OR HOOD. SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.

FIREFIGHTING- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC GROUP, INC.
CREATION DATE: 07/24/85 REVISION DATE: 10/12/88

-ADDITIONAL INFORMATION-

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RICCA CHEMICAL COMPANY
P.O. BOX 13090
ARLINGTON, TEXAS 76013
Information/Emergency Telephone
(817) 461-5601

MATERIAL SAFETY DATA SHEET

(for compliance with 29CFR 1910.1200, OSHA Hazard Communication Standard)

04-426

PRODUCT IDENTITY	RICCA CHEMICAL COMPANY CATALOG NUMBER(S)
THYMOLPHTHALEIN, 0.05% in 90% Alcohol	8450

Date Prepared/Revised	4-1-87	Information furnished applies to all sizes. N/A = Not Applicable N/D = Not Determined

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION SECTION I

Hazardous Components (CAS No.)	Concentration in Product	OSHA PEL	ACGIH TLV
Ethanol (64-17-5)	857 ml./l.	1900mg/M^3	1900mg/M^3
Methanol (67-56-1)	43 ml./l.	260mg/M^3	260mg/M^3

Remainder of composition is either water or other non-hazardous substance(s) and/or hazardous ingredient(s) below reportable hazardous level(s).

PHYSICAL AND CHEMICAL DATA SECTION II

Melting Point, °C., approx. -115
Boiling Point, °C., approx. 78
Specific Gravity, approx. 0.8
Solubility in Water Infinite
Description: Clear, colorless liquid, Ethanol odor.

FIRE AND EXPLOSION HAZARD DATA SECTION III

Flash Point, °C., approx. 21

Extinguishing Media

ABC Dry Chemical, CO_2, "Alcohol" Foam, Flood with water.

Special Fire Fighting Procedures

None

Unusual Fire and/or Explosion Hazards

Vapors form and may travel and ignite from sources distant from liquid.

REACTIVITY DATA SECTION IV

Conditions and/or Materials to Avoid Stable under normal conditions of use and storage.
Avoid: Heat, sparks and open flame.

Hazardous Decomposition or Byproducts Hazardous polymerization will not occur.

HEALTH HAZARD DATA — SECTION V

Route(s) of Entry:	Inhalation	Yes	Skin	Yes	Ingestion Yes
Carcinogenicity:	NTP	No	IARC Monographs	No	OSHA Regulated No

Health Hazards

Target Organs include: Respiratory Tract, central nervous system, Liver, Pancreas.
LD 50, Oral, Rat: Ethanol 7060mg/kg.
Methanol 5628mg/kg.

Signs and Symptoms of Exposure

Drowsiness, Loss of appetite, inability to concentrate, headache, dizziness, nausea (Minor irritation upon contact.)

Medical Conditions Generally Aggravated by Exposure

Chronic Respiratory Disease. Pre-existing Eye Problems. Pre-existing Skin Disorders.

Emergency and First Aid Procedures In all cases seek qualified evaluation.

EYE CONTACT: Irrigate immediately with large quantities of running water.
SKIN CONTACT: Water flush immediately. Remove any contaminated clothing.
INHALATION: Remove to fresh air. Give artificial respiration if necessary.
INGESTION: Dilute immediately with water or milk. Induce vomiting. Get Medical Help.

PRECAUTIONS FOR SAFE HANDLING AND USE — SECTION VI

Steps to Be Taken In Case Material is Released or Spilled

Eliminate all sources of ignition. Absorb on paper. Evaporate in hood. Burn the paper.

Waste Disposal Method

Atomize into incinerator.

Precautions to Be Taken in Handling and Storing

Store in secure, flammable storage area away from all sources of ignition.

CONTROL MEASURES — SECTION VII

Ventilation/Respiratory Protection: Normal room ventilation is adequate.

Eye Protection: Safety glasses with side shields, or goggles.

Protective Gloves: Rubber

Other Protective Clothing or Equipment: Lab Coat or Lab Apron.

Work/Hygienic Practices Wash hands after handling this or any other chemical before eating, drinking or smoking.

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard, mainly because of the relatively low volumes of this product that will be dispensed or used at a time. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.

19-120 668

First Source Worldwide, LLC
1215 Doctors Drive, Suite F
Neenah, WI 54956-4069

Ph. (920) 886-0444 Fax (920) 886-1424

MATERIAL SAFETY DATA SHEET

I. Product Identification

Trade Name:	**A-25 Anatase**
Chemical Name:	**Titanium Dioxide**
Color Index #:	**Pigment White 1**
Last Revision Date:	**10/31/04**
Preparer:	**Dale Clark - Phone -- (920) 886-0444**

II. Hazardous Components

Component	Percent	TLV/TWA	PEL
Titanium Dioxide	99%	10 MG/M3 PPM	15 MG/M3 PPM
CAS #13463-67-7			

III. Physical Data

Boiling Point:	**2500°C**	**Solub. In Water:**	**Negligible (less than 0.1%)**
Vapor Pressure:	**N/A**	**Odor:**	**None**
Vapor Density:	**N/A**	**Appearance:**	**White Powder**
% Volatiles by Vol:	**0**	**Specific Grav:**	**3.84 (H_2O=1)**
Bulk Density:	**32-34 lb/gal**	**Evap. Rate:**	**N/A**
Melting Point:	**1855°C**	**pH of Product:**	**N/D**

IV. Fire and Explosion Data

Flash Point: **N/A**

Flammable Limits: **N/A**

In Case of Fire: **Dry chemical, water spray or regular foam. Use extinguishing media appropriate for surrounding fire.**

Fire-Fighting Procedures: **Use self-contained breathing apparatus and turn out gear.**

Fire and Explosion Hazards: **In case of fire or explosion, keep unnecessary people away. Isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering.**

V. Reactivity Data

Stability: **Stable**

Conditions to avoid: **None known**

Incompatibility:	**None known**
Hazardous Decomposition Products:	**None known**
Hazardous Polymerization:	**Will not occur under normal conditions.**

VI. Health Hazard Data

Threshold Limit Value:	**10 MG/M3 PPM During use avoid contact with eyes, skin, clothing. Wash thoroughly after handling. When not in use, keep in tightly closed container.**
Hazard Warnings:	**D.O.T. non-regulated substance: This product in its present state poses no threat to human health or the environment.**

VII. Emergency and First Aid Procedures

PROCEDURES:

Eyes:	**Flush eyes with water for at least 15 minutes. If redness or irritation occurs, seek medical attention.**
Skin:	**Wash thoroughly with soap and water. If clothing is contaminated, remove and wash before reuse. If irritation occurs, seek medical attention.**
Inhalation:	**Remove to fresh air. Aid in breathing, if necessary, and get medical attention. Do not give fluids if victim is unconscious.**
Ingestion:	**If conscious, give plenty of water to drink. Get medical attention. If unconscious, do not give anything to drink. Get immediate medical attention.**

VIII. Special Protection Information

Respiratory:	**Wear a NIOSH/MSHA approved respirator or an air-supplied respirator as appropriate.**
Skin:	**Gloves, coveralls, apron, boots as necessary to prevent skin contact.**
Eyes:	**Chemical goggles.**
Ventilation:	**Use local exhaust to control to recommended P.E.L.**
Other Protection:	**Deluge safety shower and eye wash station should be located near work area.**

IX. Spill or Leak Procedures

Steps to be taken:	**Do not touch or walk through spilled material. Stop leak if you can do it without risk. Collect spilled material and place into containers for later disposal. Scrub spill area with detergent. Flush with copious amount of water.**
Waste Disposal Method:	**In accordance with local, state, federal and environmental laws and regulations.**

Container Reuse Method: **Containers should not be reused without professional cleaning and reconditioning. Observe all labeled safeguards until cleaned, reconditioned, or destroyed.**

X. Precaution Measures

29 CFR 1910.1200 and state right to know laws may designate this product as a nuisance. Please refer to section VIII of material safety data sheet for special protection instructions.

XI. Transportation Information

DOT Proper Shipping Name:	**Chemicals, N.O.S. (Non-Regulated)**
NOS Number:	**N/A**
UN/NA Code:	**N/A**
Packing Group:	**N/A**

XII. Regulatory Information

S.A.R.A.:	**313 Listed Chemicals**
	None
T.S.C.A.:	**In compliance**
O.S.H.A. Hazard Classification:	**Hazardous**

	Health	Flammability	Reactivity	Personal Protection
H.M.I.S. Classification:	1	1	0	C
N.F.P.A. Codes	-	-	-	-

XIII. State Right to Know Laws

HAZARDOUS MATERIALS

Ingredients	Weight %	State Information
Titanium Dioxide (Anatase)	>=90%	MA/NJ/PA
Aluminum Hydroxide	>=1%	MA/NJ/PA

NONHAZARDOUS MATERIALS

Ingredients	State Information
NONE	

XIV. Other Information

All information and data appearing on this M.S.D.S. are believed to be reliable and accurate. However, it is the user's responsibility to determine the safety, toxicity, and suitability for own use of the product described. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by First Source Worldwide, LLC. User assumes all risk and responsibility.

Communication of the Health and Safety Information in a Material Safety Data Sheet (MSDS) is an important part of First Source Worldwide, LLC's product safety program. We provide this information to our customers and encourage them to become familiar with the content of the MSDS and the laws pertaining to its use in the workplace. A new MSDS will be mailed to your company at the time of your re-order if the MSDS is revised.

Under the OSHA Hazard Communication Standard and some state right to know laws, certain requirements related to an MSDS must be met. Employers using this material in their operations must make the MSDS available to all employees working with or otherwise handling this product. Distributors receiving this information are obligated to convey a copy of the MSDS to their customers and affiliates.

We believe that the attached information will fulfill your requirements. Should you need additional health and safety information, please contact customer service (920) 886-0444.

**** MATERIAL SAFETY DATA SHEET ****

Toluene
23590

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Toluene
Catalog Numbers:
S80229, S80229-1, S80229-2, S80229HPLC, S80229SPEC, BPT290RS-115, BPT290RS-200, BPT290RS-28, BPT290RS-50, BW1871008, NC9475555, S802292MF, T289-4, T290 1, T290 4, T290-1, T290-4, T2901, T2904, T290J4, T290RS115, T290RS200, T290RS28, T290RS50, T290SK 1, T290SK 4, T290SK-1, T290SK-4, T290SK1, T290SK4, T290SS115, T291 4, T291-4, T2914, T2914LC, T2914LOT009, T2914LOT010, T291J4, T313 4, T313-4, T3134, T313SK 4, T313SK-4, T313SK4, T323 20, T323 4, T323-20, T323-4, T32320, T3234, T324 1, T324 20, T324 200, T324 4, T324 500, T324-1, T324-20, T324-200, T324-4, T324-500, T3241, T32420, T32420 001, T324200, T324200001, T324200LC, T32420LC, T3244, T324500 T324CU1300, T324FB115, T324FB19, T324FB200, T324FB50, T324J4, T324RB115, T324RB19, T324RB200, T324RB50, T324RS115, T324RS200, T324RS28, T324RS50, T324S 4, T324S-4, T324S4, T324SK 4, T324SK-4, T324SK4, T324SK4LC, T324SS115 T324SS200, T324SS28, T324SS50, T328S20, T330 4, T330-4, T3304
Synonyms:
Methacide, methylbenzene, methylbenzol, phenylmethane, toluol.
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
108-88-3	Benzene, methyl-	99	203-625-9

Hazard Symbols: XN F
Risk Phrases: 11 20

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW
Appearance: colourless. Flash Point: 40 deg F.
Danger! Flammable liquid. May cause skin irritation. Harmful if inhaled. This substance has caused adverse reproductive and fetal effects in animals. May cause central nervous system depression. Aspiration hazard. May be absorbed through the skin. Poison! May cause liver and kidney damage. Causes digestive and respiratory tract irritation. Harmful or fatal if swallowed. Vapor harmful. Causes eye irritation and possible transient injury.
Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects
Eye:
Causes eye irritation. May result in corneal injury. Vapors may cause eye irritation.
Skin:
May cause skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. May be absorbed through the skin.
Ingestion:
Aspiration hazard. May cause irritation of the digestive tract. May cause effects similar to those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.
Inhalation:
Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Inhalation of vapor may cause respiratory tract irritation. May cause liver and kidney damage. Vapors may cause dizziness or suffocation. Overexposure may cause dizziness, tremors, restlessness, rapid heart beat, increased blood pressure, hallucinations, acidosis, kidney failure.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. May cause cardiac sensitization and severe heart abnormalities. May cause liver and kidney damage.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.
Skin:
Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if

Irritation develops or persists.
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Possible aspiration hazard. Get medical aid immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician:
Causes cardiac sensitization to endogenous catecholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine or pseudoepinephrine.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.
Extinguishing Media:
Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. For small fires, use dry chemical, carbon dioxide, water spray or regular foam. Cool containers with flooding quantities of water until well after fire is out. For large fires, use water spray, fog or regular foam.
Autoignition Temperature: 896 deg F (480.00 deg C)
Flash Point: 40 deg F (4.44 deg C)
NFPA Rating: health-2; flammability-3; reactivity-0
Explosion Limits, Lower: 1.1
Upper: 7.1

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash thoroughly after handling. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage:
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzene, methyl-	50 ppm ; 188 mg/m3; skin - potential for cutaneous absorption	100 ppm TWA; 375 mg/m3 TWA 500 ppm IDLH	200 ppm TWA; C 300 ppm; C 300 ppm

OSHA Vacated PELs:
Benzene, methyl-:

WWW_104(e)_018877

100 ppm TWA; 375 mg/m3 TWA

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: colourless
Odor: sweetish odor - pleasant odor.
pH: Not available.
Vapor Pressure: 38.7 mm Hg @ 30C
Vapor Density: 3.1 (Air=1)
Evaporation Rate: 2.4 (Butyl acetate=1)
Viscosity: 0.59 cP @ 20C
Boiling Point: 232 deg F
Freezing/Melting Point: -139 deg F
Decomposition Temperature: Not available.
Solubility: 0.6 mg/L H2O at 68F.
Specific Gravity/Density: 0.9 (Water=1)
Molecular Formula: C6H5CH3
Molecular Weight: 92.058

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, ignition sources, excess heat..
Incompatibilities with Other Materials:
Nitrogen tetroxide, nitric acid + sulfuric acid, silver perchlorate, strong oxidizers, sodium difluoride, .
Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 108-88-3: XS5250000
LD50/LC50:
CAS# 108-88-3: Inhalation, mouse: LC50 =400 ppm/24H; Inhalation, rat: LC50 =49 gm/m3/4H; Oral, rat: LD50 = 636 mg/kg; Skin, rabbit: LD50 = 12124 mg/kg.
Carcinogenicity:
Benzene, methyl- -
ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Group 3 carcinogen
Epidemiology:
No information available.
Teratogenicity:
Specific developmental abnormalities included craniofacial effects involving the nose and tongue, musculoskeletal effects, urogenital and metabolic effects in studies on mice and rats by the inhalation and oral routes of exposure. Some evidence of fetotoxicity with reduced fetal weight and retarded skeletal development has been reported in mice and rats.
Reproductive Effects:
Effects on fertility such as abortion were reported in rabbits by inhalation. Paternal effects were noted in rats by inhalation. These effects involved the testes, sperm duct and epididymis.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
None.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Bluegill LC50=17 mg/L/24H Shrimp LC50=4.3 ppm/96H Fathead minnow LC50=38.2 mg/L/96H Sunfish (fresh water) TLm=1180 mg/L/96H

Environmental Fate:
From soil, substance evaporates and is microbially biodegraded. In water, substance volatilizes and biodegrades.
Physical/Chemical:
Photochemically produced hydroxyl radicals degrade substance.
Other:
None.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants:
None listed.
RCRA D-Series Chronic Toxicity Reference Levels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: CAS# 108-88-3: waste number U220.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: TOLUENE
Hazard Class: 3
UN Number: UN1294
Packing Group: II
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
Shipping Name: TOLUENE
Hazard Class: 3(9.2)
UN Number: UN1294
Other Information: FLASHPOINT 4 C

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 108-88-3 is listed on the TSCA Inventory.
Health & Safety Reporting List
CAS# 108-88-3: Effective Date: October 4, 1982; Sunset Date: October 4, 1992
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
CAS# 108-88-3: final RQ = 1000 pounds (454 kg)
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 108-88-3: acute, flammable.
Section 313
This material contains Benzene, methyl- (CAS# 108-88-3, 99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.
CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Benzene, methyl- can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
WARNING: This product contains Benzene, methyl-, a chemical known to the state of California to cause birth defects or other reproductive harm.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN F
Risk Phrases:

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R 11 Highly flammable.
R 20 Harmful by inhalation.
Safety Phrases:
S 16 Keep away from sources of ignition - No smoking.
S 25 Avoid contact with eyes.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)
CAS# 108-88-3: 2

Canada
CAS# 108-88-3 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B2, D2B.
CAS# 108-88-3 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits
CAS# 108-88-3:. OEL-AUSTRALIA:TWA 100 ppm (375 mg/m3);STEL 150 ppm (5 60 mg/m3). OEL-BELGIUM:TWA 100 ppm (377 mg/m3);STEL 150 ppm (565 mg/m3). OEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3. OEL-DENMARK:TWA 5 0 ppm (190 mg/m3);Skin. OEL-FINLAND:TWA 100 ppm (375 mg/m3);STEL 150 p pm;Skin. OEL-FRANCE:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3). OEL-GERMANY:TWA 100 ppm (380 mg/m3). OEL-HUNGARY:TWA 100 mg/m3;STEL 30 0 mg/m3;Skin. OEL-JAPAN:TWA 100 ppm (380 mg/m3). OEL-THE NETHERLANDS:T WA 100 ppm (375 mg/m3);Skin. OEL-THE PHILIPPINES:TWA 100 ppm (375 mg/m 3). OEL-POLAND:TWA 100 mg/m3. OEL-RUSSIA:TWA 100 ppm;STEL 50 mg/m3 L-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (400 mg/m3);Skin. OEL-SWI TZERLAND:TWA 100 ppm (380 mg/m3);STEL 500 ppm. OEL-THAILAND:TWA 200 pp m;STEL 300 ppm. OEL-TURKEY:TWA 200 ppm (750 mg/m3). OEL-UNITED KINGDOM :TWA 100 ppm (375 mg/m3);STEL 150 ppm;Skin. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 1/04/1995 Revision #26 Date: 4/28/1998

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Chemsun Inc. 5-21-86

Material Safety Data Sheet

56 Wellesley Street West
Toronto, Ontario
M5S 2S4

Section 1: Identification

Name: TOLUENE

Synonyms: Toluol, Methylbenzene

Rev. Date: 81/03/09

Cas Registry No.: 000108883

Cas Name: Toluene

Chemical Family: Aromatic Hydrocarbon

RECEIVED
DATE 12-2-85
INITIALS

Information Supplied By: Preston Lilley (215) 447-1852 And Surinder Kumar (416) 924-4111
And Phone:

Section 2: Ingredients

Material(s):

Toluene 99.9%

Section 3: Physical Data

Boiling Point: 760 mm Hg 231 °F ____ °C

Melting Point: N/A °F ____ °C

Specific Gravity: ($H_2O = 1$) 0.87

Packing Density: (When Applicable) Kg/m³ N/A

Vapor Pressure: (mm Hg at 20°C) 26 at 25°C

Vapor Density: (Air = 1) 3.2

Solubility in H_2O: (% By Vol.) Nil

% Volatiles By Vol.: 100

Evaporation Rate: (Ethyl Ether = 1) 5 x slower

pH Information: pH N/A @ ____ g/l H_2O

Octanol/Water Partition Coefficient: ____

Appearance And Odor: Colorless liquid, Pleasant sweet odor

Odor Threshold (ppm) ____

Section 4: Fire and Explosion Data (cont. on page 2)

Flash Point: 48 TCC °F ____ °C

Autoignition Temperature: 997 °F ____ °C

NFPA Classification

Health 2 Fire 3 Reactivity 0

Specific Hazard ____

Hazard Rating

Least 0, Slight 1, Moderate 2, High 3, Extreme 4

Flammable Limits In Air

Lower Explosive Level (LEL) 1.2 % Vol.

