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Response to EPA 104(e)

Material Safety Data Sheets
Volume 2, part 2

September 4, 1998

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 08/09/95
PREPARER: A.L. DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 3285
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: FILLED CATALYZED POLYESTER
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
HYDROUS MAGNESIUM SILICATE	40-70	2	2	MG/M3	14807-96-6
DIALLYL PHTHALATE	10-30	NF	NF	NA	131-17-9
T-BUTYL PEROXYBENZOATE	0.1-1	NA	NA	NA	614-45-9

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT	: NIL
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: <1
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: NA
MELTING POINT	: NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: LIQUID	DENSITY	: NA

ODOR : FAINT SWEET ODOR ACIDITY/ALKALINITY : NA
ODOR THRESHOLD : UNK (PPM)
COLOR : AMBER PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

HYDROUS MAGNESIUM SILICATE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NONE MM HG
VAPOR DENSITY: (AIR=1) NONE

DIALLYL PHTHALATE
BOILING POINT: 581 (F) 305 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 8.8

T-BUTYL PEROXYBENZOATE
BOILING POINT: >167(F) >75 (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: >200(F) >93 (C) BY PMCC
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.

CARBON DIOXIDE.
FUMES OF ALLYIC COMPOUNDS.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
AVOID TEMPERATURES GREATER THAN 100 F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
CAUSES MILD SKIN IRRITATION.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
EYE CONTACT
CAUSES MILD EYE IRRITATION
CAUSES CORNEAL BURNS.
MEDICAL CONDITIONS AGGRAVATED
LIVER, KIDNEY
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
RESPIRATORY AILMENTS.
LIVER AND KIDNEY DAMAGE.
EYE DAMAGE.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
MONITOR FOR 24 HRS., OBSERVE AND SUPPORT LIVER FUNCTION.

TOXICITY: HYDROUS MAGNESIUM SILICATE
ACUTE ORAL LD50: NA MG/KG

ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL PHTHALATE
ACUTE ORAL LD50: 770 MG/KG RAT MG/KG
ACUTE DERMAL LD50: 3300 MG/KG RBT MG/KG
ACUTE INHALATION: LC50 825 PPM/1H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: T-BUTYL PEROXYBENZOATE
ACUTE ORAL LD50: >3600 (RAT) MG/KG
ACUTE DERMAL LD50: NF MG/KG
ACUTE INHALATION: LC50 >200 MG/L/4H (RAT)
OTHER: EYE IRRITANT.
AMES TEST: SLIGHTLY POSITIVE
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
SAFETY GLASSES.
MONOGOGGLES.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WARN OTHER WORKERS OF SPILL.

DISPOSAL METHOD

DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
AVOID BREATHING DUST; IF EXPOSED TO HIGH DUST CONCENTRATION, LEAVE AREA IMMEDIATELY.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
UNCURED PRODUCT CONTACT IRRITATES EYES.

ENGINEERING CONTROLS

EXHAUST VENTILATION
EYEWASH STATIONS.
A WELL VENTILATED AREA TO CONTROL DUST LEVELS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION LIQUID

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:

C	OXIDIZING MATERIALS
D1A	VERY TOXIC MATERIALS
D2B	TOXIC MATERIALS
F	DANGEROUSLY REACTIVE MATERIAL

NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 1 , HEALTH 1
ADDITIONAL INFORMATION

THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF

EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C	= CEILING LIMIT	NEGL	= NEGLIGIBLE
EST	= ESTIMATED	NF	= NONE FOUND
NA	= NOT APPLICABLE	UNKN	= UNKNOWN
NE	= NONE ESTABLISHED	REC	= RECOMMENDED
ND	= NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT	= REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

.....

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 09/29/93
PREPARER: A.L. DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 702B
CHEMICAL FAMILY: ORGANIC PEROXIDE
CHEMICAL NAME: DICUMYL PEROXIDE
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DICUMYL PEROXIDE	>99.000	10	15	MG/M3	80-43-3

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: DECOM(F) DECOM(C)	% VOLATILE BY WEIGHT	: NIL
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: <1
VAPOR DENSITY(AIR=1	: 9.3	(BUTYL ACETATE = 1)	
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: 1.01
MELTING POINT	: 100 (F) 38 (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: SOLID	DENSITY	: NF
ODOR	: ACRID FRUITY	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		

COLOR : PALE YELLOW PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: UNKNOWN
(STATE SOLVENT)

DICUMYL PEROXIDE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 9.3

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 260 (F) 127 (C) BY SETAFLASH
IGNITION TEMPERATURE: NE (F) NE (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
COOL EXPOSED CONTAINERS WITH WATER SPRAY AFTER EXTINGUSHING FIRE
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.
ORGANIC PEROXIDE

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
PHENOL.
ALCOHOLS.
METHANE.
ACETOPHENONE.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
DO NOT EXPOSE TO HEAT OR STORE AT TEMPERATURES ABOVE 120'F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
CAUSES MILD SKIN IRRITATION.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
VAPORS THAT ARE TOXIC AS WELL AS IRRITATING TO THE RESPIRATORY TRACT MAY BE PRODUCED UPON HEATING THIS MATERIAL.
EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
DERMAL AILMENTS.
OTHER
DECOMPOSITION PRODUCTS AND FUMES FROM VULCANIZATION AND CROSS-LINKING MAY CAUSE EYE, SKIN AND RESPIRATORY SENSITIZATION.
MAY BE A SKIN SENSITIZER.
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: DICUMYL PEROXIDE
ACUTE ORAL LD50: 4,100(RAT) MG/KG
ACUTE DERMAL LD50: NE MG/KG
ACUTE INHALATION: LC50 >224 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: NEGATIVE
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY

NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
RUBBER GLOVES.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
WEAR CLEAN, BODY-COVERING CLOTHING.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WARN OTHER WORKERS OF SPILL.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
DO NOT INHALE VAPORS.
ORGANIC PEROXIDE
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
AVOID BREATHING DUST; IF EXPOSED TO HIGH DUST CONCENTRATION, LEAVE AREA IMMEDIATELY.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
ENGINEERING CONTROLS

EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ORGANIC PEROXIDE TYPE F, SOLID 5.2, II, (DICUMYL PEROXIDE, DRY)
DOT HAZARD CLASS: 5.2, II
DOT LABEL(S): ORGANIC PEROXIDE
UN/NA NUMBER: UN3110
PLACARDS: ORGANIC PEROXIDE
EPA HAZARD WASTE: D003 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
C OXIDIZING MATERIALS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 85
TRANSPORTATION CLASS: IMDG: 5.2 PG 5230, TYPE F
IATA: TYPE F
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 2 , HEALTH 1
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

.....

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 12/06/94
PREPARER: A.L. DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 702C
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: UNSATURATED POLYESTER
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
VINYL TOLUENE	10-30	50	100	PPM	25013-15-4
MELAMINE FORMALDEHYDE RESIN	1-5	NA	NA	NA	68891-01-0
DICUMYL PEROXIDE	0.1-1	10	15	MG/M3	80-43-3
N-BUTYL ALCOHOL	0.1-1	50 C	50 C	PPM	71-36-3
XYLENE	0.1-1	100	100	PPM	1330-20-7
FORMALDEHYDE	<0.008	1	1	PPM	50-00-0

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLES: 1330-20-7
XYLENE 0.6%; 71-36-3 N-BUTYL ALCOHOL
0.9%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NF	(F) NF	(C)	% VOLATILE BY WEIGHT:	1.6
VAPOR PRESSURE(20C):	NF	MM HG		EVAPORATION RATE :	<1
VAPOR DENSITY(AIR=1:	NF			(BUTYL ACETATE = 1)	

FREEZING POINT	: NF (F) NA (C)		SPECIFIC GRAVITY	:	1.06
MELTING POINT	: NA (F) NA (C)		(WATER=1 @ 25C)		
PHYSICAL STATE	: LIQUID		DENSITY	:	NF
ODOR	: HYDROCARBON		ACIDITY/ALKALINITY	:	NA
ODOR THRESHOLD	: UNK (PPM)				
COLOR	: AMBER		PH	:	NA

SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

VINYL TOLUENE
BOILING POINT: 334 (F) 168 (C)
VAPOR PRESSURE: (20 C) 1.1 MM HG
VAPOR DENSITY: (AIR=1) 4.08

MELAMINE FORMALDEHYDE RESIN
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DICUMYL PEROXIDE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 9.3

N-BUTYL ALCOHOL
BOILING POINT: 243 (F) 117 (C)
VAPOR PRESSURE: (20 C) 4.4 MM HG
VAPOR DENSITY: (AIR=1) 2.6

XYLENE
BOILING POINT: 279 (F) 137 (C)
VAPOR PRESSURE: (20 C) 5.10 MM HG
VAPOR DENSITY: (AIR=1) 3.6

FORMALDEHYDE
BOILING POINT: -3 (F) -19 (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 115 (F) 46 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 @ 51 C UPPER 5.2 @ 84 C
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
CARBON DIOXIDE

DRY CHEMICAL
FOAM
WATER MIST

SPECIAL FIREFIGHTING PROCEDURES
VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
COMBUSTIBLE.
WEAR RESPIRATORY PROTECTION IF IN A CONFINED AREA.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.
TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.
CONTAINERS CAN BUILD UP PRESSURE IF EXPOSED TO HEAT (FIRE).

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE

HAZARDOUS
POLYMERIZATION MAY OCCUR

HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
PHENOL.
OXIDES OF NITROGEN.
ALCOHOLS.
PHOSPHORUS ACIDS.

INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.

CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
AVOID ANY SOURCE OF IGNITION.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE

INGESTION
HARMFUL IF SWALLOWED.
CAUSES VOMITING,NAUSEA,AND DIARRHEA
MAY CAUSE STOMACH DISCOMFORT.
MAY CAUSE PULMONARY EDEMA.

SKIN CONTACT
CAUSES MODERATE SKIN IRRITATION.

INHALATION
EXCESSIVE INHALATION CAUSES HEADACHE,DIZZINESS,NAUSEA AND INCOORDINATION.

EYE CONTACT

CAUSES MILD EYE IRRITATION

MEDICAL CONDITIONS AGGRAVATED

NONE KNOWN.

OTHER

NONE KNOWN.

CHRONIC EFFECTS OF EXPOSURE

CORNEAL DAMAGE.

PULMONARY EDEMA.

EVIDENCE OF FETOTOXICITY POTENTIAL HAS BEEN REPORTED FOR VINYL TOLUENE IN A RECENT INTRAPERITONEAL STUDY

THIS PRODUCT CONTAINS A COMPONENT AT 0.1-1% THAT MAY CAUSE BIRTH DEFECTS OR EMBRYO TOXICITY. DISCLOSURE AT 0.1-1% IS REQUIRED UNDER THE CANADIAN WHMIS ACT.