Upper Explosive Level (UEL) 7.1 % Vol.

Fire and Explosion Hazards

Flammable Liquid.

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Section 4: Fire and Explosion Data (Cont. from page 1)

Extinguishing Media	Special Fire Fighting Instructions
Water Fog. CO2. Sand/Dirt.	Wear Self-Contained Breathing Gear When Fire Fighting In Confined Spaces.

Section 5: Health Hazard Information

Exposure Limits

8 hr. time weighted permissible exposure 100 ppm. Short term exposure limit 15 min. 150 ppm. Government regulation (U.S.A.).

Routes of Exposure and Effects

Inhalation:

Dizziness, incoordination, loss of balance with excessive exposure leading to possible unconsciousness, coma and respiratory failure. Lowest published lethal concentration for rats is 4000 ppm for 4 hours. Olfactory fatigue common.

Skin:

LD50 in rabbits 14000 mg/kg. Practically non-toxic by skin absorption, moderate irritation with prolonged or repeated contact.

Eye:

Severe irritation.

Ingestion:

Moderately toxic. Pulmonary aspiration hazard if swallowed and vomiting occurs. Oral LD50 is 5.0 grams per kilogram of rat body weight.

First Aid

Inhalation:

Remove victim to fresh air. If not breathing, give artificial respiration. Obtain physician.

Skin:

Immediately remove saturated clothing. Wash with soap and water. Wash clothing before reuse.

Eye:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Obtain physician.

Ingestion:

If swallowed, do not induce vomiting. Obtain physician immediately. Do not give liquids.
Small amounts which may accidentally enter the mouth should be rinsed out until no taste of this product remains.

Section 6: Reactivity Data (cont. on page 3)

Stability	Incompatible Materials	Hazardous Decomposition Products
Stable	Incompatible with strong oxidizers	Carbon monoxide and asphyxiants.

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Section 6: Reactivity Data (Cont. from page 2)

Polymerization

Polymerization will not occur.

Section 7: Protection Information

Ventilation

Avoid breathing mist or vapors. Use only with adequate ventilation. Ventilate as needed to maintain compliance with workplace environmental exposure limit.

Personal Protective Equipment

Eye:

Splash-proof chemical safety goggles.

Gloves:

Protective impervious gloves.

Respirator:

Concentration determines protection required. NIOSH approval required on any respiratory equipment used.

Other:

Impermeable protective clothing must be worn if direct liquid contact is likely.

Section 8: Disposal Procedures

Aquatic Toxicity

Spill, Leak or Release

Flush to chemical sewer. Prevent ignition. Ventilate area.

Waste Disposal

Federal, state/provincial and local regulations cover disposal of chemical waste.

Section 9: Special Precautions

Storage and Handling Conditions

Keep from fire, sparks and flame. Keep container tightly closed. Wash thoroughly after handling. Storage per NFPA Class IB liquid. Empty containers should not be exposed to fire, sparks, or flame as residual vapors may be explosive.

Section 10: Precautionary Label (If Applicable)

Warning! Flammable. Vapor harmful. Danger! Harmful or fatal if swallowed. Keep away from heat, sparks, and open flame. Keep container closed. Use only with adequate ventilation. Avoid prolonged breathing of vapor. Avoid prolonged or repeated contact with skin. If swallowed, do not induce vomiting. Call physician immediately. Keep out of reach of children. "Hazardous when empty" (pictorial drum label).

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17100

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED 4/10/86

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
TOLUENE

PRODUCT CODE
132010 - 00650

CHEMICAL NAME
Petroleum Solvent

CAS NUMBER
108-88-3

PRODUCT APPEARANCE AND ODOR
Clear water-white liquid
Aromatic hydrocarbon odor

EMERGENCY TELEPHONE NUMBER
(713) 656-3424

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
This product can be defined as:		
Toluene	108-88-3	100%

See Section E for Health and Hazard Information

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	3	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT
100 ppm (375 mg/m3) for an 8-hour workday

BASIS
Recommended by the American Conference of Governmental Industrial Hygienists (ACGIH)

C. EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN CONTACT
In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INHALATION
If overcome by vapor, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation, administer oxygen, if available.

INGESTION
If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
7°C (45°F)

AUTOIGNITION TEMPERATURE
Greater than 538°C (1000°F)

ASTM D 56, Tag Closed Cup ASTM D 2155

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health	Flammability	Reactivity	BASIS
2	3	0	Recommended by the National Fire Protection Association

HANDLING PRECAUTIONS
Keep product away from heat, sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 1% Upper Flammable Limit 7.1%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES
Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Eighth Edition (1984):

Use dry chemical, foam or carbon dioxide. Water may be ineffective, but water should be used to keep fire-exposed containers cool. If a leak or spill has ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

NOTE: The inclusion of the phrase "water may be ineffective" is to indicate that although water can be used to cool and protect exposed material, water may not extinguish the fire unless used under favorable conditions by experienced fire fighters trained in fighting all types of flammable liquid fires.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING
"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
High vapor concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, and may have other central nervous system effects.

NATURE OF HAZARD AND TOXICITY INFORMATION
Prolonged or repeated skin contact with this product tends to remove skin oils possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant"

by OSHA criteria.

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion may cause mild to severe pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE
110.2-111.0°C (230.4-231.8°F)

SPECIFIC GRAVITY (15.6 C/15.6 C)
0.87

MOLECULAR WEIGHT
92

pH
Essentially neutral

POUR, CONGEALING OR MELTING POINT
Less than -18°C (0°F)
Pour Point by ASTM D 97

VISCOSITY
0.57 cP @ 25°C ASTM D 445

VAPOR PRESSURE
Approximately 54 mm Hg @ 25°C
ASTM D 2879

VAPOR DENSITY (AIR = 1)
Approximately 3.2

PERCENT VOLATILE BY VOLUME
100 @ 1 atm. and 25°C (77°F)

EVAPORATION RATE @ 1 ATM. AND 25 C (77 F)
(n-BUTYL ACETATE = 1)
1.8

SOLUBILITY IN WATER @ 1 ATM. AND 25 C (77 F)
Negligible; less than 0.1%

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.

H. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Shut off and eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Ventilate confined spaces. Open all windows and doors. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.
Assure conformity with applicable governmental regulations. Continue to observe precautions for volatile, flammable vapors from absorbed material.

REPORTABLE QUANTITY (RQ), EPA REGULATION 40 CFR 302
RQ for toluene (1,000 pounds): 1,000 pounds of product or 454 kg or 138 gallons.

I. PROTECTION AND PRECAUTIONS

VENTILATION
Use only with ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. Use explosion-proof equipment. No smoking or open lights.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS
Keep containers and storage containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. To prevent fire or explosion risk from static accumulation and discharge, effectively ground product transfer system in accordance with the National Fire Protection Association standard for petroleum products.

PERSONAL HYGIENE
Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION
For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

DOT IDENTIFICATION NUMBER
UN 1255

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use.

The Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR ADDITIONAL INFORMATION ON HEALTH EFFECTS CONTACT:
DIRECTOR OF INDUSTRIAL HYGIENE
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 2737
HOUSTON, TX 77252-2180
(713) 656-2443

FOR OTHER PRODUCT INFORMATION CONTACT:
MANAGER, MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 2455
HOUSTON, TX 77252-2180
(713) 656-5949

MATERIAL SAFETY DATA SHEET

Toluol

Shell

97002 (REV 1-83)

MSDS NUMBER ▶ 7,750-3

SECTION I	NAME
PRODUCT	Shell Toluene
CHEMICAL/ SYNONYMS	Toluol; Methyl Benzene
CHEMICAL FAMILY	Aromatic Hydrocarbon
SHELL CODE ▶ 83380	C.A.S. NUMBER ▶ 108-88-3

24 HOUR EMERGENCY ASSISTANCE

SHELL 713-473-9461
CHEMTREC 800-424-9300

HAZARD RATING

LEAST 0 ▶ SLIGHT 1 ▶ MODERATE 2 ▶ HIGH 3 ▶ EXTREME 4

HEALTH	2
FIRE	3
REACTIVITY	0

SECTION II INGREDIENTS

COMPOSITION	%	TOXICITY DATA
Toluene	100	Oral LD_{50} (rat) ~ 7.0 g/kg Dermal LD_{50} (rbt) = 14 g/kg Inh LC_{50} (rat) = 5,320 ppm (4 hr)
Benzene ..... 50 ppm		

SECTION III HEALTH INFORMATION

Acute Toxicity: Overexposure can lead to central nervous system depression producing such effects as headache, dizziness, nausea, and loss of consciousness.

Eye Contact: Short-term liquid or vapor contact may result in slight eye irritation. Prolonged and repeated contact may be more irritating.

Skin Contact: Prolonged and repeated liquid contact can cause defatting and drying of the skin which may result in skin irritation and dermatitis.

Inhalation: High concentrations or prolonged exposure to lower concentrations may be slightly irritating to mucous membranes.

Ingestion: Liquid ingestion may result in vomiting; aspiration (breathing) of vomitus into the lungs must be avoided as even small quantities in the lungs may result in chemical pneumonitis and pulmonary edema/hemorrhage.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

ACGIH-TLV/TWA = 100 ppm (skin)
-TLV/STEL = 150 ppm (skin)
OSHA-PEL/TWA = 200 ppm
-PEL/Ceiling = 300 ppm

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with water for 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT: Flush with water while removing contaminated clothing and shoes. Follow by washing with soap and water. Do not reuse clothing or shoes until cleaned. If irritation persists, get medical attention.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.*

*NOTE TO THE PHYSICIAN: If more than 2.0 ml per kg has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

SECTION VI PHYSICAL DATA

BOILING POINT (°F) ▶ 251	MELTING POINT (°F) ▶ --	VAPOR PRESSURE (mmHg)
SPECIFIC GRAVITY (H_2O=1) ▶ 0.87	% VOLATILE BY VOLUME ▶ 100	VAPOR DENSITY (AIR=1)
SOLUBILITY IN WATER ▶ Negligible	EVAPORATION RATE (BUTYL ACETATE=1) ▶ 2.0	

APPEARANCE AND ODOR

Colorless, mobile liquid. Aromatic, benzene-like odor.

SECTION VII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD USED	FLAMMABLE LIMITS/% VOLUME IN AIR ▶ LOWER	UPPER
40°F (TCC)	1	7

EXTINGUISHING MEDIA

Use water fog, foam, dry chemical or CO_2. Do not use a direct stream of water. Product will float and can be reignited on surface of water.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

Evacuate hazard area of unprotected personnel. Wear proper protective clothing including a NIOSH approved self-contained breathing apparatus. Cool fire-exposed containers with water.

In the case of large fires, also cool surrounding equipment and structures with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION XI SPECIAL PRECAUTIONS

WARNING. Flammable Liquid.
Keep away from heat, sparks and open flames. Keep containers tightly closed. Store away from strong oxidizing agents in a cool, dry place with adequate explosion-proof ventilation. Ground equipment to prevent accumulation of static charge. If pouring or transferring materials, containers must be bonded and grounded.

Do NOT weld, heat or drill on or near container; even emptied containers can contain explosive vapors.

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse. Properly dispose of contaminated leather articles, including shoes, that cannot be decontaminated.

SECTION XII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION ▶

[X] FLAMMABLE LIQUID	[ ] COMBUSTIBLE LIQUID	[ ] OXIDIZING MATERIAL	[ ] NON-FLAMMABLE GAS
[ ] FLAMMABLE SOLID	[ ] POISON,CLASS A	[ ] CORROSIVE MATERIAL	[ ] NOT HAZARDOUS BY D.O.T. REGULATIONS
[ ] FLAMMABLE GAS	[ ] POISON,CLASS P	[ ] IRRITATING MATERIAL	[ ] OTHER-Specify below

D.O.T. PROPER SHIPPING NAME

Toluene

OTHER REQUIREMENTS

D.O.T. ID# = UN1294. Guide Sheet 27. RQ Toluene (1000 lb). Also see Sec. XIII, Clean Water Act.

SECTION XIII OTHER REGULATORY CONTROLS

EPA,FDA,OSHA,USDA,CPSC,etc.

EPA - Clean Water Act (CWA)
This product is designated as a hazardous substance under Section 311 of the Clean Water Act. Spills entering (a) surface waters or (b) any water-courses or sewers entering/leading to surface waters MUST be reported immediately to the National Response Center, 800-424-8802. The reportable quantity for toluene is 1000 lb (137 gal).

EPA - Resource Conservation and Recovery Act (RCRA) Regulations
This product has been designated by the EPA (RCRA 40 CFR 261.33) as a hazardous waste if it is spilled, discarded or intended to be discarded as is. The EPA hazardous waste number for toluene is U220.

The information contained herein is based on data considered accurate. However,no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.
Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally,vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore,vendee assumes the risk in his use of the material.

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION
. . . AND
PASS IT ON
[PRODUCT LIABILITY LAW REQUIRES IT]

John P Lepori
Manager

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
OIL AND CHEMICAL PRODUCTS
P.O. BOX 4320
HOUSTON,TEXAS 77210

DATE PREPARED
February 10, 1982

SECTION VIII REACTIVITY

STABILITY ▶ [ ] UNSTABLE [X] STABLE

HAZARDOUS POLYMERIZATION ▶ [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID

Avoid heat, sparks, open flames and contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide and unidentified organic compounds may be formed during combustion.

SECTION IX EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

PROTECTIVE CLOTHING

Wear impervious gloves and protective clothing as required to prevent skin contact. Wear chemical goggles to prevent eye contact.

ADDITIONAL PROTECTIVE MEASURES

Use explosion-proof ventilation as required to control vapor concentrations.

SECTION X ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

WARNING. Flammable. Eliminate all ignition sources. Handling equipment must be grounded to prevent sparking.
Large spills: Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak only if safe to do so. Dike and contain. If vapor cloud forms, water fog may be used to suppress; contain run-off. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue; dispose of flush solutions as above.
Small spills: take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.

WASTE DISPOSAL

Place in a disposal facility approved under RCRA regulations for hazardous waste (See Sec. XIII). Use non-leaking containers, seal tightly and label properly.

ENVIRONMENTAL HAZARDS

This product is designated as a hazardous substance under the Clean Water Act. KEEP OUT OF SURFACE WATERS OR SEWERS ENTERING OR LEADING TO SURFACE WATERS. (See Section XIII).

MATERIAL SAFETY DATA SHEET

UNOCAL

UNOCAL CHEMICALS DIVISION
PETROCHEMICALS GROUP

21-222-E
New supplier

Product Name: TOLUENE
Product Code No: 11410

Issue Date: 3/21/89

MANUFACTURER:

UNOCAL CHEMICALS DIVISION
UNION OIL COMPANY OF CALIFORNIA
1345 N. MEACHAM
SCHAUMBURG, ILLINOIS 60196

CONTACT FOR FURTHER INFORMATION:
MSDS COORDINATOR (312) 619-2644

Transportation Emergencies:
Call CHEMTREC
(800) 424-9300 Cont. U.S.
(202) 483-7616 (Collect)
from Alaska & Hawaii
Health Emergencies:
CALL LOS ANGELES POISON
INFORMATION CENTER (24 hrs.)
1-(800)-356-3129

PRODUCT IDENTIFICATION

PRODUCT NAME: TOLUENE

SYNONYMS:
AMSCO SOLV 1410
METHACIDE
METHYL BENZENE
METHYLBENZENE
METHYLBENZOL
PHENYL METHANE
PHENYLMETHANE
TOLUOL

GENERIC NAME: VOLATILE SOLVENT

CHEMICAL FAMILY: AROMATIC HYDROCARBON

DOT PROPER SHIPPING NAME: TOLUENE

ID NUMBER: UN1294

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID

CAS NUMBER: 108-88-3

SECTION I - HAZARDOUS INGREDIENTS/EXPOSURE LIMITS

	CAS NO	LIMITS	UNITS	AGENCY	TYPE
TOLUENE	108-88-3	100.0000	PPM	ACGIH	TWA
		150.0000	PPM	ACGIH	STEL
		100.0000	PPM	OSHA	TWA
		150.0000	PPM	OSHA	STEL
		500.0000	PPM	CAL OSHA	CEIL
		200.0000	PPM	CAL OSHA	EXCUR

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:

TOLUENE CAS# 108-88-3 99-100 WT%

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EMERGENCY
Have physician call LOS ANGELES POISON INFORMATION CENTER (24 hrs.) (800) 356-3129

EYE CONTACT:

MOVE VICTIM AWAY FROM EXPOSURE TO VAPORS AND INTO FRESH AIR. IF IRRITATION OR REDNESS DEVELOPS, SEEK MEDICAL ATTENTION. FOR DIRECT CONTACT, HOLD EYELIDS APART AND FLUSH THE AFFECTED EYE(S) WITH CLEAN WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.

SKIN CONTACT:

REMOVE CONTAMINATED CLOTHING. CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER. IF IRRITATION OR REDNESS DEVELOPS AND PERSISTS, SEEK MEDICAL ATTENTION.

INHALATION (BREATHING):

IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF RESPIRATORY SYMPTOMS OR OTHER SYMPTOMS OF EXPOSURE DEVELOP, SEEK MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, ARTIFICIAL RESPIRATION SHOULD BE ADMINISTERED. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

INGESTION (SWALLOWING):

SEEK EMERGENCY MEDICAL ATTENTION. THIS MATERIAL IS SLIGHTLY TOXIC BY INGESTION AND AN ASPIRATION HAZARD. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. DO NOT GIVE ANYTHING BY MOUTH. IF VICTIM IS CONSCIOUS AND ALERT, VOMITING SHOULD BE INDUCED FOR INGESTIONS OF LARGE AMOUNTS (MORE THAN 5 OUNCES IN AN ADULT) PREFERABLY WITH SYRUP OF IPECAC UNDER DIRECTION FROM A PHYSICIAN OR POISON CENTER. IF SYRUP OF IPECAC IS NOT AVAILABLE, VOMITING CAN BE INDUCED BY GENTLY PLACING 2 FINGERS IN THE BACK OF THE THROAT. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED.