THIS PRODUCT CONTAINS A COMPONENT AT 0.1-1% THAT MAY CAUSE REPRODUCTIVE DISORDERS. DISCLOSURE AT 0.1-1% IS REQUIRED UNDER THE CANADIAN WHMIS ACT.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION

DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN

REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.

WASH WITH SOAP AND WATER.

GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION

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.

EYES

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

NOTE TO PHYSICIAN

ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: VINYL TOLUENE
ACUTE ORAL LD50: 4,000-5,700 (RAT) MG/KG
ACUTE DERMAL LD50: >4,500 (RBT) MG/KG
ACUTE INHALATION: LC50 3,020 MG/M3 4HR (MUS)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: MELAMINE FORMALDEHYDE RESIN
ACUTE ORAL LD50: >5000 (RAT) MG/KG
ACUTE DERMAL LD50: >5000 (RBT) MG/KG
ACUTE INHALATION: LC50 >15.9 MG/L 6H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DICUMYL PEROXIDE
ACUTE ORAL LD50: 4,100(RAT) MG/KG
ACUTE DERMAL LD50: NE MG/KG

ACUTE INHALATION: LC50 >224 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: NEGATIVE

TOXICITY: N-BUTYL ALCOHOL
ACUTE ORAL LD50: 790 (RAT) MG/KG
ACUTE DERMAL LD50: 3400 (RBT) MG/KG
ACUTE INHALATION: LC50 8000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: XYLENE
ACUTE ORAL LD50: 4,300 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: LC50 5000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: FORMALDEHYDE
ACUTE ORAL LD50: 800 (RAT) MG/KG
ACUTE DERMAL LD50: 270 (RAT) MG/KG
ACUTE INHALATION: LC50 590 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.

DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
INCINERATION RECOMMENDED IN APPROVED INCINERATOR ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS
EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION

DOT HAZARD CLASS: 3, III
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1866
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4

OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B3 COMBUSTIBLE LIQUIDS
C OXIDIZING MATERIALS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 3.3 PG 3379 MARINE POLLUTANT
IATA: 3, III VINYL TOLUENE
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION

THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....

C	= CEILING LIMIT	NEGL	= NEGLIGIBLE
EST	= ESTIMATED	NF	= NONE FOUND
NA	= NOT APPLICABLE	UNKN	= UNKNOWN
NE	= NONE ESTABLISHED	REC	= RECOMMENDED
ND	= NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT	= REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

.....

THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.....
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MANUFACTURER'S INFORMATION
****

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 12/06/94
PREPARER: A.L.DRAKE

****
SECTION I - PRODUCT IDENTIFICATION
****

PRODUCT IDENTIFICATION: 704A
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: UNSATURATED POLYESTER RESIN
FORMULA: MIXTURE

****
SECTION II - PRODUCT COMPONENTS
****

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT 06	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
VINYL TOLUENE	10-30	50	100	PPM	25013-15-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

****
SECTION III - PHYSICAL DATA
****

**PRODUCT INFORMATION

BOILING POINT	:NA (F) NA (C)	% VOLATILE BY WEIGHT:	NEGLIG
VAPOR PRESSURE(20C):	NA MM HG	EVAPORATION RATE:	NA
VAPOR DENSITY(AIR=1):	NA	(BUTYL ACETATE = 1)	
FREEZING POINT:	NA (F) NA (C)	SPECIFIC GRAVITY:	1.07
MELTING POINT:	NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE:	LIQUID	DENSITY:	NF
ODOR:	HYDROCARBON	ACIDITY/ALKALINITY:	NA
ODOR THRESHOLD:	UNK (PPM)		

COLOR: AMBER PH: NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

VINYL TOLUENE
BOILING POINT: 334 (F) 168 (C)
VAPOR PRESSURE: (20 C) 1.1 MM HG
VAPOR DENSITY: (AIR=1) 4.08

****
SECTION IV - FIRE AND EXPLOSION DATA
****

FLASH POINT: 110 (F) 43 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 @ 51C UPPER 5.2 @ 84C
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE: SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA: ALCOHOL FOAM
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR. COMBUSTIBLE. WEAR RESPIRATORY PROTECTION IF IN A CONFINED AREA. POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS. POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE. EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

****
SECTION V - REACTIVITY DATA
****

STABILITY: STABLE
HAZARDOUS POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE. CARBON DIOXIDE. ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS. METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID:

KEEP AWAY FROM HEAT,SPARKS AND FLAME.
AVOID ANY SOURCE OF IGNITION.