COMMENTS:

NOTE TO PHYSICIANS: EPINEPHRINE AND OTHER SYMPATHOMIMETIC DRUGS MAY POTENTIATE CARDIAC ARRHYTHMIAS IN PERSONS EXPOSED TO THIS CHEMICAL. THESE DRUGS SHOULD BE USED CAUTIOUSLY, IF AT ALL, AND ONLY WITH CARDIAC MONITORING.

SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY

EYE CONTACT:

THIS MATERIAL IS AN EYE IRRITANT. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE STINGING, TEARING, REDNESS AND SWELLING.

SKIN CONTACT:

THIS MATERIAL MAY CAUSE SKIN IRRITATION. PROLONGED OR REPEATED CONTACT MAY CAUSE REDNESS, BURNING, AND DRYING AND CRACKING OF THE SKIN. THIS PRODUCT MAY BE ABSORBED THROUGH THE SKIN. CONTACT MAY RESULT IN SKIN ABSORPTION BUT SYMPTOMS OF TOXICITY ARE NOT ANTICIPATED BY THIS ROUTE ALONE UNDER NORMAL CONDITIONS OF USE. PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

INHALATION (BREATHING):

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE IRRITATION OF THE NOSE AND THROAT. SIGNS OF NERVOUS SYSTEM DEPRESSION (E.G., HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE). RESPIRATORY SYMPTOMS ASSOCIATED WITH PRE-EXISTING LUNG DISORDERS (E.G., ASTHMA-LIKE CONDITIONS) MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY

INGESTION (SWALLOWING):

WHILE THIS MATERIAL HAS A LOW DEGREE OF TOXICITY, INGESTION OF EXCESSIVE QUANTITIES MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT. SIGNS OF NERVOUS SYSTEM DEPRESSION (E.G., HEADACHE, DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE). ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE.

COMMENTS:

THIS SUBSTANCE HAS NOT BEEN IDENTIFIED AS A CARCINOGEN OR PROBABLE CARCINOGEN BY NTP, IARC OR OSHA.
RESULTS OF TESTS IN WORKERS EXPOSED TO HIGH CONCENTRATIONS HAVE SHOWN THAT A COMPONENT OF THIS MATERIAL CAN CAUSE IRREVERSIBLE CHANGES IN THE GENETIC MATERIAL (DNA) OF A CELL. THE HUMAN HEALTH CONSEQUENCES OF THESE CHANGES IS NOT FULLY UNDERSTOOD.
INTENTIONAL MISUSE BY DELIBERATE INHALATION OF TOLUENE HAS BEEN SHOWN TO CAUSE LIVER, KIDNEY AND BRAIN DAMAGE.
PERSONS WITH PRE-EXISTING HEART DISORDERS MAY BE MORE SUSCEPTIBLE TO IRREGULAR HEARTBEATS (ARRHYTHMIAS) IF EXPOSED TO HIGH CONCENTRATIONS OF THIS MATERIAL (SEE SECTION II- NOTE TO PHYSICIANS).
REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OCCUPATIONAL OVER-EXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE (SOMETIMES REFERRED TO AS SOLVENT OR PAINTERS' SYNDROME).
INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THIS PRODUCT MAY BE HARMFUL OR FATAL.

SECTION IV - SPECIAL PROTECTION INFORMATION

VENTILATION:

IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I), ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, SYSTEMS SAFE FOR SUCH LOCATIONS MUST BE USED.

RESPIRATORY PROTECTION:

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

PROTECTIVE GLOVES:

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT, POSSIBLE IRRITATION AND ABSORPTION.

EYE PROTECTION:

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

OTHER PROTECTIVE EQUIPMENT:

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

SECTION V - REACTIVITY DATA

STABILITY:

STABLE

INCOMPATIBILITY (MATERIALS TO AVOID):

THIS PRODUCT IS INCOMPATIBLE WITH STRONG ACIDS OR BASES, OXIDIZING AGENTS AND SELECTED AMINES.

HAZARDOUS DECOMPOSITION PRODUCTS:

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR

SECTION VI - SPILL OR LEAK PROCEDURES

HIGHWAY OR RAILWAY SPILLS
Call CHEMTREC (800) 424-9300 Cont. U.S.
(Collect) (202) 483-7616 from Alaska & Hawaii

PRECAUTIONS IN CASE OF RELEASE OR SPILL:

STAY UPWIND AND AWAY FROM SPILL. KEEP ALL SOURCES OF IGNITION AWAY FROM SPILL. IF SPILL IS INDOORS, VENTILATE AREA OF SPILL. A UNIVERSAL TYPE FOAM MAY BE USED TO SUPPRESS VAPORS. KEEP OUT OF DRAINS, SEWERS OR WATERWAYS. USE SAND OR OTHER INERT MATERIAL TO DAM AND CONTAIN SPILL. DO NOT FLUSH AREA WITH WATER. FOR SMALL SPILLS, DO NOT FLUSH WITH WATER; USE ABSORBANT PADS. CONTACT FIRE AUTHORITIES AND APPROPRIATE FEDERAL, STATE OR LOCAL AGENCIES. IF SPILL IN EXCESS OF EPA REPORTABLE QUANTITY IS MADE INTO THE ENVIRONMENT, IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (PHONE NUMBER: 800-424-8802).

WASTE DISPOSAL METHOD:

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

KEEP CONTAINERS TIGHTLY CLOSED. KEEP CONTAINERS COOL, DRY, AND AWAY FROM SOURCES OF IGNITION. USE AND STORE THIS PRODUCT WITH ADEQUATE VENTILATION. AVOID INHALATION OF VAPORS AND PERSONAL CONTACT WITH THE PRODUCT. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

SECTION VIII - FIRE AND EXPLOSION HAZARD DATA

HAZARD RANKING

NFPA HAZARD CLASS			HMIS HAZARD CLASS	
HEALTH HAZARD:	2	0 = LEAST	HEALTH:	2 *
FLAMMABILITY:	3	1 = SLIGHT	FLAM:	3
REACTIVITY:	0	2 = MODERATE	REACT:	0
OTHER:	-	3 = HIGH	P.P.E.:	-
		4 = EXTREME		

LOWER EXPLOSIVE LIMIT (% VOL.)	UPPER EXPLOSIVE LIMIT (% VOL.)
1.0	7.0

FLASH POINT

45, TCC F

EXTINGUISHING MEDIA:

EXTINGUISH WITH DRY CHEMICAL, CO2 OR A UNIVERSAL TYPE FOAM.

FIRE & EXPLOSION HAZARDS:

THIS MATERIAL IS FLAMMABLE AND MAY BE IGNITED BY HEAT, SPARKS, FLAME OR STATIC ELECTRICITY. IF CONTAINER IS NOT PROPERLY COOLED, IT MAY EXPLODE IN HEAT OF A FIRE.

FIRE FIGHTING PROCEDURES:

THE USE OF A SCBA IS RECOMMENDED FOR FIRE FIGHTERS. WATER SPRAY MAY BE USEFUL IN MINIMIZING VAPORS AND COOLING CONTAINERS EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION IX - PHYSICAL DATA

APPROX. BOILING POINT	VAPOR DENSITY (AIR = 1)	VAPOR PRESSURE
231 TO 232 F	3.2	24 MM HG @ 20C

EVAPORATION RATE (N-BUTYL ACETATE = 1)	% VOLATILE	% SOLUBILITY IN WATER
1.90	100%	NEGLIGIBLE (< 5%)

SPECIFIC GRAVITY (TEMP/TEMP)	APPEARANCE	ODOR
0.871 (60F/60F)	CLEAR, LITTLE IF ANY COLOR	CHARACTERISTIC

SECTION XI - DOCUMENTARY INFORMATION

ISSUE DATE: 3/21/89 PRODUCT CODE NO. 11410

PREV. DATE: 10/12/88 PREV. PROD. CODE NO. 1410

MSDS NO: 6312 PREV. MSDS NO: 863

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information in this document is believed to be correct as of the date issued. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.

maintenance

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED: 10/27/97
SUPERSEDES DATE: 01/24/97

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
TORQUE FLUID 56

PRODUCT CODE
213997 - 01997

PRODUCT CATEGORY
Petroleum Lubricating Oil

PRODUCT APPEARANCE AND ODOR
Clear liquid, amber color
Mild, bland petroleum odor

MEDICAL EMERGENCY TELEPHONE NUMBER
(713) 656-3424

TRANSPORTATION EMERGENCY TELEPHONE NUMBERS:
(BAYTOWN) (281) 834-3296 (CHEMTREC) 1-800-424-9300

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	Greater than 89%
or	or	
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	
and	and	
Distillates (petroleum), solvent-refined light naphthenic	64741-97-5	
or	or	
Distillates (petroleum), solvent-refined heavy paraffinic	64741-88-4	
Proprietary additives	Mixture	Less than 11%

This product, as manufactured by Exxon, does not contain polychlorinated biphenyls (PCB's).

All components of this product are listed on the U.S. TSCA inventory.

See Section E for Health and Hazard Information.

See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT
5 mg/m3 for oil mist (aerosol) for an 8-hour workday

BASIS
OSHA Regulation 29 CFR 1910.1000 and recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). ACGIH states that the air is to be sampled by a method that does not collect vapor; in addition, it lists a 10 mg/m3 STEL.

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN
In case of skin contact, remove any contaminated clothing and wash skin with soap and water. Launder or dry-clean clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION
Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION
If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
193°C (380°F)
ASTM D 92, Cleveland Open Cup

AUTOIGNITION TEMPERATURE
Greater than 232°C (450°F)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health	Flammability	Reactivity	BASIS
1	1	0	Recommended by Exxon

HANDLING PRECAUTIONS
Use product with caution around heat, sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES
Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialtists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, sulfur oxides, phosphorus oxides, metal oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING
"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Do not attempt to refill or clean containers since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
Prolonged or repeated skin contact may cause skin irritation.

NATURE OF HAZARD AND TOXICITY INFORMATION
Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection.

In accordance with the current OSHA Hazard Communication Standard criteria, this product does not require a cancer hazard warning. This is because the product is formulated from base stocks which are severely hydrotreated, severely solvent extracted, and/or processed by mild hydrotreatment and extraction. Alternatively, it may consist of components not otherwise affected by IARC criteria, such as atmospheric distillates or synthetically derived materials, and as such is not characterized by current IARC classification criteria.

Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria.

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE
None recognized

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE
IBP Approximately 260°C (500°F)

VAPOR PRESSURE
Less than 0.01 mm Hg @ 20°C

SPECIFIC GRAVITY (15.6°C/15.6°C)
0.87

MOLECULAR WEIGHT
Not determined

pH
Essentially neutral

POUR, CONGEALING OR MELTING POINT
-33°C (-28°F)
Pour Point by ASTM D 97

VISCOSITY
9.0 cSt @ 100°C

VAPOR DENSITY (AIR = 1)
Greater than 5

PERCENT VOLATILE BY VOLUME
Negligible from open container in 4 hours @ 38°C (100°F)

EVAPORATION RATE @ 1 ATM. AND 25°C (77°F) (n-BUTYL ACETATE = 1)
Less than 0.01

SOLUBILITY IN WATER @ 1 ATM. AND 25°C (77°F)
Negligible; less than 0.1%

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc., as this presents a serious explosion hazard.

H. ENVIRONMENTAL INFORMATION

CLEAN WATER ACT / OIL POLLUTION ACT
This product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface waters that cause a sheen must be reported to the National Response Center (1-800-424-8802).

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Recover free product. Add sand, earth, or other suitable absorbent to spill area. Minimize skin contact. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.

Assure conformity with applicable governmental regulations.

THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES:

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355 (SARA Sections 301-304)
No TPQ for product or any constituent greater than 1% or 0.1% (carcinogen).

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Section 313)
This product contains approximately 1.3% zinc compounds.

HAZARDOUS CHEMICAL REPORTING, EPA REGULATION 40 CFR 370 (SARA Sections 311-312)
EPA Hazard Classification Code: Not Applicable

I. PROTECTION AND PRECAUTIONS

VENTILATION
Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, or use of flame or other ignition sources.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS
To prevent fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system in accordance with (THE) National Fire Protection Association PUBLICATIONS.

Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

In order to prevent fire or explosion hazards, use appropriate equipment.

Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

PERSONAL HYGIENE
Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

TRANSPORTATION INCIDENT INFORMATION
For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.

U.S. DOT HAZARDOUS MATERIALS SHIPPING DESCRIPTION
Not regulated

OSHA REQUIRED LABEL INFORMATION
In compliance with hazard and right-to-know requirements, where applicable OSHA Hazard Warnings may be found on the label, bill of lading or invoice accompanying this shipment.

Note: Product label may contain non-OSHA related information also.

The health and safety information presented herein must be used in conjunction with the pertinent standards for training, work practices and facilities design established by OSHA, NIOSH, NFPA, API, NEC, NSC, UNDERWRITERS, BUREAU OF MINES, and similar organizations.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR LUBRICANTS TECHNICAL ASSISTANCE CALL: 1-800-443-9966

FOR FUELS TECHNICAL ASSISTANCE CALL: 713-656-4955

FOR AN MSDS OR ASSISTANCE WITH AN MSDS, DIRECT INQUIRIES TO THE ADDRESS BELOW OR CALL:

MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
ROOM 2344
P. O. BOX 2180
HOUSTON, TX 77252-2180
(713) 656-5949

IF YOU HAVE AN IMMEDIATE NEED FOR AN MSDS, DIAL 1-800-298-4007 FOR A FAXED COPY.

MATERIAL SAFETY DATA SHEET

MANUFACTURER: TAYLOR TECHNOLOGIES, INC
31 LOVETON CIRCLE
SPARKS, MD 21152
TELEPHONE: 410-472-4340

1. PRODUCT IDENTIFICATION

CATALOG NO.: R-0645
PRODUCT NAME: Total Alkalinity Indicator
CHEMICAL FAMILY: Organic dye solution

2. INGREDIENTS

INGREDIENT	CAS NO.	%	NATURE OF HAZARD
3,3',5,5'-Tetrabromo-m-cresolsulfonphthalein (bromcresol green)	76-60-8	<1	Irritant
2-[[4-(Dimethylamino)-phenyl]azo]benzoic acid (methyl red)	493-52-7	<1	Irritant
Sodium carbonate	497-19-8	<1	Irritant alkali
Sodium hydroxide	1310-73-2	<1	Irritant alkali
Deionized water	7732-18-5	to 100	None

3. PHYSICAL/CHEMICAL CHARACTERISTICS

STATE: Liquid APPEARANCE: Dark green ODOR: None
BOILING PT (F): 212 pH: 8.5 SPECIFIC GRAVITY: 1
VAPOR PRESSURE (mm Hg): 17 VAPOR DENSITY (AIR=1): .6
PERCENT VOLATILE BY VOLUME: 99 SOLUBILITY IN WATER: Soluble

4. FIRE, EXPLOSION HAZARD AND REACTIVITY DATA

FLASH PT: NA METHOD: NA
FLAMMABLE LIMITS: LEL: NA UEL: NA
EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam
SPECIAL PROCEDURES: Wear self-contained (positive pressure if available) breathing apparatus and full-protective clothing
FIRE/EXPLOSION HAZARDS AND HAZARDOUS DECOMPOSITION PRODUCTS: May emit toxic fumes of carbon oxides.
NFPA CODE: Health: 0 Flammability: 0 Reactivity: 0 Specific: NA
CONDITIONS TO AVOID: Extreme heat, temperatures.

5. HEALTH HAZARD DATA

INGREDIENT: NA
TOXICITY: NA
PEL: NA TLV: NA
STEL: NE

ROUTE(S) OF ENTRY: Inhalation Ingestion X Skin X
TARGET ORGAN(S): Eyes, skin
CARCINOGENICITY: NTP No IARC No OSHA No
HEALTH HAZARDS AND SYMPTOMS OF EXPOSURE:
EYES: Irritant
SKIN: Irritant. Contact may cause staining.
INGESTION: Irritant. May cause gastrointestinal irritation.
INHALATION: NA
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Eye and skin conditions

6. PRECAUTIONARY MEASURES
PROTECTIVE EQUIPMENT: General purpose gloves, safety glasses, lab coat
HANDLING: Avoid contact with eyes, skin, and clothing. Avoid breathing chemical. Wash thoroughly after handling.
STORAGE: Cool, dry area. Avoid direct sunlight.

7. EMERGENCY AND FIRST AID PROCEDURES
EYE AND SKIN CONTACT: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin thoroughly with soap and water.
INGESTION: Give large amounts of water. Call physician. Induce vomiting under direction of physician.
INHALATION: NA

8. SPILL AND DISPOSAL PROCEDURES
SPILL OR RELEASE: Absorb with vermiculite or other inert material. Containerize for later disposal.
DISPOSAL: Incineration or other method to comply with all local, state, and federal regulations.

NA = Not applicable
ND = Not determined
NE = Not established

This Material Safety Data Sheet has been prepared in accordance with 29 CFR Part 1910.1200 and contains information believed to be accurate and complete at the date of preparation. However, no warranty is expressed or implied. Advice given under "Spill and Disposal Procedures" assumes compliance with federal, state, and local regulations regarding the disposal of hazardous waste.

DATE PREPARED: May 1996

Lab Only

M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 23 MAY 83 PRODUCT CODE: 16822

PRODUCT NAME: CHLOROTHENE VG (R) SOLVENT MSD: 0110

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
1,1,1-TRICHLOROETHANE (NOMINAL)	96.4

SECTION 1 PHYSICAL DATA

BOILING POINT: 165F (74C) : SOL. IN WATER: 0.07G/100G @ 25C
VAP PRESS: 100 MMHG @ 20C : SP. GRAVITY: 1.320 @ 25/25C
VAP DENSITY (AIR=1): 4.55 : % VOLATILE BY VOL: 100 (ESSEN.)
APPEARANCE AND ORDER: COLORLESS LIQUID, IRRITATING ODOR AT HIGH CONCENTRATIONS.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NONE : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: TOC, TCC, COC : LFL: 7.5% @ 25C UFL: 15% @ 25C
EXTINGUISHING MEDIA: WATER FOG.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF-CONTAINED, POSITIVE PRESSURE, RESPIRATORY EQUIPMENT.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMBATIBILITY: WATER - LONG TERM CONTACT CAN DEPLETE STABILIZERS FOLLOWED BY SLOW HYDROLYSIS PRODUCING CORROSIVE ACID. AVOID PROLONGED CONTACT WITH, OR STORAGE IN, ALUMINUM OR ITS ALLOYS. METALLIC ALUMINUM AND ZINC POWDERS SHOULD BE AVOIDED.
HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL,LEAK,AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS: SMALL LEAKS: MOP UP, WIPE UP OR SOAK UP IMMEDIATELY. REMOVE TO OUT-OF-DOORS.
LARGE SPILLS: EVACUATE AREA. CONTAIN LIQUID; TRANSFER TO CLOSED METAL CONTAINERS. KEEP OUT OF WATER SUPPLIES.
DISPOSAL METHOD: (IN ORDER OF PREFERENCE) SEND SOLVENT TO LICENSED RECLAIMER,

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 23 MAY 83 PRODUCT CODE: 16822
PRODUCT (CONT'D): CHLOROTHENE VG (R) SOLVENT MSD: 0110

SECTION 4 SPILL,LEAK,AND DISPOSAL PROCEDURES (CONTINUED)

DISPOSAL METHOD: (CONTINUED)
INCINERATE, EVAPORATE VERY SMALL QUANTITIES, OR SEND TO APPROVED LANDFILL BURIAL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DUMPING INTO SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER IS STRONGLY DISCOURAGED, AND MAY BE ILLEGAL.

SECTION 5 HEALTH HAZARD DATA

INGESTION: SINGLE DOSE ORAL TOXICITY IS LOW. THE LD50 FOR RATS IS 10,000 MG/KG. IF ASPIRATED, MAY CAUSE RAPID ABSORPTION THROUGH THE LUNGS WHICH MAY RESULT IN SYSTEMIC EFFECTS.
EYE CONTACT: MAY CAUSE PAIN. MAY CAUSE SLIGHT TRANSIENT IRRITATION WITH SLIGHT TRANSIENT CORNEAL INJURY. VAPORS MAY IRRITATE EYES.
SKIN CONTACT: PROLONGED OR REPEATED EXPOSURE MAY CAUSE SKIN IRRITATION. REPEATED CONTACT MAY CAUSE DEFATTING OF SKIN.
SKIN ABSORPTION: A SINGLE PROLONGED SKIN EXPOSURE IS NOT LIKELY TO RESULT IN ABSORPTION OF HARMFUL AMOUNTS. THE LD50 FOR RABBITS IS ABOUT 15,000 MG/KG.
INHALATION: MINIMAL ANESTHETIC OR NARCOTIC EFFECTS MAY BE SEEN IN THE RANGE OF 500-1000 PPM TRICHLOROETHANE. PROGRESSIVELY HIGHER LEVELS OVER 1000 PPM MAY CAUSE DIZZINESS, DRUNKENNESS; CONCENTRATIONS IN EXCESS OF 10,000 PPM CAN CAUSE UNCONSCIOUSNESS AND DEATH. IN CONFINED OR POORLY VENTILATED AREAS, VAPORS WHICH READILY ACCUMULATE CAN CAUSE UNCONSCIOUSNESS AND DEATH. THESE HIGH LEVELS MAY ALSO CAUSE CARDIAC ARRHYTHMIAS (IRREGULAR HEARTBEATS).
EFFECTS OF OVEREXPOSURE: ----

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE IMMEDIATELY WITH WATER FOR AT LEAST 5 MINUTES.
SKIN: WASH OFF IN FLOWING WATER OR SHOWER. REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE.
INHALATION: FAIREMOVE TO FRESH AIR. IF NOT BREATHING, GIVE MOUTH-TO-MOUTH RESUSCITATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.
INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY IMMEDIATELY.
NOTE TO PHYSICIAN: BECAUSE RAPID ABSORPTION MAY OCCUR THROUGH LUNGS IF ASPIRATED AND CAUSE SYSTEMIC EFFECTS, THE DECISION OF WHETHER TO INDUCE VOMITING OR NOT SHOULD BE MADE BY AN ATTENDING PHYSICIAN. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGEAL CONTROL.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 23 MAY 83 PRODUCT CODE: 16822
PRODUCT (CONT'D): CHLOROTHENE VG (R) SOLVENT MSD: 0110

SECTION 6 FIRST AID--NOTE TO PHYSICIAN (CONTINUED)

NOTE TO PHYSICIAN: (CONTINUED)
DANGER FROM LUNG ASPIRATION MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. EXPOSURE MAY INCREASE "MYOCARDIAL IRRITABILITY". DO NOT ADMINISTER SYMPATHOMIMETIC DRUGS UNLESS ABSOLUTELY NECESSARY. NO SPECIFIC ANTIDOTE. SUPPORTIVE CARE. TREATMENT BASED ON JUDGMENT OF THE PHYSICIAN IN RESPONSE TO REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

EXPOSURE GUIDELINE(S): 1,1,1-TRICHLOROETHANE - OSHA STANDARD IS 350 PPM AND CURRENT ACGIH TLV IS 350 PPM (450 PPM STEL).
VENTILATION: CONTROL VAPORS TO STANDARD.
RESPIRATORY PROTECTION: APPROVED ORGANIC VAPOR-TYPE RESPIRATOR REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A POSITIVE-PRESSURE BREATHING APPARATUS OR A FULL-FACE RESPIRATOR WITH AN APPROVED ORGANIC VAPOR CANISTER IS RECOMMENDED.
PROTECTIVE CLOTHING: NO SPECIAL PROTECTIVE CLOTHING NEEDED. HOWEVER, FOR FREQUENT OR PROLONGED CONTACT USE GLOVES MADE OF VITON, NEOPRENE OR POLYVINYL ALCOHOL; BOOTS AND APRON DEPENDING UPON THE EXTENT AND SEVERITY OF EXPOSURE LIKELY.
EYE PROTECTION: SAFETY GLASSES. IT IS RECOMMENDED THAT AN EYE-WASH STATION BE AVAILABLE.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: HANDLE WITH REASONABLE CARE. AVOID BREATHING VAPORS. STORE IN A COOL DRY PLACE. VAPORS OF THIS PRODUCT ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS SUCH AS PITS, DEGREASERS, STORAGE TANKS, AND OTHER CONFINED AREAS. DO NOT ENTER THESE AREAS WHERE VAPORS OF THIS PRODUCT ARE SUSPECTED UNLESS SPECIAL BREATHING APPARATUS IS USED AND AN OBSERVER IS PRESENT FOR ASSISTANCE.

1,1,1-TRICHLOROETHANE PRODUCTS SHOULD NOT BE PACKAGED IN ALUMINUM AEROSOL CANS OR WITH FINELY DIVIDED ALUMINUM OR ITS ALLOYS IN AN AEROSOL CAN.

ALUMINUM IS NOT AN ACCEPTABLE MATERIAL OF CONSTRUCTION FOR PUMPS, MIXERS, FITTINGS, STORAGE TANKS FOR 1,1,1-TRICHLOROETHANE PRODUCTS OR FORMULATIONS. METALLIC ALLUMINUM AND ZINC POWDERS SHOULD BE AVOIDED.

FOR ADDITIONAL INFORMATION ON TOXICITY, HANDLING PRECAUTIONS, AND

(CONTINUED ON PAGE 4)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 23 MAY 83 PRODUCT CODE: 16822
PRODUCT (CONT'D): CHLOROTHENE VG (R) SOLVENT MSD: 0110

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: (CONTINUED)
FIRST AID, REFER TO CHLORINATED SOLVENTS LITERATURE FORM NO. 100-5792.

ADDITIONAL INFORMATION: REVISED SECTIONS 1, 2, 3, 4, 5, 6, 7, AND 8.

LAST PAGE
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

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ASTARIS
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Material Safety Data Sheet

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	TRISODIUM PHOSPHATE (CRYSTALLINE)	
Reference Number:	AST10065	Date: July 11, 2000
Chemical Family:	Phosphate Salts	
Chemical Name:	Trisodium Orthophosphate	
Synonyms:	Phosphoric Acid, Trisodium Salt Dodecahydrate, TSP Crystals, TSPC, TSP-X	

Company Information:

ASTARIS LLC
622 Emerson Road - Suite 500
St. Louis, Missouri 63141

Emergency telephone: In USA call CHEMTREC: 1-800-424-9300
In Canada call CANUTEC: 1-613-996-6666

General Information: 1-800-244-6169

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.
Trisodium Phosphate Dodecahydrate	10101-89-0
Sodium Hydroxide	1310-73-2

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: White, crystalline, free-flowing granules or powder with no odor

WARNING STATEMENTS

DANGER!
CAUSES EYE BURNS
MAY CAUSE SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: Skin contact and inhalation

EYE CONTACT: This product causes eye burns based on toxicity studies. Injury may be permanent.

SKIN CONTACT: This product may cause pain, redness, swelling, and blisters, and based on toxicity studies. No more than slightly toxic based on toxicity studies.

INHALATION: Inhalation of heavy dust may severely irritate nose and throat.

INGESTION: No more than slightly toxic if swallowed based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from eyes, skin and clothing.

IF ON SKIN, immediately flush the area with plenty of water. Remove contaminated clothing. Get medical attention if irritation persists. Wash clothing and thoroughly clean shoes before reuse.

IF INHALED, immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air.

IF SWALLOWED, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not combustible

HAZARDOUS PRODUCTS OF COMBUSTION: Not applicable

EXTINGUISHING MEDIA: Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

6. ACCIDENTAL RELEASE MEASURES

In case of spill, sweep, scoop or vacuum and remove. Flush residual spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

HANDLING

Do not get in eyes, on skin, or on clothing.
Avoid breathing dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Emptied container retains product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

STORAGE: Store in a cool, dry place to maintain product performance. Sealed containers should be kept free of water because of its corrosivity when wet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Where there is potential for eye contact, wear goggles and have eye flushing equipment immediately available.

SKIN PROTECTION: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application. Wash immediately if skin is contaminated. Launder contaminated clothing and clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult the respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

AIRBORNE EXPOSURE LIMITS: OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for particulates not otherwise classified (PNOC) which are the least stringent exposure limits applicable to dusts.

OSHA PEL	ACGIH TLV
15 mg/m3 (total dust) 8-hr TWA	10 mg/m3 (inhalable) 8-hr TWA
5 mg/m3 (respirable) 8-hr TWA	3 mg/m3 (respirable) 8-hr TWA

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure limits legislated for the province in which the substance will be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White, crystalline, free-flowing granules or powder
Odor:	None
pH:	12.0 (as a 1% solution @ 25 degrees C)

Solubility in Water (g/100 g H2O):	11.6 @ 25 degrees C 17.5 @ 40 degrees C 35.3 @ 60 degrees C 61.3 @ 80 degrees C 84.5 @ 100 degrees C 84.6

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

STABILITY: Product is stable under normal conditions of storage and handling.

MATERIALS TO AVOID: This material could be corrosive to aluminum surfaces because of high pH.

HAZARDOUS DECOMPOSITION PRODUCTS: None known

HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

This material has been defined as a hazardous chemical under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Data from Astaris single-dose (acute) animal studies with this material are given below:

Oral - rat LD50: 6,500 mg/kg; practically nontoxic
Dermal - rabbit LD50: > 7,940 mg/kg; practically nontoxic
Eye Irritation - rabbit (4-hr exp.): corrosive
Skin Irritation - rabbit: 3.3/8.0; moderately irritating

The anhydrous form of this material produced no mutagenic effects in standard assays using fruit flies.

12. ECOLOGICAL INFORMATION

The following data have been classified using the criteria adopted by the European Economic Community (EEC) for aquatic organism toxicity.

Invertebrate: 48-hr EC50 Daphnia magna: >1000 mg/L; Practically Nontoxic
Warmwater Fish: 96-hr LC50 Bluegill sunfish: 440 mg/L; Practically Nontoxic
Coldwater Fish: 96-hr LC50 Rainbow trout: 260 mg/L; Practically Nontoxic

No definitive algal toxicity data was available for this material.

No definitive biodegradation data was available for this material.

CERCLA Reportable Quantity: Not applicable

Release of more than 5,000 pounds of this product to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

Refer to Section 11 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section 11 for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	3	0	0	
Suggested HMIS Rating	3	0	0	J

Reason for revision: New Company Supersedes MSDS dated: Not Applicable

Product Use: Food Ingredient, Cleaning compound

Astaris™ is a trademark of Astaris LLC
Responsible Care® is a registered trademark of the Chemical Manufacturers Association

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Astaris LLC makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Astaris LLC be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS

AST10065.700.doc

MONSANTO PRODUCT NAME

TRISODIUM PHOSPHATE (CRYSTALLINE)

MONSANTO COMPANY
800 NORTH LINDBERGH BLVD.
ST. LOUIS, MO 63167

Emergency Phone No.
(Call Collect)
(314) 694-1000

PRODUCT IDENTIFICATION

Synonyms:	TSP/C; Trisodium orthophosphate; Sodium phosphate, tribasic; Trisodium phosphate dodecahydrate; Phosphoric acid, trisodium salt
Chemical Name:	Phosphoric acid, trisodium salt dodecahydrate
Chemical Formula:	$Na_3PO_4.12H_2O.1/4\ NaOH$ (approximately)
Chemical Family:	Phosphate salts
CAS No.:	10101-89-0
TSCA Inventory:	Since hydrated materials could not be reported on the Inventory of Chemical Substances published by the U.S. Environmental Protection Agency (EPA) under authority of the Toxic Substances Control Act (TSCA), trisodium phosphate crystalline was reported as anhydrous with the CAS No. 7601-54-9.
DOT Proper Shipping Name:	ORM-E, Solid, N.O.S. (Contains Sodium Phosphate, Tribasic)
DOT Hazard Class/I.D. No.:	ORM-E/NA9188
DOT Label:	Not Applicable
U.S. Surface Freight Classification:	Trisodium Phosphate
Reportable Quantity (RQ) Under U.S. EPA CERCLA Regulations:	5,000 lbs.
SARA Hazard Notification	
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):	Immediate
Section 313 Toxic Chemical(s):	Not Applicable

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10900 Harper Avenue
Detroit MI 48213
(313) 925-0300

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0346

Hazardous Chemical(s) Under OSHA Hazard Communication Standard:
This material is considered to be a hazardous chemical(s) under criteria of OSHA Hazard Communication Standard (29 CFR 1910.1200).

WARNING STATEMENTS

DANGER!
CAUSES EYE BURNS
MAY CAUSE SKIN IRRITATION

PRECAUTIONARY MEASURES

Do not get in eyes, on skin, on clothing.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

EMERGENCY AND FIRST AID PROCEDURES

FIRST AID: IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention. Remove material from skin and clothing.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing. Wash clothing before reuse. Get medical attention if irritation persists.

IN CASE OF SPILL OR LEAK: Sweep, scoop or vacuum up spilled material to prevent discharge to environment.

OCCUPATIONAL CONTROL PROCEDURES

Eye Protection: Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.

Skin Protection: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove for given application. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Respiratory Protection: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR § 1910.134.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

OCCUPATIONAL CONTROL PROCEDURES - CONTINUED

Airborne Exposure Limits:

Trisodium phosphate dodecahydrate (100% by wt. of product)

OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for nuisance dusts which are the least stringent exposure limits applicable to dusts. The OSHA PEL/TWA for nuisance dusts is 15 mg/m3 total dust, and 5 mg/m3 respirable dust. The ACGIH TLV/TWA for nuisance dusts is 10 mg/m3 total dust.

Use control measures as specified above to minimize exposures.

FIRE PROTECTION INFORMATION

This material is not combustible.

REACTIVITY DATA

Materials to Avoid: Trisodium phosphate crystalline could be corrosive to aluminum surfaces because of high pH. Sealed containers should be kept free of water because of its corrosivity when wet.

Hazardous Decomposition Products: None.

Hazardous Polymerization: Does not occur.

HEALTH EFFECTS SUMMARY

The following information summarizes human experience and results of scientific investigations reviewed by health professionals for hazard evaluation of trisodium phosphate crystalline and development of Precautionary Statements and Occupational Control Procedures recommended in this document.

Effects of Exposure

Inhalation and skin contact are expected to be the primary routes of occupational exposure to trisodium phosphate (crystalline). Occupational exposure to this material has not been reported to cause significant adverse health effects. However, this material is considered corrosive to the eyes and may cause skin irritation following contact due to the high pH.

Toxicological Data

Data from Monsanto studies is given below:

Single-dose (acute) studies indicate:

Oral - Practically Nontoxic (Rat LD50 - 6,500 mg/kg)
Dermal - Practically Nontoxic (Rabbit LD50 - >7,940 mg/kg)
Eye Irritation - Corrosive (Rabbit, 4-hr. exp)
Skin Irritation - Moderately Irritating (Rabbit, 3.3/8.0, 4-hr. exp)

No adverse genetic changes were reported in standard tests using insects.

PHYSICAL DATA

Appearance: White, crystalline, free-flowing granules or powder

Odor: Odorless

pH (1% Solution @ 25°C): 12

Bulk Density (lbs./cu. ft.):		
	Powder	61-65
	Granular	58-64

Solubility (g/100 g H_2O) (Anhydrous Salt Basis):	
	11.6 @ 25°C
	17.5 @ 40°C
	35.3 @ 60°C
	61.3 @ 80°C
	84.5 @ 100°C

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SPILL, LEAK & DISPOSAL INFORMATION

Emergency Spill and Leak Information: Sodium phosphate, tribasic, as currently defined, is a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). If 5,000 pounds or more are released into the environment, it must be reported to the National Response Center (800-424-8802 or 202-426-2675). Since local, state, and federal laws may vary, consult your attorney or appropriate regulatory officials for information relating to spill reporting.

Sweep, scoop or vacuum up all spilled material, contaminated soil and other contaminated material and place in containers. If possible, complete cleanup on a dry basis. After all practical dry cleanup has been done, residual contamination can be flushed with plenty of water.

Disposal Information: Dispose of in a landfill in accordance with all applicable local, state and federal regulations.

ENVIRONMENTAL EFFECTS

Environmental Toxicity Information:

96-hr LC50 Bluegill: 440 mg/l, Practically Nontoxic
96-hr LC50 Trout: 260 mg/l, Practically Nontoxic

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CONTACT:

Product Safety Coordinator
Detergents & Phosphates Division
Monsanto Chemical Company
314-694-2333
(A Unit of Monsanto Company)

DTSPC

NOTICE: Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Monsanto Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Monsanto Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

60-120132

SOLUTIA™

Applied Chemistry, Creative Solutions

Material Safety Data Sheet

Responsible Care®
A Public Commitment

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: TRISODIUM PHOSPHATE ANHYDROUS

MSDS Number: 007601549 Date: August 20, 1998

new format

Chemical Family: Phosphate salts

Chemical Name: Phosphoric acid, trisodium salt

Synonyms: TSP/A; Trisodium orthophosphate; Sodium phosphate, tribasic

SOLUTIA INC., 10300 OLIVE BOULEVARD, P.O. BOX 66760, ST. LOUIS, MO 63166-6760

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted)

For additional non-emergency information, call: 314-674-6661

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	% by weight
Trisodium phosphate anhydrous	7601-54-9	100

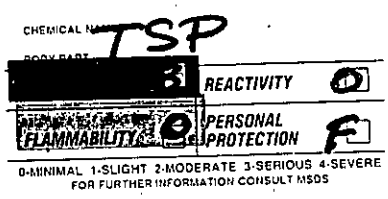
3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: white, free-flowing granules or powder with no odor

WARNING STATEMENTS

DANGER!
CAUSES EYE BURNS
CAUSES SKIN IRRITATION



POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: skin contact and inhalation

EYE CONTACT: This product causes eye burns based on toxicity studies. Injury may be permanent.

SKIN CONTACT: This product causes pain and redness based on toxicity studies.

INHALATION: No information.

INGESTION: This product is no more than slightly toxic based on toxicity studies. Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove any contact lenses. Get medical attention. Remove material from skin and clothing.