****
SECTION VI - HEALTH HAZARD DATA
****

ACUTE SIGNS/EFFECTS OF EXPOSURE:
INGESTION: HARMFUL IF SWALLOWED. CAUSES VOMITING,NAUSEA,AND DIARRHEA NONE KNOWN. MAY CAUSE PULMONARY EDEMA.
SKIN CONTACT: CAUSES MODERATE SKIN IRRITATION.
INHALATION: EXCESSIVE INHALATION CAUSES HEADACHE, DIZZINESS, NAUSEA AND INCOORDINATION.
EYE CONTACT: CAUSES MILD EYE IRRITATION
MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.
OTHER: NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE: CORNEAL DAMAGE. PULMONARY EDEMA. EVIDENCE OF FETOTOXICITY POTENTIAL HAS BEEN REPORTED FOR VINYL TOLUENE IN A RECENT INTPAPERITONEAL STUDY

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN: REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION: 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.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN: ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: VINYL TOLUENE
ACUTE ORAL LD50: 4,000-5,700 (RAT) MG/KG
ACUTE DERMAL LD50: >4,500 (RBT) MG/KG

ACUTE INHALATION: LC50 3,020 MG/M3 4HR (MUS)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE: ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

****
SECTION VII - SPECIAL PROTECTIVE EQUIPMENT
****

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES: NEOPRENE.
EYE AND FACE PROTECTION: SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT: RUBBER APRON.
VENTILATION: USE ONLY IN WELL VENTILATED AREA. MECHANICAL VENTILATION.

****
SECTION VIII - SPILL, LEAK AND DISPOSAL PROCEDURE
****

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL. WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION. REMOVE SOURCES OF IGNITION. WARN OTHER WORKERS OF SPILL. INCREASE AREA VENTILATION.

DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. INCINERATION RECOMMENDED IN APPROVED INCINERATOR ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

****
SECTION IX - SPECIAL PRECAUTIONS
****
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30C (85F).
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
ENGINEERING CONTROLS: EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

****
SECTION X - SHIPPING AND REGULATORY CLASSIFICATION DATA
****
DOT SHIPPING NAME: RESIN SOLUTION

DOT HAZARD CLASS: 3, III
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1866
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 3.3 PG 3379 MARINE POLLUTANT
IATA: 3, III VINYL TOLUENE
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION: THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

C = CEILING LIMIT
E = ESTIMATED
NA = NOT APPLICABLE
NE = NONE ESTABLISHED
ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)

NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

****
MANUFACTURER'S INFORMATION
****

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 10/04/94
PREPARER: A.L.DRAKE

****
SECTION I - PRODUCT IDENTIFICATION
****

PRODUCT IDENTIFICATION: 704B
CHEMICAL FAMILY: PEROXIDE
CHEMICAL NAME: ORGANIC PEROXIDE
FORMULA: MIXTURE

****
SECTION II - PRODUCT COMPONENTS
****

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %6	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DIMETHYL PHTHALATE	15-40	5	5	MG/M3	131-11--3
METHYL ETHYL KETONE PEROXIDE	15-40	0.2C	0.7C	PPM	1338-23-4
HYDROGEN PEROXIDE	1-5	1	1	PPM	7722-84-1

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLE:
131-11-3 DIMETHYL PHTHALATE 35%

****
SECTION III - PHYSICAL DATA
****

**PRODUCT INFORMATION

BOILING POINT	: DECOM(F) DECOM(C)	% VOLATILE BY WEIGHT:	NEGLIG
VAPOR PRESSURE(20C):	NA MM HG	EVAPORATION RATE:	<1
VAPOR DENSITY(AIR=1:	> 1	(BUTYL ACETATE = 1)	
FREEZING POINT:	NA (F) NA (C)	SPECIFIC GRAVITY:	1.17
MELTING POINT:	NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE:	LIQUID	DENSITY:	NA

ODOR: SLIGHTLY PUNGENT ACIDITY/ALKALINITY: NA
ODOR THRESHOLD: UNK (PPM)
COLOR: SLIGHT YELLOW PH: NA
SOLUBILITY IN WATER (20C): INSOLUBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

****
SECTION IV - FIRE AND EXPLOSION DATA
****

FLASH POINT: 180 (F) 82 (C) BY SETAFLASH
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE: SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA: CARBON DIOXIDE
DRY CHEMICAL
FOAM
SPECIAL FIREFIGHTING PROCEDURES: COOL EXPOSED CONTAINERS WITH WATER SPRAY AFTER EXTINGUSHING FIRE; POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS; EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE. ORGANIC PEROXIDE. CONTAINERS CAN BUILD UP PRESSURE IF EXPOSED TO HEAT (FIRE).

****
SECTION V - REACTIVITY DATA
****

STABILITY: STABLE
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS. METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT,SPARKS AND FLAME. AVOID TEMPERATURES GREATER THAN 100 F.

****
SECTION VI - HEALTH HAZARD DATA
****

ACUTE SIGNS/EFFECTS OF EXPOSURE:
INGESTION: MAY BE FATAL IF SWALLOWED. MAY CAUSE SEVERE DAMAGE OF GASTROINTESTINAL TRACT.
SKIN CONTACT: MAY CAUSE SEVERE SKIN IRRITATION.
INHALATION: CAUSES IRRITATION OF THE MOUTH,NOSE,AND THROAT. HARMFUL IF INHALED.
EYE CONTACT: EYE CONTACT MAY CAUSE BLINDNESS. CAUSES SEVERE EYE BURNS.
MEDICAL CONDITIONS AGGRAVATED: RESPIRATORY, LIVER, KIDNEY
OTHER: NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE: DERMATITIS.
RESPIRATORY AILMENTS.
LIVER AND KIDNEY DAMAGE.
EYE DAMAGE.

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF SOAP AND WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
INHALATION: 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.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN: ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: **PRODUCT INFORMATION
ACUTE ORAL LD50: 1017 (RAT) MG/KG
ACUTE DERMAL LD50: 4000 (RBT) MG/KG
ACUTE INHALATION: 17 MG/L/4 HR (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: POSITIVE
PRINCIPALS ROUTES OF EXPOSURE: ORAL.
DERMAL - SKIN.

EYES.
INHALATION.
IS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS LISTED AS A POTENTIAL CARCINOGEN BY NTP, IARC OR OSHA
PRODUCTS/INGREDIENTS: METHYL ETHYL KETONE PEROXIDE IS LISTED IN THE OSHA SAFETY AND HEALTH GUIDE (1984) AS A SUSPECT CARCINOGEN. NIOSH (1981-82) LISTS AS CURRENTLY TESTED BY NTP FOR CARCINOGENSIS BIOASSAY AS OF JAN. 1983. REPORT IS NOT LISTED IN THE CURRENT NTP (1983).

****
SECTION VII - SPECIAL PROTECTIVE EQUIPMENT
****

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES: NEOPRENE.
EYE AND FACE PROTECTION: MONOGOGGLES. FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT: RUBBER APRON.
VENTILATION: USE ONLY IN WELL VENTILATED AREA. MECHANICAL VENTILATION.

****
SECTION VIII - SPILL, LEAK AND DISPOSAL PROCEDURE
****

TION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION. REMOVE SOURCES OF IGNITION. WARN OTHER WORKERS OF SPILL. INCREASE AREA VENTILATION. ABSORB SPILLS ON INERT MATERIAL SUCH AS PERLITE, VERMICULITE, SAND OR DIRT. THEN WET WITH WATER. PLACE IN DOUBLE POLYETHYLENE BAGS. ISOLATE FROM OTHER WASTE MATERIALS.

DISPOSAL METHOD: INCINERATION RECOMMENDED IN APPROVED INCINERATOR ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

****
SECTION IX - SPECIAL PRECAUTIONS
****

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

STORE UPRIGHT IN A COOL PLACE BELOW 30C (85F).
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
ORGANIC PEROXIDE
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
UNCURED PRODUCT CONTACT IRRITATES EYES.

ENGINEERING CONTROLS: EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

****
SECTION X - SHIPPING AND REGULATORY CLASSIFICATION DATA
****

DOT SHIPPING NAME: ORGANIC PEROXIDE TYPE D; LIQUID 5.2, II, (METHYL ETHYL KETONE PEROXIDE)
DOT HAZARD CLASS: 5.2, II
DOT LABEL(S): ORGANIC PEROXIDE
ID/NA NUMBER: UN3105
PLACARDS: ORGANIC PEROXIDE
EPA HAZARD WASTE: D003 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:

B3	COMBUSTIBLE LIQUIDS
C	OXIDIZING MATERIALS
D1A	VERY TOXIC MATERIALS
D2B	TOXIC MATERIALS
E	CORROSIVE MATERIAL
F	DANGEROUSLY REACTIVE MATERIAL

NMFC CLASSIFICATION: CLASS 85
TRANSPORTATION CLASS: IMDG: 5.2, PG 5225, TYPE D
IATA: TYPE D
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 2 , HEALTH 2
ADDITIONAL INFORMATION: THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE

C = CEILING LIMIT
EST= ESTIMATED
= NOT APPLICABLE
NE = NONE ESTABLISHED
ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)

NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 12/06/94
PREPARER: A L DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 707C
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: CATALYZED POLYESTER SOLUTION
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
VINYL TOLUENE	15-40	50	100	PPM	25013-15-4
DICUMYL PEROXIDE	1-5	10	15	MG/M3	80-43-3

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT	: NEGLIG
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: NA
VAPOR DENSITY(AIR=1	: NA		
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY (WATER=1 @ 25C)	: 1.07
MELTING POINT	: NA (F) NA (C)		
PHYSICAL STATE	: LIQUID	DENSITY	: NA
ODOR	: HYDROCARBON	ACIDITY/ALKALINITY	: NA

ODOR THRESHOLD : UNK (PPM)
COLOR : AMBER PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

VINYL TOLUENE
BOILING POINT: 334 (F) 168 (C)
VAPOR PRESSURE: (20 C) 1.1 MM HG
VAPOR DENSITY: (AIR=1) 4.08

DICUMYL PEROXIDE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 9.3

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 115 (F) 46 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 @ 51C UPPER 5.2 @ 84C
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
ALCOHOL FOAM
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
COMBUSTIBLE.
WEAR RESPIRATORY PROTECTION IF IN A CONFINED AREA.
COOL EXPOSED CONTAINERS WITH WATER SPRAY AFTER EXTINGUSHING FIRE
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.
ORGANIC PEROXIDE
TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS

POLYMERIZATION MAY OCCUR

HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS

CARBON MONOXIDE.
CARBON DIOXIDE.
ALCOHOLS.
ORGANIC ACID VAPORS.
METHANE.
ACETOPHENONE.

INCOMPATIBILITY (MATERIALS TO AVOID)

AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.

CONDITIONS TO AVOID

KEEP AWAY FROM HEAT,SPARKS AND FLAME.
AVOID TEMPERATURES GREATER THAN 100 F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE

INGESTION

HARMFUL IF SWALLOWED.
CAUSES VOMITING,NAUSEA,AND DIARRHEA
MAY CAUSE PULMONARY EDEMA.

SKIN CONTACT

CAUSES MODERATE SKIN IRRITATION.

INHALATION

EXCESSIVE INHALATION CAUSES HEADACHE,DIZZINESS,NAUSEA AND INCOORDINATION.