IF ON SKIN: Immediately flush the area with plenty of water. Remove contaminated clothing. Get medical attention if irritation persists. Wash clothing and thoroughly clean shoes before reuse.

IF INHALED: Immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

IF SWALLOWED: Immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

FLASH POINT: This material is not combustible.

HAZARDOUS PRODUCTS OF COMBUSTION: Not Applicable

EXTINGUISHING MEDIA: Not Applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not Applicable

FIRE FIGHTING EQUIPMENT: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

In case of spill, sweep, scoop or vacuum and remove. Flush residual spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

Do not get in eyes, on skin, on clothing.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied container retains product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in the MSDS.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.

SKIN PROTECTION: Wear appropriate protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove for given application. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

AIRBORNE EXPOSURE LIMITS:

OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for particulates not otherwise classified (PNOC) which are the least stringent exposure limits applicable to dusts.

OSHA PEL	ACGIH TLV
15 mg/m3 (total dust) 8-hr TWA	10 mg/m3 (inhalable) 8-hr TWA
5 mg/m3 (respirable) 8-hr TWA	3 mg/m3 (respirable) 8-hr TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White, free-flowing, granular product
Odor:	Odorless
pH:	11.5 - 12.0 (1% solution @ 25 degrees C)
Bulk Density (lbs./cu. ft.):	75 - 81
Solubility (g/100 g H2O):	5.4 @ 0 degrees C
	14.5 @ 25 degrees C
	23.3 @ 40 degrees C
	54.3 @ 60 degrees C
	94.6 @ 100 degrees C

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

STABILITY: Product is stable under normal conditions of storage and handling. Store in a cool, well ventilated place away from foodstuffs, reducing agents and acids.

MATERIALS TO AVOID: Trisodium phosphate crystalline could be corrosive to aluminum surfaces because of high pH. Sealed containers should be kept free of water because of its corrosivity when wet.

HAZARDOUS DECOMPOSITION PRODUCTS: No hazardous products of decomposition are expected.

HAZARDOUS POLYMERIZATION: Does not occur.

11. TOXICOLOGICAL INFORMATION

Data from Solutia single-dose (acute) animal studies with this material are given below:

Oral -	Slightly Toxic	(Rat LD50 - 4,150 mg/kg)
Dermal -	Practically Nontoxic	(Rabbit LD50 - >7,940 mg/kg)
Eye Irritation -	Corrosive	(Rabbit, 24-hr)
Skin Irritation -	Slightly Irritating	(Rabbit, 24-hr - 2.2/8.0)

Trisodium Phosphate produced no increase in chromosomal aberrations or recessive lethal mutations in assays using Drosophila melanogaster.

12. ECOLOGICAL INFORMATION

The following data have been classified using the criteria adopted by the European Economic Community (EEC) for aquatic organism toxicity. A legend summarizing the classification scheme appears below.

96-hr LC50 Bluegill:	220 mg/l, Practically Nontoxic
96-hr LC50 Trout:	120 mg/l, Practically Nontoxic

Legend for Aquatic Organism Toxicity (Journal of the European Communities, Annex VII A, Section 5.2.1)

Values	Classifications
LC50 or EC50 < or = 1.0 mg/L	Very Toxic
LC50 or EC50 > 1.0 mg/L and < or = 10 mg/L	Toxic
LC50 or EC50 > 10 mg/L and < or = 100 mg/L	Harmful
LC50 or EC50 > 100 mg/L	Practically Nontoxic

13. DISPOSAL CONSIDERATIONS

This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dispose of by incineration or recycle in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT Classification:	* Environmentally Hazardous Substance, Solid, N.O.S. (sodium phosphate, tribasic), 9, UN3077, III
US DOT Label:	Not Applicable
US DOT Reportable Quantity:	Packages of 5000 lbs or more contain a RQ of sodium phosphate, tribasic
IMDG Code:	Not Applicable
IATA/ICAO:	See US DOT

* Applies ONLY to containers which contain an RQ (5000 pounds or more)

15. REGULATORY INFORMATION

TSCA Inventory: Listed.

SARA Hazard Notification
Hazard Categories Under Title III Rules (40 CFR 370): Immediate.
Section 302 Extremely Hazardous Substances: Not Applicable.
Section 313 Toxic Chemical(s): Not Applicable

CERCLA Reportable Quantity: 5000 lb RQ of sodium phosphate, tribasic

Release of more than 5000 pounds of this product to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

California Proposition 65: Not Applicable.

Refer to Section 11 for OSHA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

Reason for revision: Routine review, conversion to the 16 section format and company name change to Solutia. Supersedes MSDS dated 02/22/94.

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MATERIAL SAFETY DATA SHEET

Rev

RHONE-POULENC BASIC CHEMICALS CO.
1 Corporate Drive Box 881 Shelton, CT. 06484 (203)925-3300
24-HOUR EMERGENCY TELEPHONE CHEMTREC 1-800-424-9300

PRODUCT NAME:

TRISODIUM PHOSPHATE, DODECAHYDRATE

Effective Date: MARCH 30, 1992
Supercedes: JANUARY 11, 1990

I. IDENTIFICATION

CHEMICAL NAME OF PRIMARY COMPONENT(S): Trisodium phosphate, dodecahydrate

FORMULA: $4(Na_3PO_4 \cdot 12\ H_2O)NaOH$ FORMULA WEIGHT: 1560

SYNONYMS: sodium orthophosphate dodecahydrate
CAS# & NAME: 10101-89-0 Phosphoric acid, trisodium salt, dodecahydrate

II. INGREDIENTS/SUMMARY OF HAZARDS

INGREDIENT(S)	CAS NUMBER	OSHA HAZARDOUS (H)/ NON-HAZARDOUS (NH)	PERCENT
Trisodium phosphate dodecahydrate	10101-89-0	H	100

WARNING STATEMENTS:

DANGER! CAUSES EYE BURNS. CAUSES SKIN AND RESPIRATORY TRACT IRRITATION.

Avoid contact with eyes, skin or clothing. Wear appropriate protective clothing and devices when handling. Wash thoroughly after handling. Avoid breathing dust.
(See Section VI for complete Health Hazard Data)

NATIONAL FIRE PROTECTION ASSOCIATION RATING

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

	NFPA	HMIS
HEALTH	3	3
FIRE	0	0
REACTIVITY	0	0

(4=Extreme/Severe 3=High/Serious
2=Moderate 1=Slight 0=Minimum)

SARA TITLE III HAZARD CLASSIFICATION

IMMEDIATE (ACUTE) HEALTH	YES
DELAYED (CHRONIC) HEALTH	NO
FIRE	NO
SUDDEN RELEASE OF PRESSURE	NO
REACTIVE	NO

III. PHYSICAL DATA

MELTING POINT [°C (°F)]:	Loses water of hydration @ 77°C (170°F)
pH:	11.8 (1% aqueous solution)
SOLUBILITY IN WATER [@ 25°C]:	30g/100g saturated solution
APPEARANCE AND ODOR:	white granular solid / odorless

(For additional technical information call 1-800-642-4200)

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [°C (°F)]: Noncombustible

FLAMMABLE LIMITS IN AIR: Not applicable

AUTOIGNITION TEMPERATURE [°C (°F)]: Not applicable

EXTINGUISHING MEDIA: Not combustible. Use appropriate extinguishing media for material that is supplying fuel.

SPECIAL FIRE FIGHTING PROCEDURES:

Provide for the protection of employees and residents:

a) Evacuate residents who are downwind of fire.
b) Prevent unauthorized entry to fire area.
c) Persons who may have been exposed to contaminated smoke should be examined by a physician and treated appropriately.
d) Dike area to prevent runoff and contamination of water sources.

Notify local authorities that firemen should:

a) Wear protective clothing and use self-contained breathing apparatus.
b) Be immediately relieved from duty, if exposed to contaminated smoke and checked for symptoms of overexposure. These should not be mistaken for heat exhaustion or smoke inhalation. See section VI, Health Hazard Data for symptoms of overexposure, first aid procedures, and notes to physician.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Thermal decomposition products may be hazardous and include phosphorus oxides and sodium oxide.
In aqueous solutions, may react with certain metals to form flammable hydrogen gas.

V. REACTIVITY DATA

STABILITY: Stable at ambient temperatures and atmospheric pressure.

CONDITIONS TO AVOID: Hygroscopic; protect from moisture.

MATERIALS TO AVOID:

Strong acids. Solutions react with metals to form flammable hydrogen gas.
May react violently with magnesium.
This material, upon contact with certain food products or their residues which contain reducing sugars, may react to form deadly carbon monoxide gas.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition products may be hazardous and include phosphorus oxides and sodium oxide.

HAZARDOUS POLYMERIZATION: Will not occur.

VI. HEALTH HAZARD DATA/FIRST AID PROCEDURES

EXPOSURE LIMITS:
No exposure limits have been established for this product by ACGIH or OSHA. However the American Industrial Hygiene Association Committee on "Workplace Environmental Exposure Levels" (WEEL) recommends: 5 mg/m^3 (15 min TWA).

TOXICOLOGY DATA:

Oral LD50 (rats):	<5000 mg/kg body weight (90% mortality)	(1)
	7400 mg/kg body weight	(2)
Dermal LD50 (rabbit):	No data available.	
Inhalation LC50 (rats):	No data available.	
Skin Effects (rabbits):	Corrosive - 24 hr exposure, moist skin	(1)
Eye Effects (rabbits):	Corrosive	(1)

CARCINOGENICITY, TERATOGENICITY, MUTAGENICITY:
This product does not contain any ingredient designated by IARC, NTP, ACGIH OR OSHA as a probable human carcinogen, teratogen or mutagen.

EFFECTS OF SINGLE OVEREXPOSURE:

PRECAUTION: Persons attending the patient should avoid direct contact with heavily contaminated clothing and vomitus. Wear impervious gloves while decontaminating skin and hair.

Swallowing: May cause irritation or corrosion of the mouth, throat, esophagus and stomach, including blistering of the mucous membranes. Aspiration of the swallowed product or vomitus can cause severe pulmonary complications. (4)

Skin Absorption: No information is available, but deep, penetrating burns are caused by contact with the material. (3,4,5)

Inhalation: Inhalation of dusts may cause irritation or burns to the nose, throat and respiratory tract, resulting in cough, chest pain and difficult breathing.

Skin Contact: Contact with the dry solid or solutions may cause severe irritation or burns if not washed or removed from the skin promptly. Irritation is likely to be severe if the skin is moist or wet. Contact with concentrated solutions may cause severe irritation or burns depending on the concentration of the product and duration of the contact. (4)

Eye Contact: Contact with the dry solid or solutions may cause severe irritation or burns. The possibility of severe eye damage exists if concentrated solutions are splashed into the eyes and not promptly and properly treated.

EFFECTS OF REPEATED OVEREXPOSURE:
Repeated exposure may lead to contact dermatitis. (3)

OTHER EFFECTS OF OVEREXPOSURE:
After swallowing, this product is capable of seriously reducing the serum level of ionic calcium. (3)
Esophageal stricture can occur weeks, months, or even years after recovery from immediate damage from swallowing. Carcinoma is a risk in later life. (3)

EXISTING MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:
Skin irritation may be aggravated in persons with existing skin lesions. Breathing of dust may aggravate acute or chronic asthma and other chronic pulmonary disease.

VI. HEALTH HAZARD DATA/FIRST AID PROCEDURES (continued)

EMERGENCY AND FIRST AID PROCEDURES:

PRECAUTION: Persons attending the patient should avoid direct contact with heavily contaminated clothing and vomitus. Wear impervious gloves while decontaminating skin and hair.
Remove the patient from the source of exposure and confirm that the individual is breathing. If not breathing, use artificial respiration or cardiopulmonary resuscitation (CPR). GET IMMEDIATE MEDICAL ATTENTION.

Swallowing: If victim is conscious and alert, give two or more glasses of cold water or milk to drink. **DO NOT INDUCE VOMITING !** If vomiting does occur, give fluids again. Since swallowing is painful, flushing the mouth with water is often the only and best immediate therapy. NEVER give anything by mouth to an unconscious or convulsing person. GET IMMEDIATE MEDICAL ATTENTION.

Skin: Immediately wash skin with soap and plenty of water while removing contaminated clothing and shoes. Continue washing until the skin is free of the material, indicated by the disappearance of soapiness. Discard clothes and shoes in a manner which limits further exposure. GET MEDICAL ATTENTION.

Inhalation: Remove patient to fresh air. If not breathing administer cardiopulmonary resuscitation or artificial respiration. If breathing is difficult or irritation develops, administer oxygen. GET MEDICAL ATTENTION.

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Lift upper and lower lids and rinse well under them. GET MEDICAL ATTENTION, preferably an ophthalmologist. Flush for an additional 15 minutes if a physician is not immediately available.

NOTES TO PHYSICIANS:

No specific antidote is available.

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

INGESTION

Treat asphyxia from glottal edema by maintaining an adequate airway.
Treat shock - maintain normal blood pressure by transfusion and by the administration of 5% dextrose in saline.
If the symptoms are severe and perforation of the stomach or esophagus is suspected, give nothing by mouth until endoscopic examination has been done.
Maintain nutrition by giving carbohydrate or hyperalimentary fluid intravenously.
Give prednisolone, 2 mg/kg/day in divided doses for 10 days, to reduce the progression of fibrocystic and hyaline lung disease.
Esophageal stricture may require dilation.
If a large quantity is ingested, test for hypocalcemia and treat with 10 ml of 10% calcium gluconate by slow intravenous infusion, if necessary. (3)

INHALATION

Treat shock. Treat pulmonary edema. Treat bacterial pneumonia with organism-specific chemotherapy. (3)

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Persons involved in clean-up must wear appropriate protective equipment. To the extent possible, clean up spillage using shovels, sweeping, or vacuuming. Avoid dust generation. Place in appropriate containers for disposal. Flush area with water.

If spilled on the ground, the affected area should be scraped clean and the material placed in an appropriate container for disposal. Do not flush material to public sewer systems or any waterways. Ensure adequate decontamination of tools and equipment following clean up.

Large spills should be handled according to a predetermined plan. For assistance in developing a plan, contact the Technical Service Department, 1-800-642-4200.

WASTE DISPOSAL METHOD:

Dispose of in accordance with Local, State and Federal regulations.

NOTE: Spills are subject to CERCLA reporting requirements: RQ = 5000 lb.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not ingest. Avoid exposure by inhalation. Avoid getting in eyes or on skin and clothing.

Containers should be stored in a cool, dry, well ventilated area away from flammable materials and sources of heat or flame. Store away from foodstuffs or animal feed. Exercise due caution to prevent damage to or leakage from container.

ATTENTION! Potentially deadly carbon monoxide gas can form in enclosed areas or tanks when alkaline products contact food or beverage products that contain sugars. Do not enter such areas until they have been well-ventilated and carbon monoxide and oxygen levels have been determined safe. Continue to monitor atmosphere while personnel are in enclosure. For proper tank entry procedure, see ANSI Z117.1-1977.

VIII. SPECIAL PROTECTION INFORMATION

PROTECTIVE EQUIPMENT SHOULD BE USED DURING THE FOLLOWING PROCEDURES:

- Manufacture or formulation of this product
- Repair and maintenance of contaminated equipment
- Clean up of leaks and spills
- Any activity that may result in exposures to concentrations that exceed exposure limits.

RESPIRATORY PROTECTION:

If use conditions generate airborne dust, handle material in an open or well-ventilated area. Use a NIOSH/MSHA approved dust mask if concentration exceeds suggested exposure limits. Use positive pressure supplied air or self-contained breathing apparatus for emergency or other conditions where a higher level of protection is required.

VENTILATION: Provide adequate ventilation. Use local exhaust as needed to maintain airborne exposure below control limits.

PROTECTIVE CLOTHING: Full-body protective clothing, chemical resistant gloves and boots.

EYE PROTECTION: Face shield with chemical worker goggles.

OTHER PROTECTIVE EQUIPMENT:

Maintain a sink, safety shower and eyewash fountain in the work area. Have oxygen readily available.

IX. REGULATORY STATUS

TSCA Inventory: This product is listed on the TSCA inventory.

Transportation Status:

DOT (less than RQ):	Not regulated
DOT (more than RQ):	
Proper shipping name:	Hazardous Substance, Solid, N.O.S.
Hazard Class:	ORM-E
ID Number:	NA 9188
Label:	None (ORM-E marking)

Reportable quantity (RQ) under 49 CFR 172.101 Appendix: 5000 lbs.

SARA Title III

Section 302 Extremely Hazardous Substance List:	Not listed
Section 313 Toxic Chemicals:	Not listed

Reportable Quantity (RQ) under US EPA CERCLA: RQ = 5000 lb

State/International Right-to-Know Regulations:

California:	Not listed
Connecticut:	Survey
Florida:	Not listed
Illinois:	Chemical list
Louisiana:	RTK, Spill RQ=5000 lb
Massachusetts:	RTK, Spill RQ=100 lb
New Jersey:	RTK, ID# 3044; Tax
New York:	Spill
Pennsylvania:	RTK
Rhode Island:	Not listed
Canada:	Not listed

X. REFERENCES

(1) Unpublished RP toxicity studies T-10656.
(2) RTECS, 7/91
(3) Dreisbach, Handbook of Poisoning, 12th edition.
(4) Arena, Poisoning, 5th edition.
(5) Gosselin, Clinical Toxicology of Commercial Products, 5th edition.

The information herein is given in good faith
but no warranty, expressed or implied, is made.

MATERIAL SAFETY DATA SHEET

Version Date
11/19/04

LANXESS
Energizing Chemistry

LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) LANXESS

1. Product and Company Identification

Product Name:	TRONOX 110
Material Number:	3743296
Chemical Family:	Titanium dioxide

2. Hazards Identification

Emergency Overview

CAUTION! Color: White **Form:** solid Powder **Odor:** Odorless.
May cause respiratory tract irritation.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure:	Respiratory disorders, Eye disorders, Skin disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Product: TRONOX 110
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

Skin
Acute Skin
For Product: TRONOX 110
Not expected to be irritating.

For Component: Titanium dioxide (Rutile)
Not expected to be irritating.

WWW_104(e)_018930

Eye
Acute Eye
For Product: TRONOX 110
Not expected to be irritating.

For Component: Titanium dioxide (Rutile)
Not expected to be irritating.

Ingestion
Acute Ingestion
For Product: TRONOX 110
Not expected to be harmful if swallowed.

For Component: Titanium dioxide (Rutile)
Not expected to be harmful if swallowed.

General Effects of Exposure
Chronic Effects of Exposure
For Product: TRONOX 110
Not expected to cause any adverse chronic health effects.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components

Weight %	Components	CAS-No.
>=90%	Titanium dioxide (Rutile)	13463-67-7

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Get medical attention if irritation develops. Remove contaminated clothing and shoes. Wash clothing before reuse.

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire Fighting Measures

Suitable Extinguishing Media: water, foam, dry chemical

WWW_104(e)_018931

Unsuitable Extinguishing Agents: carbon dioxide (CO2)

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

6. Accidental release measures

Spill and Leak Procedures
Cleanup personnel must use appropriate personal protective equipment. Remove mechanically by a method that minimizes the generation of airborne dust (vacuum cleaner, wet mopping, etc.) Collect and place in appropriately marked sealable containers for disposal.