EYE CONTACT

CAUSES MILD EYE IRRITATION

MEDICAL CONDITIONS AGGRAVATED

NONE KNOWN.

OTHER

NONE KNOWN.

CHRONIC EFFECTS OF EXPOSURE

CORNEAL DAMAGE.
PULMONARY EDEMA.
EVIDENCE OF FETOTOXICITY POTENTIAL HAS BEEN REPORTED FOR VINYL TOLUENE IN A RECENT INTRAPERITONEAL STUDY

EMERGENCY AND FIRST AID PROCEDURES

INGESTION

DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN

REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION

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.

EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: VINYL TOLUENE
ACUTE ORAL LD50: 4,000-5,700 (RAT) MG/KG
ACUTE DERMAL LD50: >4,500 (RBT) MG/KG
ACUTE INHALATION: LC50 3,020 MG/M3 4HR (MUS)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DICUMYL PEROXIDE
ACUTE ORAL LD50: 4,100(RAT) MG/KG
ACUTE DERMAL LD50: NE MG/KG
ACUTE INHALATION: LC50 >224 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: NEGATIVE
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
ENGINEERING CONTROLS
EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION

DOT HAZARD CLASS: 3, III
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1866
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:

B3 COMBUSTIBLE LIQUIDS
C OXIDIZING MATERIALS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL

NMFC CLASSIFICATION: CLASS 55

TRANSPORTATION CLASS: IMDG: 3.3 PG 3379, MARINE POLLUTANT
IATA: 3, III VINYL TOLUENE

NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 2 , HEALTH 2

ADDITIONAL INFORMATION

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 10/04/93
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 712A
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: POLYESTER SOLUTION
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DIALLYL PHTHALATE	30-60	NF	NF	NA	131-17-9
HEXAMETHOXYMETHYLMELAMINE	3-7	NA	NA	NA	3089-11-0
FORMALDEHYDE	<0.030	1	1	PPM	50-00-0

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NF (F)	NF (C)	% VOLATILE BY WEIGHT	:	NF
VAPOR PRESSURE(20C)	: NF	MM HG	EVAPORATION RATE	:	<1
VAPOR DENSITY(AIR=1	: NF		(BUTYL ACETATE = 1)		
FREEZING POINT	: NF (F)	NF (C)	SPECIFIC GRAVITY	:	NF
MELTING POINT	: NA (F)	NA (C)	(WATER=1 @ 25C)		
PHYSICAL STATE	: LIQUID		DENSITY	:	NA

ODOR : MILD ALMOST NONE ACIDITY/ALKALINITY : NA
ODOR THRESHOLD : UNK (PPM)
COLOR : AMBER PH : NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

DIALLYL PHTHALATE
BOILING POINT: 581 (F) 305 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 8.8

HEXAMETHOXYMETHYLMELAMINE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

FORMALDEHYDE
BOILING POINT: -3 (F) -19 (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: >201(F) >94 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NF UPPER NF
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
ALCOHOL FOAM
CARBON DIOXIDE
DRY CHEMICAL
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS

CARBON MONOXIDE.
CARBON DIOXIDE.
OXIDES OF NITROGEN.
FUMES OF ALLYIC COMPOUNDS.
AMINES.
FORMALDEHYDE.

INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.

CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE

INGESTION
HARMFUL IF SWALLOWED.

SKIN CONTACT
CAUSES MODERATE SKIN IRRITATION.

INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.

EYE CONTACT
MAY CAUSE MODERATE EYE IRRITATION.
MAY CAUSE CORNEAL INJURY.

MEDICAL CONDITIONS AGGRAVATED
LIVER, KIDNEY

OTHER
NONE KNOWN.

CHRONIC EFFECTS OF EXPOSURE
RESPIRATORY AILMENTS.
LIVER AND KIDNEY DAMAGE.
EYE DAMAGE.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.

SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION
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.

EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN
MONITOR FOR 24 HRS., OBSERVE AND SUPPORT LIVER FUNCTION.

TOXICITY: DIALLYL PHTHALATE
ACUTE ORAL LD50: 770 MG/KG RAT MG/KG
ACUTE DERMAL LD50: 3300 MG/KG RBT MG/KG
ACUTE INHALATION: LC50 825 PPM/1H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: HEXAMETHOXYMETHYLMELAMINE
ACUTE ORAL LD50: 3,080 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: SEVERE EYE IRRITATION (RBT).
AMES TEST: UNKNOWN

TOXICITY: FORMALDEHYDE
ACUTE ORAL LD50: 800 (RAT) MG/KG
ACUTE DERMAL LD50: 270 (RAT) MG/KG
ACUTE INHALATION: LC50 590 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
MONOGOGGLES.
FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
UNCURED PRODUCT CONTACT IRRITATES EYES.
AVOID CONTACT WITH EYES.
ENGINEERING CONTROLS
EXHAUST VENTILATION
EYEWASH STATIONS.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION, LIQUID

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D1A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT

AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....

C	= CEILING LIMIT	NEGL	= NEGLIGIBLE
EST	= ESTIMATED	NF	= NONE FOUND
NA	= NOT APPLICABLE	UNKN	= UNKNOWN
NE	= NONE ESTABLISHED	REC	= RECOMMENDED
ND	= NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT	= REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.....