7. Handling and Storage

Storage Period
Unlimited in tightly closed containers.

Handling/Storage Precautions
Avoid breathing dust. Avoid contact with skin or clothing. Avoid contact with eyes. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Material can be stored safely at ambient temperatures.

8. Exposure Controls / Personal Protection

Titanium dioxide (Rutile) (13463-67-7)

US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 10 mg/m3
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 15 mg/m3 (Total dust.)
US. ACGIH Threshold Limit Values
Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Industrial Hygiene/Ventilation Measures
General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

Respiratory Protection
NIOSH approved, air-purifying particulate respirator with N-95 filters.

Hand Protection
gloves

WWW_104(e)_018932

Eye Protection
safety glasses with side-shields.

Skin and body protection
Wear cloth work clothing including long pants and long-sleeved shirts.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and chemical properties

Form:	solid
Appearance:	Powder
Color:	White
Odor:	Odorless
pH:	Not Applicable
Melting Point:	1,830 - 1,850 °C (3,326 - 3,362 °F)
Boiling Point/Range:	2,500 - 3,000 °C (4,532 - 5,432 °F)
Flash Point:	not applicable
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	Not Applicable
Specific Gravity:	3.9
Solubility in Water:	Insoluble
Decomposition Temperature:	> 120 °C (> 248 °F)
Viscosity, Dynamic:	no data available
Viscosity, Kinematic:	no data available
Bulk Density:	32 - 34 lb/gal

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
None known.

Conditions to avoid
Avoid extreme heat.

Hazardous decomposition products
By Fire: None known.

11. Toxicological Information

Toxicity Data for Titanium dioxide (Rutile)
Acute Oral Toxicity

WWW_104(e)_018933

LD50: > 5,000 mg/kg (Rat)

Acute Inhalation Toxicity
LC0: > 6.82 mg/l, dust/particulate, 4 hrs (Rat)

Acute dermal toxicity
LD50: > 5,000 mg/kg (rabbit)

Skin Irritation
rabbit, Exposure Time: 24 hrs, Non-irritating

Eye Irritation
rabbit, Draize, Non-irritating

Sensitization
dermal: non-sensitizer (Guinea pig, Maximization Test)
dermal: non-sensitizer (Human, Patch Test)

Repeated Dose Toxicity
28 Days, inhalation: NOAEL: 35 mg/m3, (Rat)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Drosophila SLRL test: negative (Drosophila melanogaster)

Toxicity Data for Aluminum hydroxide
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Skin Irritation
rabbit, OECD Test Guideline 404, Non-irritating

Eye Irritation
rabbit, OECD Test Guideline 405, No eye irritation

Repeated Dose Toxicity
28 Days, NOAEL: 14,470 ppm, (rat)

Developmental Toxicity/Teratogenicity
rat, female, oral, NOAEL (teratogenicity): 1,000 mg/kg,
No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

12 Ecological Information

Ecological Data for Titanium dioxide (Rutile)
Acute and Prolonged Toxicity to Fish
LC0: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Acute Toxicity to Aquatic Invertebrates
EC0: > 3 mg/l (Water flea (Daphnia magna))

Toxicity to Microorganisms

WWW_104(e)_018934

EC0: > 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)
EC0: > 5,000 mg/l, (Escherichia coli)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

WWW_104(e)_018935

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=90%	Titanium dioxide (Rutile)	13463-67-7
>=1%	Aluminum hydroxide	21645-51-2

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health	1
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	1
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	R306132
Version Date:	11/19/2004
Report Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of LANXESS Corporation. The information in this MSDS relates only to

WWW_104(e)_018936

the specific material designated herein. LANXESS Corporation assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

WWW_104(e)_018937

19. 120667

Trumpler

Material Safety Data Sheet
According to 91/155 EEC

Printing date 09.02.2005 Reviewed on 11.11.2004

1 Identification of substance:

· **Product details:**

· **Trade name:** TRUPOFIX SLD

· **Application of the substance / the preparation** Leather auxiliary

· **Manufacturer/Supplier:**
TRUMPLER GmbH & Co. KG, Chemische Fabrik
Hafenstr. 10 P.O. Box 23 36
D - 67547 Worms D - 67513 Worms
Telephone: (+49) 6241-4060
Telefax : (+49) 6241-406111
e-mail: mail@trumpler.de

· **Further information obtainable from:** Department Environmental Protection
· **Information in case of emergency:**
Trumpler Worms - Germany
tel.: (+49) 6241-4060

2 Composition/Data on components:

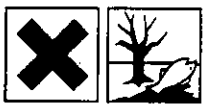
· **Chemical characterization**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**			
70592-80-2	Amines, coco alkyldimethyl, N-oxides	Xi, N; R 38-41-50	> 25%

· **Additional information** For the wording of the listed risk phrases refer to section 16.

3 Hazard identification

· **Hazard description:**



Xi Irritant
N Dangerous for the environment

· **Information concerning to particular hazards to man and environment**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
R 38 Irritating to skin.
R 41 Risk of serious damage to eyes.
R 50 Very toxic to aquatic organisms.
· **Classification system**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

· **General information** Immediately remove any clothing soiled by the product.
· **After inhalation** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 09.02.2005 Reviewed on 11.11.2004

Trade name: TRUPOFIX SLD

(Contd. of page 1)

· **After swallowing** Rinse mouth with plenty of water, in case of illness seek medical advice.

5 Fire fighting measures

· **Suitable extinguishing agents**
Use fire extinguishing methods suitable to surrounding conditions.
Foam
Fire-extinguishing powder
CO2
· **For safety reasons unsuitable extinguishing agents** Water.
· **Special hazards caused by the substance, its products of combustion or resulting gases:**
gases from burning organic material are breathing poisons
· **Protective equipment:**
Quenching, saving and clearing work in case of fire or smouldering gas must be done with heavy gas mask and breathing equipment.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Person-related safety precautions:**
Particular danger of slipping on leaked/spilled product.
Keep people at a distance and stay on the windward side.
· **Measures for environmental protection:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Measures for cleaning/collecting:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
· **Additional information:** See Section 8 for information on personal protection equipment.

7 Handling and storage

· **Handling**
· **Information for safe handling:**
Keep receptacles tightly sealed.
Stir well before use.
· **Information about fire - and explosion protection:**
precautions known from regulations and literature must be observed

· **Storage**
· **Requirements to be met by storerooms and receptacles:**
Use standard storage conditions: at ambient temperature and protected from light, air and humidity
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Protect from frost.
Protect from heat and direct sunlight.

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 09.02.2005 Reviewed on 11.11.2004

Trade name: TRUPOFIX SLD

(Contd. of page 2)

8 Exposure controls and personal protection gear

· **Additional information about design of technical facilities:** No further data; see item 7.

· **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists valid during the making were used as basis.

· **Personal protective equipment**

· **General protective and hygienic measures**
The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not eat, drink, smoke or sniff while working.

· **Respiratory protection:** Not required.

· **Protection of hands:** safety gloves have to be resistant to chemicals (EN 374)

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Nitrile rubber, NBR

· **Penetration time of glove material**
The penetration time has to be at least 480 minutes (Permeation according to EN 374 Part 3: Level 6).

· **Eye protection:**
Tightly sealed goggles.
(EN 166)

· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **General Information**	
Form:	Fluid
Colour:	Yellowish
Odour:	Recognizable
· **Change in condition**	
Melting point/Melting range:	< 0°C
Boiling point/Boiling range:	> 100°C
· **Flash point:**	Not applicable
· **Self-igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Density at 20°C:**	ca. 0.96 g/cm³
· **Solubility in / Miscibility with Water:**	Fully miscible

(Contd. on page 4)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 09.02.2005 Reviewed on 11.11.2004

Trade name: TRUPOFIX SLD

(Contd. of page 3)

· **pH-value (50 g/l) at 20°C:** ca. 7.5

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
Irritant
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

*

12 Ecological information:

· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms

13 Disposal considerations

· **Product:**
· **Recommendation** Disposal must be made according to official regulations.

· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be reused.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

GB

(Contd. on page 5)

Material Safety Data Sheet
According to 91/155 EEC

Printing date 09.02.2005 Reviewed on 11.11.2004

Trade name: TRUPOFIX SLD

(Contd. of page 4)

14 Transport information

· **Land transport ADR/RID (cross-border)**

· **ADR/RID class:** 9 (M6) Miscellaneous dangerous substances and articles.
· **Danger code (Kemler):** 9
· **UN-Number:** 3082
· **Packaging group:** III
· **Hazard label** 9
· **Description of goods:** 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alkyldimethylamine oxide)

· **Maritime transport IMDG:**

· **IMDG Class:** 9
· **UN Number:** 3082
· **Label** 9
· **Packaging group:** III
· **EMS Number:** F-A,S-F
· **Marine pollutant:** Yes
· **Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alkyldimethylamine oxide)

· **Air transport ICAO-TI and IATA-DGR:**

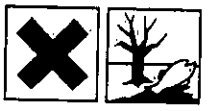
· **ICAO/IATA Class:** 9
· **UN/ID Number:** 3082
· **Label** 9
· **Packaging group:** III
· **Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alkyldimethylamine oxide)

*

15 Regulations

· **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**



Xi Irritant
N Dangerous for the environment

(Contd. on page 6)

Material Safety Data Sheet

According to 91/155 EEC

Printing date 09.02.2005

Reviewed on 11.11.2004

Trade name: TRUPOFIX SLD

(Contd. of page 5)

· **Risk phrases:**
38 Irritating to skin.
41 Risk of serious damage to eyes.
50 Very toxic to aquatic organisms.

· **Safety phrases:**
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
39 Wear eye/face protection.
60 This material and its container must be disposed of as hazardous waste.
61 Avoid release to the environment. Refer to special instructions/safety data sheets.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant R-phrases**
38 Irritating to skin.
41 Risk of serious damage to eyes.
50 Very toxic to aquatic organisms.

· **Department issuing MSDS:** Department Environmental Protection
· *** Data compared to the previous version altered.**

GB

R1D
Tanyard

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000

Reviewed on 24.01.2000

1 Identification of substance:

CHEMTREC EMERGENCY # 800-424-9300

· **Product details:**

· **Trade name:** Truponat HL

· **Manufacturer/Supplier:**
TRUMPLER GmbH & Co. Chemische Fabrik
Hafenstr. 10 P.O. Box 23 36
D - 67547 Worms D - 67513 Worms
Telephone: 0 62 41 / 40 60
Telefax : 0 62 41 / 40 61 11

· **Further information obtainable from:**
Department Environmental Protection

2 Composition/Data on components:

· **Chemical characterization**
· **Description:** enzymatic auxiliary

Dangerous components:
Void

3 Hazard identification

· **Hazard description:** not applicable
· **Information concerning to particular hazards to man and environment**
· not applicable
· **Classification system**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

· **General information** No special measures required.
· **After inhalation**
Supply fresh air; consult doctor in case of complaints.
· **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
· **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing**
Rinse mouth with plenty of water, in case of illness seek medical advice.

5 Fire fighting measures

· **Suitable extinguishing agents**
Water, water haze, extinguishing powder, foam, CO2
· **Protective equipment:** No special measures required.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Person-related safety precautions:** Not required.

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000 Reviewed on 24.01.2000

Trade name: Truponat HL

(Contd. of page 1)

· **Measures for environmental protection:**
Do not allow to enter sewers/ surface or ground water.
· **Measures for cleaning/collecting:** Pick up mechanically.
· **Additional information:** No dangerous substances are released.

7 Handling and storage

· **Handling**
· **Information for safe handling:** Prevent formation of dust.
· **Information about fire - and explosion protection:**
No special measures required.

· **Storage**
· **Requirements to be met by storerooms and receptacles:**
No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Store in dry conditions.
Store in a cool place.
· **Storage class**
· **Class according to regulation on flammable liquids:** Void

8 Exposure controls and personal protection gear

· **Additional information about design of technical facilities:**
No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:**
The lists valid during the making were used as basis.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Dust mask
· **Protection of hands:** Protective gloves.
· **Eye protection:** Safety glasses

9 Physical and chemical properties:

· **Form:** Powder
· **Colour:** Yellowish
· **Odour:** Characteristic

	Value/Range	Unit	Method
· **Change in condition**			
· **Melting point/Melting range:**	undetermined		
· **Boiling point/Boiling range:**	undetermined		
· **Flash point:**	Not applicable		
· **Self-igniting:**	Product is not selfigniting.		

· **Danger of explosion:**
Product does not present an

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000

Reviewed on 24.01.2000

Trade name: Truponat HL

explosion hazard.

(Contd. of page 2)

· **Density:** Not determined

· **Bulk density:** at 20 ° C ca. 1100 kg/m³

· **Solubility in / Miscibility with**
· **Water:** Soluble

· **pH-value:** (100 g/l) at 20 ° C ca. 7

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:**
No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information:

· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

· **Product:**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be reused.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
· **Recommended cleansing agents:**
Water, if necessary together with cleansing agents.

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000

Reviewed on 24.01.2000

Trade name: Truponat HL

14 Transport information

· Land transport ADR/RID (cross-border)
· ADR/RID class: -

· Maritime transport IMDG:
· IMDG Class: -
· Marine pollutant: No

· Air transport ICAO-TI and IATA-DGR:
· ICAO/IATA Class: -

· Transport/Additional information:
Not dangerous according to the above specifications.

15 Regulations

· Labelling according to EU guidelines:
Observe the general safety regulations when handling chemicals
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

· Safety phrases: 22 Do not breathe dust.

· National regulations

· Classification according to VbF: Void

· Waterhazard class:
Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

GB

Trumpler

SUBMITTED TO CHEMTREC
DATE: 2/22/01

Page 1/5

17 R&D

Material Safety Data Sheet
According to 91/155 EC

Printing date 02.02.2001

Reviewed on 26.01.2001

1 Identification of substance:

- Product details:
- Trade name: Truponat LNA
- Manufacturer/Supplier:
TRUMPLER GmbH & Co. Chemische Fabrik
Hafenstr. 10
D - 67547 Worms
Telephone: 0 62 41 / 40 60
Telefax : 0 62 41 / 40 61 11

P.O. Box 23 36
D - 67513 Worms

- Further information obtainable from: Department Environmental Protection

2 Composition/Data on components:

- Chemical characterization
- Description: liming agent, free from Nitrogen and Amines

Dangerous components:		
sodium thioglycolate solution	Xn; 22-36/38	< 80%
2-mercaptoethanol, sodium salt	C; 22-34	< 10%

3 Hazard identification

- Hazard description:

Xn Harmful

- Information concerning to particular hazards to man and environment
R 22 Harmful if swallowed.
R 36/38 Irritating to eyes and skin.
- Classification system
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

- General information
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation In case of unconsciousness place patient stably in side position for transportation.
- After skin contact Immediately wash with water and soap and rinse thoroughly.
- After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing
Rinse out mouth and then drink plenty of water.
Call for a doctor immediately.

5 Fire fighting measures

- Suitable extinguishing agents
Use fire extinguishing methods suitable to surrounding conditions.

(Contd. on page 2)

GB

Post-it® Fax Note 7671
To Sue Bonter
Co./Dept. Wolverine
Phone # 616-866-5615
Fax # 616-866-0992
Date 10/23/01 # of pages ▶ 5
From Diane
Co. Tannin Corp.
Phone # 978-532-4010
Fax # 978-532-5536

SUBMITTED TO CHEMTREC
DATE: 2/22/01

Material Safety Data Sheet
According to 91/155 EC

Printing date 02.02.2001 Reviewed on 26.01.2001

Trade name: Truponat LNA

(Contd. of page 1)

Water, water haze, extinguishing powder, foam, CO2

- **Special hazards caused by the substance, its products of combustion or resulting gases:** gases from burning organic material are breathing poisons
- **Protective equipment:** Quenching, saving and clearing work in case of fire or smouldering gas must be done with heavy gas mask and breating equipment.
- **Additional information** Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Person-related safety precautions:** Keep people at a distance and stay on the windward side.
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose contaminated material as waste according to item 13.
- **Additional information:** See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**
- **Information for safe handling:** No special measures required.
- **Information about fire - and explosion protection:** No special measures required.

- **Storage**
- **Requirements to be met by storerooms and receptacles:** Use standard storage conditions: at ambient temperature and protected from light, air and humidity
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

8 Exposure controls and personal protection gear

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Ingredients with limit values that require monitoring at the workplace:** The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.

- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures are to be adhered to when handling chemicals. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. Do not eat, drink, smoke or sniff while working.
- **Respiratory protection:** Not required.
- **Protection of hands:** safety gloves have to be resistant to chemicals
- **Eye protection:** Tightly sealed goggles.

(Contd. on page 3)

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SUBMITTED TO CHEMICAL
DATE: 2/22/01

Material Safety Data Sheet
According to 91/155 EC

Printing date 02.02.2001 Reviewed on 26.01.2001

Trade name: Truponat LNA

(Contd. of page 2)

· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **Form:**	Fluid
· **Colour:**	Red-brown
· **Odour:**	Recognizable
· **Change in condition**	
Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined
· **Flash point:**	Not applicable
· **Self-igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Density:**	Not determined
· **Solubility in / Miscibility with Water:**	Fully miscible
· **pH-value (100 g/l) at 20°C:**	ca. 9.5

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**

· **LD/Lc50 values relevant for classification:**		
sodium thioglycolate solution		
Oral	LD50	504 mg/kg (mouse)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
Harmful
Irritant

12 Ecological information:

· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
Do not allow product to reach ground water, water course or sewage system.

(Contd. on page 4)
GB

SUBMITTED TO CHEMTREC
DATE: 2/22/01

Material Safety Data Sheet
According to 91/155 EC

Printing date 02.02.2001 Reviewed on 26.01.2001

Trade name: Truponat LNA

(Contd. of page 3)

Danger to drinking water if even small quantities leak into the ground.

13 Disposal considerations

· **Product:**
· **Recommendation** Disposal must be made according to official regulations.

· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be reused.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **Land transport ADR/RID (cross-border)**
· **ADR/RID class:** -

· **Maritime transport IMDG:**
· **IMDG Class:** -
· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**
· **ICAO/IATA Class:** -

· **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulations

· **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Xn Harmful

· **Hazard-determining components of labelling:**
sodium thioglycolate solution

· **Risk phrases:**
22 Harmful if swallowed.
36/38 Irritating to eyes and skin.

· **Safety phrases:**
3 Keep in a cool place.
25 Avoid contact with eyes.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
60 This material and its container must be disposed of as hazardous waste.

(Contd. on page 5)

Material Safety Data Sheet
According to 91/155 EC

Printing date 02.02.2001 Reviewed on 26.01.2001

Trade name: Truponat LNA

(Contd. of page 4)

· **National regulations**

· **Waterhazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

GB

SUBMITTED TO CHEMTREC
DATE: 2/22/01

Material Safety Data Sheet
According to 91/155 EC

Printing date 04.12.2001 Reviewed on 03.12.2001

1 Identification of substance:

· **Product details:**

· **Trade name:** Truponat PAC conc.

· **Manufacturer/Supplier:**
TRUMPLER GmbH & Co. Chemische Fabrik
Hafenstr. 10
D - 67547 Worms
Telephone: 0 62 41 / 40 60
Telefax : 0 62 41 / 40 61 11

P.O. Box 23 36
D - 67513 Worms

· **Further information obtainable from:** Department Environmental Protection

2 Composition/Data on components:

· **Chemical characterization**
· **Description:** Liming agent on the basis of reducing organic compounds, free of sulphides

· **Dangerous components:**

1758-73-2	aminoiminomethanesulphinic acid	Xn; R 22-36/38	> 25%

3 Hazard identification

· **Hazard description:**

Xn Harmful

· **Information concerning to particular hazards to man and environment**
R 22 Harmful if swallowed.
R 36/38 Irritating to eyes and skin.
· **Classification system**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

· **General information**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation**
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air; consult doctor in case of complaints.
· **After skin contact** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing**
Rinse mouth with water.
Call for a doctor immediately.

5 Fire fighting measures

· **Suitable extinguishing agents**
Use fire extinguishing methods suitable to surrounding conditions.
Water, water haze, extinguishing powder, foam, CO2
· **Special hazards caused by the substance, its products of combustion or resulting gases:**
gases from burning organic material are breathing poisons
Formation of toxic gases is possible during heating or in case of fire.
Carbon monoxide (CO)
carbon dioxide

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EC

Printing date 04.12.2001 Reviewed on 03.12.2001

Trade name: Truponat PAC conc.

(Contd. of page 2)

* 9 Physical and chemical properties:

· **Form:**	Powder
· **Colour:**	White
· **Odour:**	Odourless
· **Change in condition**	
Melting point/Melting range:	ca. 125°C
Boiling point/Boiling range:	undetermined
· **Flash point:**	Not applicable
· **Flammability (solid, gaseous)**	self accelerating determinating temperatue > 104°C (SADT)
· **Danger of explosion:**	May form explosive dust-air-mixtures.
· **Density at 20°C:**	ca. 1.68 g/cm³
· **Solubility in / Miscibility with Water at 20°C:**	30 g/l
· **pH-value (10 g/l) at 20°C:**	ca. 4.5

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
> 120 °C
Protect from humidity
Keep away from sources of heat.
· **Materials to be avoided:** strong lyes and oxidation agents
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:**
When heated or in case of fire possible formation of toxic fumes.
Carbon monoxide and carbon dioxide
Sulphur dioxide
Nitrogen oxides (NOx)

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Produkttoxizität		
Oral	LD50	1120 (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
Harmful
Irritant
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

12 Ecological information:

· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Material Safety Data Sheet
According to 91/155 EC

Printing date 04.12.2001 Reviewed on 03.12.2001

Trade name: Truponat PAC conc.

(Contd. of page 4)

· **Code letter and hazard designation of product:**

Xn Harmful

· **Hazard-determining components of labelling:**
aminoiminomethanesulphinic acid

· **Risk phrases:**
22 Harmful if swallowed.
36/38 Irritating to eyes and skin.

· **Safety phrases:**
3/7 Keep container tightly closed in a cool place.
8 Keep container dry.
14 Keep away from alkaline solutions.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

· **National regulations**

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
The reviewed chapters are marked with a star on the left side.

GB

Material Safety Data Sheet
According to 91/155 EC

Printing date 23.11.2000 Reviewed on 21.11.2000

CHEMTREC EMERGENCY # 800-424-9300

Post-it™ brand fax transmittal memo 7671 # of pages ▸ 4
To Sue Barber From Tom
Co. Wolverine Leather Co. Tannin Corp.
Dept. Phone # 978-532-4610
Fax # 1-616-866-0992 Fax # 978-532-5536

1 Identification of substance:

· **Product details:**

· **Trade name:** **Trupotan US**

· **Manufacturer/Supplier:**
TRUMPLER GmbH & Co. Chemische Fabrik
Hafenstr. 10 P.O. Box 23 36
D - 67547 Worms D - 67513 Worms
Telephone: 0 62 41 / 40 60
Telefax : 0 62 41 / 40 61 11

· **Further information obtainable from:**
Department Environmental Protection

2 Composition/Data on components:

· **Chemical characterization**
· **Description:** masking and basifying agent

Dangerous components:
124-04-9 adipic acid < 10 %
Xi; R 36

1309-48-4 magnesium oxide < 20 %

3 Hazard identification

· **Hazard description:** not applicable
· **Information concerning to particular hazards to man and environment**
· not applicable
· **Classification system**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

· **General information**
Immediately remove any clothing soiled by the product.
· **After inhalation**
Supply fresh air; consult doctor in case of complaints.
· **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
· **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing**
Rinse mouth with plenty of water, in case of illness seek medical advice.

5 Fire fighting measures

· **Suitable extinguishing agents**
Use fire extinguishing methods suitable to surrounding conditions.
Water, water haze, extinguishing powder, foam, CO2
· **Special hazards caused by the substance, its products of combustion or resulting gases:**
During heating or in case of fire poisonous gases are produced.

(Contd. on page 2)

Material Safety Data Sheet
According to 91/155 EC

Printing date 23.11.2000 Reviewed on 21.11.2000

Trade name: Trupotan US

(Contd. of page 1)

· **Protective equipment:**
Quenching, saving and clearing work in case of fire or smouldering gas must be done with heavy gas mask and breating equipment.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Person-related safety precautions:**
Keep people at a distance and stay on the windward side.
· **Measures for environmental protection:**
Do not allow to enter sewers/ surface or ground water.
· **Measures for cleaning/collecting:** Pick up mechanically.
· **Additional information:**
See Section 8 for information on personal protection equipment.

7 Handling and storage

· **Handling**
· **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
· **Information about fire - and explosion protection:**
No special measures required.

· **Storage**
· **Requirements to be met by storerooms and receptacles:**
Use standard storage conditions: at ambient temperature and protected from light, air and humidity
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
· **Further information about storage conditions:** Store in dry conditions.

8 Exposure controls and personal protection gear

· **Additional information about design of technical facilities:**
No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace:
1309-48-4 magnesium oxide
OES (Great Britain): Long-term value: 10* 4** mg/m³
*total inhalable dust **fume and respirable dust
· **Additional information:**
The lists valid during the making were used as basis.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures are to be adhered to when handling chemicals.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not eat, drink, smoke or sniff while working.
· **Respiratory protection:** Dust mask
· **Protection of hands:** safety gloves have to be resistant to chemicals
· **Eye protection:** Safety glasses

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 23.11.2000 Reviewed on 21.11.2000

Trade name: Trupotan US

(Contd. of page 2)

· **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· **Form:** Powder
· **Colour:** Beige
· **Odour:** Recognizable

	Value/Range	Unit	Method
· **Change in condition**			
· **Melting point/Melting range:**	undetermined		
· **Boiling point/Boiling range:**	undetermined		
· **Flash point:**	Not applicable		
· **Self-igniting:**	Product is not selfigniting.		
· **Danger of explosion:** May form explosive dust-air-mixtures.			
· **Density:**	Not determined		
· **Solubility in / Miscibility with Water:**	Insoluble		
· **pH-value:** (100 g/l) at 20 ° C	ca. 5.5		

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information:

· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Material Safety Data Sheet
According to 91/155 EC

Printing date 23.11.2000 Reviewed on 21.11.2000

Trade name: Trupotan US

13 Disposal considerations

· **Product:**
· **Recommendation** Disposal must be made according to official regulations.

· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be reused.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

14 Transport information

· **Land transport ADR/RID (cross-border)**
· **ADR/RID class:** -

· **Maritime transport IMDG:**
· **IMDG Class:** -
· **Marine pollutant:** No

· **Air transport ICAO-TI and IATA-DGR:**
· **ICAO/IATA Class:** -

· **Transport/Additional information:**
Not dangerous according to the above specifications.

15 Regulations

· **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

· **National regulations**

· **Waterhazard class:**
Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

GB

Tan yar'd R+D

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000 Reviewed on 21.06.1999

CHEMTREC EMERGENCY # 800-424-9300

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 4
To: Sise | From: Customer Service
Co.: Wolverine | Co.: Tannin Corp.
Dept.: | Phone #: 978-532-4010
Fax #: 1-616-866-3680 | Fax #: 978-532-5536

1 Identification of substance:

· **Product details:**

· **Trade name:** Trupowet-SA

· **Manufacturer/Supplier:**
TRUMPLER GmbH & Co. Chemische Fabrik
Hafenstr. 10 P.O. Box 23 36
D - 67547 Worms D - 67513 Worms
Telephone: 0 62 41 / 40 60
Telefax : 0 62 41 / 40 61 11

Tannin

· **Further information obtainable from:**
Department Environmental Protection

2 Composition/Data on components:

· **Chemical characterization**
· **Description:** enzymatic soaking agent

Dangerous components:
Void

3 Hazard identification

· **Hazard description:** not applicable
· **Information concerning to particular hazards to man and environment**
· not applicable
· **Classification system**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4 First aid measures

· **After inhalation**
Supply fresh air; consult doctor in case of complaints.
· **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
· **After eye contact**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing**
Rinse mouth with plenty of water, in case of illness seek medical advice.

5 Fire fighting measures

· **Suitable extinguishing agents**
Water, water haze, extinguishing powder, foam, CO2
· **Protective equipment:** No special measures required.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Person-related safety precautions:** Not required.
· **Measures for environmental protection:** No special measures required.

(Contd. on page 2)

GB

2 non sales

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000 Reviewed on 21.06.1999

Trade name: Trupowet SA

(Contd. of page 1)

· **Measures for cleaning/collecting:** Pick up mechanically.
· **Additional information:** No dangerous substances are released.

7 Handling and storage

· **Handling**
· **Information for safe handling:** Prevent formation of dust.
· **Information about fire - and explosion protection:**
No special measures required.

· **Storage**
· **Requirements to be met by storerooms and receptacles:**
No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Store in dry conditions.
Store in a cool place.
· **Storage class**
· **Class according to regulation on flammable liquids:** Void

8 Exposure controls and personal protection gear

· **Additional information about design of technical facilities:**
No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:**
The lists valid during the making were used as basis.

· **Personal protective equipment**
· **General protective and hygienic measures**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Dust mask
· **Protection of hands:** Protective gloves.
· **Eye protection:** Safety glasses

9 Physical and chemical properties:

· **Form:** Powder
· **Colour:** Beige
· **Odour:** Characteristic

	Value/Range	Unit	Method
· **Change in condition**			
· **Melting point/Melting range:**	undetermined		
· **Boiling point/Boiling range:**	undetermined		
· **Flash point:**	Not applicable		
· **Self-igniting:**	Product is not selfigniting.		

· **Danger of explosion:**
Product does not present an explosion hazard.

(Contd. on page 3)

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000 Reviewed on 21.06.1999

Trade name: Trupowet SA

(Contd. of page 2)

· **Density:** Not determined

· **Bulk density:** at 20 ° C ca. 1100 kg/m³

· **Solubility in / Miscibility with**
· **Water:** Soluble

· **pH-value:** (100 g/l) at 20 ° C ca. 7

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Dangerous reactions** No dangerous reactions known
· **Dangerous decomposition products:**
No dangerous decomposition products known

11 Toxicological information

· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

12 Ecological information:

· **General notes:** Generally not hazardous for water.

13 Disposal considerations

· **Product:**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:**
Non contaminated packagings may be reused.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
· **Recommended cleansing agents:**
Water, if necessary together with cleansing agents.

14 Transport information

· **Maritime transport IMDG:**
· **Marine pollutant:** No

(Contd. on page 4)

Material Safety Data Sheet
According to 91/155 EC

Printing date 12.10.2000 Reviewed on 21.06.1999

Trade name: Trupowet SA

(Contd. of page 3)

· **Transport/Additional information:**
Not dangerous according to the above specifications.

15 Regulations

· **Labelling according to EU guidelines:**
Observe the general safety regulations when handling chemicals
The product is not subject to identification regulations under EU Directives and the Ordinance on Hazardous Materials (German GefStoffV).

· **Safety phrases:** 22 Do not breathe dust.

· **National regulations**

· **Classification according to VbF:** Void

· **Waterhazard class:** Generally not hazardous for water.

16 Other information:

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

GB

MATERIAL SAFETY DATA SHEET

IDENTITY:

TS Powder

Section 1: Suppliers Information:

Manufacture's Name
Original Bradford Soap Works, Inc.
Address:
200 Providence Street
West Warwick, RI 02893

Date Prepared: 5/98

Prepared by: Albert Kendra

Telephone Number For Information:
(401) 821-2141

Telephone Number For Emergency:
(401) 821-2141

Section 2: Hazardous Ingredients/Identity Information:

Hazardous Components:
None

Section 3: Physical/Chemical Characteristics:

Boiling Point: N/A
Vapor Pressure: N/A
Vapor Density: N/A
Solubility in water: Moderately
Appearance: Soap Pellets, Noodles Flakes, Powder

Specific Gravity @ 25°C: 1.04
Melting Point: N/A
Evaporation Rate: N/A

Odor: Characteristic

Section 4: Fire and Explosion Hazard Data:

Flash Point: N/A
Extinguishing Media: Carbon Dioxide, Dry Chemical, Water
Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: None

Section 5: Reactivity Data:

Stability: Stable
Conditions to avoid: None
Incompatibility: None
Hazardous Decomposition of By-products: None
Hazardous Polymerization: Will not occur

MATERIAL SAFETY DATA SHEET

Section 6: Health Hazard Data:

Routes of Entry: skin and eye contact, oral ingestion
Health Hazards: Acute - Mild eye irritant
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No
Signs and symptoms of exposure: Irritation of eyes may cause burning with tearing. Oral ingestion may result in mild gastrointestinal irritation with nausea, vomiting or diarrhea.
Medical Conditions Generally Aggravated by Exposure: Use on dry skin may aggravate the existing condition.
Emergency First Aid Procedures:
Inhalation: Remove to fresh air immediately, contact physician as needed.
Eye contact: Flush eyes with water, contact physician as needed.
Skin contact: Rinse off with water, contact physician as needed.
Ingestion: Dilute with fluids and treat symptomatically, contact physician immediately

Section 7:Precuations for Sale Handling and Use:

Steps to be taken in Case Material is Release or Spilled: Sweep up and dispose using waste disposal method described below.
Waste Disposal Method: Small quantities can be flushed down the sewer with excess water. Large quantities should be sweep up and disposed in an approved landfill.
Precautions to be taken in Handling and Storage: Avoid storing where moisture contact case or wrapper.
Other precautions: Always practice good hygiene, wash hands after contact.

Section 8: Control Measures:

Respiratory Protection: Use dust type filter if needed.
Ventilation: Local Exhaust: Not required **Special:** N/A
Mechanical (general): Acceptable **Other:** N/A
Protective Gloves: Not required **Eye Protection:** Safety glasses
Other Protective Clothing or Equipment: None required
Work/Hygienic Practices: Always practice good hygiene, wash hands after contact.

DISCLAIMER:

The information in this MSDS was obtained from current and reliable sources. This data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to determine safe conditions for the use of this product and to assume liability for loss, injury, or expense resulting from the misuse of this product.

TS Powder

Material Safety Data Sheet

AMMONIUM STEARATE 33%

QUICK IDENTIFIER
Common Name: (used on label and list)

May be used to comply with OSHA's Hazard Communication Standard, 29CFR 1910. 1200. Standard must be consulted for specific requirements.

CAS No. 1002-89-7

SECTION 1 -

Manufacturer's Name: Original Bradford Soap Works Inc.

Address: 200 Providence St.

Emergency Telephone No.: 401-821-2141

City, State, and ZIP: West Warwick, R.I. 02893

Other Information Calls: same

Signature of Person Responsible for Preparation (Optional)

Date Prepared: 30 May 1986

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV ✓	Other Exposure Limits	% (optional)	CAS NO.
None, other than possibility of Ammonia (Less than 1%)					
and Ammonia fumes		25 ppm (as NH_3)			

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: NA

Specific Gravity (H_2O=1): .960-.980

Vapor Pressure (mm Hg): NA

Vapor Density (Air = 1): NA

Solubility in Water: Complete

Reactivity in Water: None

Appearance and Odor: Pearly white liquid,ammoniacal odor

Melting Point: NA

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point: NA F C

Method Used: Water solution.

Flammable Limits in Air % by Volume: LEL Lower NA; UEL Upper NA

Auto-Ignition Temperature: NA

Extinguisher Media: NA

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

The information herein is given in good faith, but no Warranty, express or implied, is made. Supplier assumes no liability in connection with any use of this information.

SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable ☐ Stable ☒ Conditions to Avoid: Use normal storage.

Incompatability (Materials to Avoid): Acids, metallic salts.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: May Occur ☐ Will Not Occur ☒ Conditions to Avoid: NA

SECTION 6 – HEALTH HAZARDS

1. Acute: None known
2. Chronic: None known

Signs and Symptoms of Exposure: None known (Same as common soap)

Medical Conditions Generally Aggravated by Exposure: None known

Chemical Listed as Carcinogen or Potential Carcinogen — National Toxicology Program: Yes ☐ No ☒ — I.A.R.C. Monographs: Yes ☐ No XX — OSHA: Yes ☐ No ☒

Emergency and First Aid Procedures: Same as common soap. See below.

ROUTES OF ENTRY

1. Inhalation: Normally only a nuisance problem.
2. Eyes: Flush with water. Effects are transient. If problems, consult physician.
3. Skin: Wash off with water.
4. Ingestion: Emetic normally NOT recommended. If problems, consult physician.

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Use normal storage, away from temperature extremes, high or low.
Keep drum covered to prevent evaporation and drying.

Other Precautions: None known.

Steps to be Taken in Case Material is Released or Spilled: Contain spill. Pick up and flush remainder away with water.

Waste Disposal Methods (Consult federal, state, and local regulations): Normal. No special requirements.
Sewer, landfill, etc. Product is biodegradable.

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): If desired, cannister type mask.

Ventilation — Local Exhaust: Helpful. — Mechanical (General): — Special: — Other:

Protective Gloves: If desired, chemical resistant gloves. — Eye Protection: Splash goggles.

Other Protective Clothing or Equipment: None.

Work/Hygienic Practices: NA

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

CU-F1R Printed by Labelmaster, Division of American Labelmark Company Inc Chicago, IL 60646-6719 1-800-621-5808 • (321) 478-0900

Color

MATERIAL SAFETY DATA SHEET

QUICK IDENTIFIER: ACID BLACK 10BR 126%

19-240574

TWILIGHT COLOR & CHEMICAL COMPANY
542 NORTH PERRY STREET
JOHNSTOWN, NEW YORK 12095

EMERGENCY PHONE NUMBER: (518) 762-0051

DATE: 10/5/01

SECTION I - HAZARDOUS INGREDIENTS / IDENTITY

HAZARDOUS COMPONENTS: NONE UNDER 29 CFR 1910.1200
OSHA PEL: N/A
ACGIH TLV: N/A
OTHER EXPOSURE: N/A
% (OPTIONAL): N/A
CAS NUMBER: N/A

SECTION II - PHYSICAL & CHEMICAL CHARACTERISTICS

BOILING POINT: N/A
SPECIFIC GRAVITY (H20=1): N/A
VAPOR PRESSURE(mm Hg): N/A
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY IN WATER: SOLUBLE
REACTIVITY IN WATER: N/A
APPEARANCE AND ODOR: ODORLESS DRY POWDER
MELTING POINT: N/A

SECTION III - FIRE & EXPLOSION DATA

FLASH POINT: N/A
METHOD USED: N/A
FLAMMABLE LIMITS IN AIR % BY VOLUME: LEL LOWER: N/A UEL UPPER: N/A
AUTO IGNITION TEMPERATURE: NONE KNOWN
EXTINGUISHER MEDIA: WATER, DRY CHEMICAL, OR CO2
SPECIAL FIRE FIGHTING PROCEDURES: SELF CONTAINED BREATHING APPARATUS TO AVOID BREATHING FUMES.
UNUSUAL FIRE AND EXPLOSION HAZARDS: ORGANIC DUSTS HAVE POTENTIAL TO BE EXPLOSIVE WITH SPARK OR FLAME INITIATION. MAINTAIN GOOD HOUSEKEEPING FOR CONTROL OF DUST.

SECTION IV - PHYSICAL HAZARDS REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: NONE
INCOMPATIBILITY (MATERIAL TO AVOID): NO SPECIFIC INCOMPATIBILITY
HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE AND / OR CARBON DIOXIDE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: NONE

SECTION V - HEALTH HAZARDS

ACUTE: NO SPECIFIC ACUTE HAZARDS ARE KNOWN. HOWEVER A MATERIAL THAT GETS INTO THE EYES OR SKIN MAY IRRITATE.
CHRONIC: N/A
SIGNS AND SYMPTOMS OF EXPOSURE: NONE
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE KNOWN
CHEMICALS LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:
NATIONAL TOXICOLOGY PROGRAM: NO
I.A.R.C. MONOGRAPHS: NO
OSHA: NO
EMERGENCY AND FIRST AID PROCEDURES: SEE BELOW

SECTION VI - ROUTES OF ENTRY

INHALATION: REMOVE SUBJECT TO FRESH AIR, SEEK MEDICAL AID IF LUNG IRRITATION PERSISTS OR IF BREATHING BECOMES DIFFICULT.
EYES: FLUSH IMMEDIATELY UNDER RUNNING WATER FOR 15 MINUTES. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.
SKIN: WASH THOROUGHLY WITH SOAP AND WATER FOR 15 MINUTES. IF SKIN IRRITATION OCCURS, SEEK MEDICAL ATTENTION.
INGESTION: IF INGESTED, GET MEDICAL ASSISTANCE.

SECTION VII - SPECIAL PRECAUTIONS AND SPILL PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: KEEP CONTAINER CLOSED AND STORE IN A COOL DRY PLACE. AVOID HIGH TEMPERATURES AND OPEN FLAME.
OTHER PRECAUTIONS: IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICES, HANDLE WITH CARE AND AVOID UNNECESSARY PERSONAL CONTACT.
STEPS TO BE TAKEN IN CASE OF SPILLED MATERIAL: SPILLS SHOULD BE SWEPT UP CAREFULLY USING A SWEEPING COMPOUND TO AVOID DUSTING. DISCARD INTO A PROPER WASTE CONTAINER.
WASTE DISPOSAL: WASTE MATERIAL MAY BE DUMPED OR INCINERATED UNDER CONDITIONS WHICH MEET ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATOR (OR EQUIVALENT)
VENTILATION: LOCAL EXHAUST: PREFERABLE
MECHANICAL (GENERAL): ACCEPTABLE
SPECIAL: NONE
PROTECTIVE GLOVES: RUBBER OR PLASTIC
EYE PROTECTION: SAFETY GOGGLES
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: APRON AND BOOTS
WORK / HYGIENIC PRACTICES: CLOTHING SUITABLE TO AVOID SKIN CONTACT.

SECTION IX - ENVIRONMENTAL DATA

BOD 5: NOT EVALUATED
COD: NOT EVALUATED
FISH TOXICITY: NOT EVALUATED
SEED TOXICITY: NOT EVALUATED
ACTIVATED SLUDGE RESPIRATION INHIBITION TEST: NOT EVALUATED
CWA TOXIC POLLUTANTS: NONE KNOWN
ADDITIONAL ENVIRONMENTAL DATA: NONE

SECTION X - FEDERAL REGULATORY INFORMATION

TSCA: ALL COMPONENTS ARE LISTED IN TSCA INVENTORY.
CERCLA STATUS: NOT A HAZARDOUS SUBSTANCE UNDER CERCLA (40 CFR 302.4)
RCRA STATUS: NOT A HAZARDOUS WASTE UNDER RCRA (40 CFR 261)
DOT STATUS: NOT REGULATED
IATA: NOT REGULATED
IMDG: NOT REGULATED
SARA: SECTION 311 / 312 HAZARD CATEGORY: NOT REPORTABLE
SARA 313 CHEMICAL (S): NOT REPORTABLE
OTHER REGULATORY INFORMATION: NONE

SECTION XI - STATE RIGHT TO KNOW INFORMATION

HAZARDOUS INGREDIENT (S): NOT REGULATED

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND IS EXPRESSED OR IMPLIED IT IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

********** END OF MSDS SHEET **********

NH

MATERIAL SAFETY DATA SHEET

QUICK IDENTIFIER: ACID BLACK WA

TWILIGHT COLOR & CHEMICAL COMPANY
542 NORTH PERRY STREET
JOHNSTOWN, NEW YORK 12095

EMERGENCY PHONE NUMBER: (518) 762-0051

DATE: APRIL 21, 1997

SECTION I - HAZARDOUS INGREDIENTS / IDENTITY

HAZARDOUS COMPONENTS: NONE UNDER 29 CFR 1910.1200
OSHA PEL: N/A
ACGIH TLV: N/A
OTHER EXPOSURE: N/A
% (OPTIONAL): N/A
CAS NUMBER: N/A

SECTION II - PHYSICAL & CHEMICAL CHARACTERISTICS

BOILING POINT: N/A
SPECIFIC GRAVITY (H20=1): N/A
VAPOR PRESSURE(mm Hg): N/A
VAPOR DENSITY (AIR=1): N/A
SOLUBILITY IN WATER: SOLUBLE
REACTIVITY IN WATER: N/A
APPEARANCE AND ODOR: ODORLESS DRY POWDER
MELTING POINT: N/A

SECTION III - FIRE & EXPLOSION DATA

FLASH POINT: N/A
METHOD USED: N/A
FLAMMABLE LIMITS IN AIR % BY VOLUME: LEL LOWER: N/A UEL UPPER: N/A
AUTO IGNITION TEMPERATURE: NONE KNOWN
EXTINGUISHER MEDIA: WATER, DRY CHEMICAL, OR CO2
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CONDITIONS TO AVOID: NONE

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MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE KNOWN
CHEMICALS LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:
NATIONAL TOXICOLOGY PROGRAM: NO
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VENTILATION: LOCAL EXHAUST: PREFERABLE
MECHANICAL (GENERAL): ACCEPTABLE
SPECIAL: NONE
PROTECTIVE GLOVES: RUBBER OR PLASTIC
EYE PROTECTION: SAFETY GOGGLES
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CWA TOXIC POLLUTANTS: NONE KNOWN
ADDITIONAL ENVIRONMENTAL DATA: NONE

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DOT STATUS: NOT REGULATED
IATA: NOT REGULATED
IMDG: NOT REGULATED
SARA: SECTION 311 / 312 HAZARD CATEGORY: NOT REPORTABLE
SARA 313 CHEMICAL (S): NOT REPORTABLE
OTHER REGULATORY INFORMATION: NONE

SECTION XI - STATE RIGHT TO KNOW INFORMATION

HAZARDOUS INGREDIENT (S): NOT REGULATED

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********** END OF MSDS SHEET **********

STATE OF MICHIGAN

R 4896
Rev. 8/81

WASTE DISPOSAL MANIFEST

☐ Act 64 Waste (HAZARDOUS) ☒ Act 136 Waste ☐ Other **MI 0239780**

IDENTIFICATION

Generator's Name	Primary Transporter's Name	Treatment, Storage or Disposal Facility
WOLVERINE WORLD WIDE INC.	SPARTAN CHEMICAL CO.	ORGANIC CHEMICALS INC.
Site Address: 9341 Courtland, N.E. Rockford, MI 49351	Transporters Address: 2539 - 28th St. S. W. Wyoming, MI 49509	Facility Address: 3291 Chicago Drive Grandville, MI 49418
Phone Number: (616) 866-1561	Phone Number: (616) 534-4921	Phone Number: (616) 534-8675
Generator's Site EPA I.D. Number: MIT2001 7725	Transporter's EPA I.D. Number: MID079300125	Facility Site EPA I.D. Number: MID990858003

If more than one Transporter is to be utilized, give the Name and EPA I.D. Number of each:

GENERATOR COMPLETES — WASTE INFORMATION

LOT NO.	U.S. D.O.T. Shipping Name (or common name if there is no D.O.T. shipping name).	D.O.T. Hazard Class	U.N./N.A. No.	Haz. Class Code	Container No.	Container Type	Form: Solid	Form: Liquid	Form: Gas	Form: Sludge	Total Weight or Volume	Units	Hazardous or Liquid Waste Number
1.	Compound, Lacquer Thinning Liquid, N.O.S.	Flammable	NA-1142	08	10	Drms		x			500	Gals.	007L
2.													
3.													
4.													
5.													
6.													

COMMENTS

Include Safety precautions and special handling instructions.

Contain; get emergency pumping. After material is captured, flush with water

GENERATOR CERTIFICATION: I certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and U.S. EPA. I further certify that the information contained on the manifest is factual. I understand that the failure to accurately report all information requested by the manifest constitutes a violation of 1979 PA64 and/or 1969 PA136. I further understand that this manifest may be used in administrative and court proceedings.

Generator Signature: ① [signature]

Date Shipped MO. DAY YEAR: 9/21/83

TRANSPORTER COMPLETES

HAULER'S CERTIFICATION: I certify acceptance of the above identified wastes for transportation. I further certify that I shall deliver the hazardous wastes, together with this manifest, only to the destination specified by the generator on this manifest. I understand that this manifest can be used in administrative and court proceedings.

Transporter Vehicle I.D. No. No. 1 H 110-12

Subsequent Transporter Vehicle I.D. No's

Transporter Signature: ② [signature]

Subsequent transporter(s) signature(s): ③

Date(s) Received: 9/27/83

If the shipment cannot be delivered, describe the reasons for non-delivery.

TSDF COMPLETES

TSDF CERTIFICATION: I certify receipt at this facility of the above identified wastes and that this facility is licensed to accept those wastes. I also certify that the wastes were accompanied by a manifest properly certified by both the generator and hauler and that this facility is the destination indicated on the manifest. I understand that this manifest can be used in administrative and court proceedings.

TSDF Signature: ④ [signature]

Facility Site EPA I.D. Number: MID990858003

☒ Accepted ☐ Rejected

Date Received: 9/27/83

Describe any significant discrepancies between manifest and shipment.

Was a Surcharge Assessed? ☐ Yes ☒ No

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 800—292-4706 OR OUT-OF-STATE AT 517—373-7660 AND THE NATIONAL RESPONSE CENTER AT 800—424-8802 24 HOURS PER DAY.

GENERATOR 2ND COPY

WWW_104(e)_019280

STATE OF MICHIGAN

R 4896
Rev. 8/81

WASTE DISPOSAL MANIFEST

☐ Act 64 Waste (HAZARDOUS) ☒ Act 136 Waste ☐ Other

MI 0239780

IDENTIFICATION

Generator's Name	Primary Transporter's Name	Treatment, Storage or Disposal Facility
WOLVERINE WORLD WIDE INC.	SPARTAN CHEMICAL CO.	ORGANIC CHEMICALS INC.
Site Address: 9341 Courtland, N.E. Rockford, MI 49351	Transporters Address: 2539 - 28th St. S. W. Wyoming, MI 49509	Facility Address: 3291 Chicago Drive Grandville, MI 49418
Phone Number: (616) 866-1561	Phone Number: (616) 534-4921	Phone Number: (616) 534-8675
Generator's Site EPA I.D. Number:	Transporter's EPA I.D. Number: MID079300125	Facility Site EPA I.D. Number: MID990858003

If more than one Transporter is to be utilized, give the Name and EPA I.D. Number of each:

GENERATOR COMPLETES — WASTE INFORMATION

LOT NO.	U.S. D.O.T. Shipping Name (or common name if there is no D.O.T. shipping name).	D.O.T. Hazard Class	U.N./N.A. No.	Haz. Class Code	Container No.	Container Type	Solid	Liquid	Gas	Sludge	Total Weight or Volume	Units	Hazardous or Liquid Waste Number
1.	Compound, Lacquer Thinning Liquid, N.O.S.	Flammable	NA-1142	08	10	Drms		x				Gals.	007L
2.													
3.													
4.													
5.													
6.													

COMMENTS

Include Safety precautions and special handling instructions.

Contain! get emergency pumping. After material is captured, flush with water

GENERATOR CERTIFICATION: I certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and U.S. EPA. I further certify that the information contained on the manifest is factual. I understand that the failure to accurately report all information requested by the manifest constitutes a violation of 1979 PA64 and/or 1969 PA136. I further understand that this manifest may be used in administrative and court proceedings.

Generator Signature ①

Date Shipped MO. DAY YEAR

TRANSPORTER COMPLETES

HAULER'S CERTIFICATION: I certify acceptance of the above identified wastes for transportation. I further certify that I shall deliver the hazardous wastes, together with this manifest, only to the destination specified by the generator on this manifest. I understand that this manifest can be used in administrative and court proceedings.

Transporter Vehicle I.D. No. No. 1

Subsequent Transporter Vehicle I.D. No's

Transporter Signature ②

Subsequent transporter(s) signature(s) ③

Date(s) Received

If the shipment cannot be delivered, describe the reasons for non-delivery.

TSDF COMPLETES

TSDF CERTIFICATION: I certify receipt at this facility of the above identified wastes and that this facility is licensed to accept those wastes. I also certify that the wastes were accompanied by a manifest properly certified by both the generator and hauler and that this facility is the destination indicated on the manifest. I understand that this manifest can be used in administrative and court proceedings.

TSDF Signature ④

Facility Site EPA I.D. Number

☐ Accepted ☐ Rejected

Date Received

Describe any significant discrepancies between manifest and shipment.

Was a Surcharge Assessed? ☐ Yes ☐ No

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 800—292-4706 OR OUT-OF-STATE AT 517—373-7660 AND THE NATIONAL RESPONSE CENTER AT 800—424-8802 24 HOURS PER DAY.

GENERATOR 1ST COPY

WWW_104(e)_019281

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
P.O. Box 7035
Indianapolis, IN 46207-7035

PLEASE PRINT OR TYPE (Form designed for use on elite (12-pitch typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. MIT270012925
Manifest Document No. 9 5 0 0 1
2. Page 1 of 1
Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
WOLVERINE WORLDWIDE (TANNERY)
123 N MAIN STREET/ROCKFORD MI 49341
4. Generator's Phone (616) 866-5614

A. State Manifest Document Number INA 0773436
B. State Generator's ID IL 9260815639
C. State Transporter's ID IN6411-000-21
D. Transporter's Phone (219) 762-8588
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone (219) 397-3951

5. Transporter 1 Company Name: LEADER INDUSTRIES, INC.
6. US EPA ID Number: I N D 0 9 4 5 5 8 0 0 4
7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
POLLUTION CONTROL INDUSTRIES OF INDIANA
4343 KENNEDY AVENUE
EAST CHICAGO IN 46312
10. US EPA ID Number: I N D 0 0 0 6 4 6 9 4 3

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Total Wt/Vol.	I. Waste No.
a RQ WASTE FLAMMABLE LIQUID, NOS (CONTAINS: TOLUENE/ METHYL ETHYL KETONE) FLAMMABLE LIQUID UN 1993	001	DM	0005.5	G	D001
b					
c					
d					

J. Additional Descriptions for Materials Listed Above
11A. D035/F003/F005
S20058

K. Handling Codes for Wastes Listed Above
S05

15. Special Handling Instructions and Additional Information
11A. PCI#11976
EMERGENCY RESPONSE # (616) 866-5614
2-12-93
422#
ERG90 GUIDE 27

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: WAYNE D. GALLANT
Signature: Wayne D. Gallant
Date: Month 0 2 Day 1 1 Year 9 3

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: MARK BOYD
Signature: Mark Boyd
Date: Month 0 2 Day 1 1 Year 9 3

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19.
Printed/Typed Name: Nancy Toth
Signature: Nancy Toth
Date: Month 02 Day 12 Year 93

GENERATOR
TRANSPORTER
FACILITY

INA 0773436

In case of a spill call the Indiana Office of Environmental Response at 317/241-4336 (day or night) and the National Response Center at 800/424-8802 or 202/426-2675.

EPA Form 8700-22
Previous editions are obsolete
State Form 11865 (R/4-89)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
P.O. Box 7035
Indianapolis, IN 46207-7035

PLEASE PRINT OR TYPE *(Form designed for use on elite (12-pitch typewriter.)* *Form Approved. OMB No. 2050-0039. Expires 9-30-94*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. MIT270012925 — Manifest Document No. 93001

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law, but items D, F, H, I and K are required by State law.

3. Generator's Name and Mailing Address
WOLVERINE WORLDWIDE (TANNERY)
123 N MAIN STREET/ROCKFORD MI 49341

4. Generator's Phone (616) 866-5614

A. State Manifest Document Number: INA 0773436

B. State Generator's ID: IL 9260815639

5. Transporter 1 Company Name: LEADER INDSTRIES, INC.

6. US EPA ID Number: I.N.D.0.9.4.5.5.8.0.0.4

C. State Transporter's ID: IN6411-000-21

D. Transporter's Phone: (219) 762-8588

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
POLLUTION CONTROL INDUSTRIES OF INDIANA
4343 KENNEDY AVENUE
EAST CHICAGO IN 46312

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b					
c					
d					

J. Additional Descriptions for Materials Listed Above: 11A. D035/F003/F005

K. Handling Codes for Wastes Listed Above: S0 5

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Printed/Typed Name: WAYNE D. GALLANT — Signature: Wayne D. Gallant — Date: Month 0.2 Day 1.1 Year 9.3

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: MARK BOYD — Signature: Mark Boyd — Date: Month 0.2 Day 1.1 Year 9.3

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19.
Printed/Typed Name: — Signature: — Date: Month Day Year

GENERATOR / TRANSPORTER / FACILITY

In case of a spill call the Indiana Office of Environmental Response at 317/241-4336 (day or night) and the National Response Center at 800/424-8802 or 202/426-2675.

INA 0773436

EPA Form 8700-22
Previous editions are obsolete
State Form 11865 (R/4-89)

COPY 2. GENERATOR MAIL TO GENERATOR STATE

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