****
MANUFACTURER'S INFORMATION
****

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 09/29/93
PREPARER: A.L.DRAKE

****
SECTION I - PRODUCT IDENTIFICATION
****
PRODUCT IDENTIFICATION: 73517
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: UNSATURATED POLYESTER
FORMULA: MIXTURE

****
SECTION II - PRODUCT COMPONENTS
****

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
STYRENE	15-40	50SKN	50	PPM	100-42-5

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLES: 100-42-5
STYRENE 30.2%

****
SECTION III - PHYSICAL DATA
****
**PRODUCT INFORMATION

BOILING POINT	:NF	(F) NF	(C)	% VOLATILE BY WEIGHT:	NEGLIG
VAPOR PRESSURE(20C):	NF	MM HG		EVAPORATION RATE (BUTYL ACETATE = 1)	: NA
VAPOR DENSITY(AIR=1:	NF				
FREEZING POINT	:NA	(F) NA	(C)	SPECIFIC GRAVITY	: 1.12
MELTING POINT	:NA	(F) NA	(C)	(WATER=1 @ 25C)	
PHYSICAL STATE	:LIQUID			DENSITY:	: NF
ODOR	:DISAGREEABLE			ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	:UNK	(PPM)			

LOR: AMBER PH: NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

STYRENE
BOILING POINT: 293 (F) 145 (C)
VAPOR PRESSURE: (20 C) 4.5 MM HG
VAPOR DENSITY: (AIR=1) 3.6

****
SECTION IV - FIRE AND EXPLOSION DATA
****

FLASH POINT: 86 (F) 30 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 UPPER 6.1
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE: SENSITIVITY TO STATIC DISCHARGE IS EXPECTED;
MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA: CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
FLAMMABLE.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED
TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.

****
SECTION V - REACTIVITY DATA
****

STABILITY: STABLE
HAZARDOUS POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
ALDEHYDES.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC,BASIC OR
OXIDIZING AGENTS. METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAME.

****
SECTION VI - HEALTH HAZARD DATA
****

ACUTE SIGNS/EFFECTS OF EXPOSURE:
INGESTION: HARMFUL IF SWALLOWED. CAUSES VOMITING,NAUSEA,AND DIARRHEA
ASPIRATION CAN BE A HAZARD IF THIS MATERIAL IS SWALLOWED.
MAY CAUSE PULMONARY EDEMA.
SKIN CONTACT: MAY CAUSE A RASH AND ITCHING OF THE SKIN. MAY CAUSE MODERATE SKIN IRRITATION. WILL CAUSE SKIN DEFATTING.
INHALATION: EXCESSIVE INHALATION CAUSES HEADACHE, DIZZINESS, NAUSEA AND INCOORDINATION. CAUSES IRRITATION OF THE MOUTH,NOSE,AND THROAT. MAY BE FATAL IF INHALED. HARMFUL IF INHALED. CAN CAUSE UNCONSCIOUSNESS IF INHALED.
EYE CONTACT: CAUSES MODERATE EYE IRRITATION. CAUSES CORNEAL BURNS.
MEDICAL CONDITIONS AGGRAVATED: RESPIRATORY. PULMONARY DISORDERS. DERMAL AILMENTS.
CENTRAL NERVOUS SYSTEM DISORDERS.
OTHER: NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE: DERMATITIS. RESPIRATORY AILMENTS.
CENTRAL NERVOUS SYSTEM DAMAGE. LIVER AND KIDNEY DAMAGE. PULMONARY EDEMA. REPRODUCTIVE DISORDERS. CUMULATIVE SYSTEMATIC TOXICITY. EYE DAMAGE. LUNG DAMAGE.

EMERGENCY AND FIRST AID PROCEDURES:
INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN: REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION: 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.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT IEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN: ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

XICITY: STYRENE
UTE ORAL LD50: 5000(RAT) MG/KG
ACUTE DERMAL LD50: NF MG/KG
ACUTE INHALATION: LCLo 10000 PPM/30M (HMN)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE:
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
ABSORPTION THROUGH SKIN.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS LISTED AS A CARCINOGEN BY NTP, IARC OR OSHA
PRODUCTS/INGREDIENTS: IARC HAS CLASSIFIED STYRENE IN GROUP 2B POSSIBLY CARCINOGENIC IN HUMANS. THIS CLASSIFICATION IS NOT BASED ON ANY SIGNIFICANT NEW DATA THAT STYRENE MAY BE CARCINOGENIC BUT RATHER THAN ON A REVISED DEFINITION FOR GROUP 2B AND CONSIDERATION OF NEW DATA ON STYRENE OXIDE. A NUMBER OF LIFE TIME ANIMAL STUDIES WITH STYRENE INCLUDING THOSE CONDUCTED IN THE NCI BIOASSAY PROGRAM HAVE NOT SHOWN STYRENE TO BE CARCINOGENIC.

****
CTION VII - SPECIAL PROTECTIVE EQUIPMENT
****

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES: POLYVINYL ALCOHOL GLOVES.
EYE AND FACE PROTECTION: MONOGOGGLES.
OTHER PROTECTIVE EQUIPMENT: RUBBER APRON. WEAR EYE PROTECTION AND PROTECTIVE CLOTHING.
VENTILATION: USE ONLY IN WELL VENTILATED AREA. MECHANICAL VENTILATION.

****
SECTION VIII - SPILL, LEAK AND DISPOSAL PROCEDURE
****

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
PERSON NOT TRAINED SHOULD EVACUATE AREA.

DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

****
SECTION IX - SPECIAL PRECAUTIONS
****

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30C (85F)
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
WARNING! FLAMMABLE.
DO NOT INHALE VAPORS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
ENGINEERING CONTROLS: EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

****
SECTION X - SHIPPING AND REGULATORY CLASSIFICATION DATA
****

DOT SHIPPING NAME: RESIN SOLUTION
DOT HAZARD CLASS: 3, III
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1866
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4
OSHA HAZARD CLASS: CARCINOGEN, IRRITANT
WHMIS HAZARD CLASS:
B2 FLAMMABLE LIQUIDS
D2A VERY TOXIC MATERIALS

D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
WHMIS CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 3.3 PG 3379 MARINE POLIJJTANT
IATA: 3, III
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 3 , REACTIVITY 2 , HEALTH 2
ADDITIONAL INFORMATION: THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)		SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 10/01/93
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 73523A
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: POLYESTER RESIN
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DIALLYL ISOPHTHALATE	15-40	NA	NA	NA	1087-21-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA A(F) NA (C)	% VOLATILE BY WEIGHT	: NEGLIG
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NF (F) NF (C)	SPECIFIC GRAVITY	: 1.18
MELTING POINT	: NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: LIQUID	DENSITY	: NF*
ODOR	: MILD PLEASANT	ODORACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		

COLOR : AMBER PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

DIALLYL ISOPHTHALATE
BOILING POINT: >365(F) >185(C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1.0

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 198 (F) 92 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NF UPPER NF
SENSITIVITY TO MECHANICAL IMPACT (Y/N): UNKNOWN
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
COMBUSTIBLE.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ALCOHOLS.
FUMES OF ALLYIC COMPOUNDS.
ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
UV LIGHT EXPOSURE.

TEMPERATURE OVER 200'F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
UNCURED PRODUCT CONTACT MAY IRRITATE THE SKIN.
INHALATION
CAUSES MILD RESPIRATORY IRRITATION.
EYE CONTACT
CAUSES CORNEAL BURNS.
MAY CAUSE MODERATE EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
RESPIRATORY
LIVER, KIDNEY
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
MONITOR FOR 24 HRS., OBSERVE AND SUPPORT LIVER FUNCTION.

TOXICITY: DIALLYL ISOPHTHALATE
ACUTE ORAL LD50: 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400(RBT) MG/KG
ACUTE INHALATION: LC50 >2.1 & <200 MG/L (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.

INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE
IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY
NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED
OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
MONOGOGGLES.
FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A
CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE
EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND
LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION,
LEAVE AREA AT ONCE.

AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS

EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION, LIQUID

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION

THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR

BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	=	SKIN
	TS	=	TRADE SECRET
	R	=	RECOMMENDED
	MST	=	MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 09/30/93
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 73523B
CHEMICAL FAMILY: PEROXIDE
CHEMICAL NAME: DI-T-BUTYL DIPEROXYPHTHALATE
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DIBUTYL PHTHALATE	40-70	5	5	MG/M3	84-74-2
DI-T-BUTYL DIPEROXYPHTHALATE	30-60	NA	NA	NA	2155-71-7

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLE: 84-74-2 DIBUTYL PHTHALATE 60%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NF (F) NF (C)	% VOLATILE BY WEIGHT	: NEGLIG
VAPOR PRESSURE(20C)	: NF MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: >1
VAPOR DENSITY(AIR=1	: NF		
FREEZING POINT	: 19 (F) -7 (C)	SPECIFIC GRAVITY (WATER=1 @ 25C)	: 1.06
MELTING POINT	: 19 (F) -7 (C)		
PHYSICAL STATE	: LIQUID	DENSITY	: NF
ODOR	: MILD	ACIDITY/ALKALINITY	: NA

ODOR THRESHOLD : UNK (PPM)
COLOR : CLEAR COLORLESS PH : NA
SOLUBILITY IN WATER (20C): INSOLUBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

DIBUTYL PHTHALATE
BOILING POINT: 642 (F) 339 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 9.6

DI-T-BUTYL DIPEROXYPHTHALATE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: >210(F) >99 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
COOL EXPOSED CONTAINERS WITH WATER SPRAY AFTER EXTINGUSHING FIRE
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.
TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.
CONTAINERS CAN BUILD UP PRESSURE IF EXPOSED TO HEAT (FIRE).

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
REDUCING AGENTS.

CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
AVOID ANY SOURCE OF IGNITION.
AVOID TEMPERATURES GREATER THAN 100 F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
CAUSES MILD SKIN IRRITATION.
INHALATION
NONE KNOWN.
EYE CONTACT
CAUSES MILD EYE IRRITATION
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
REMOVE CONTAMINATED SHOES AND DISCARD.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: DIBUTYL PHTHALATE
ACUTE ORAL LD50: 8,000 (RAT) MG/KG
ACUTE DERMAL LD50: >20 ML/KG (RBT) MG/KG
ACUTE INHALATION: LC50 7900 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DI-T-BUTYL DIPEROXYPHTHALATE
ACUTE ORAL LD50: NA MG/KG

ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: TESTED AS MILDLY IRRITATING TO THE EYE.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
POLYVINYLCHLORIDE.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
WEAR CLEAN, BODY-COVERING CLOTHING.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WARN OTHER WORKERS OF SPILL.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).

AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS
EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ORGANIC PEROXIDE TYPE E, LIQUID 5.2, II (DI(TERT-BUTYL PEROXY)PHTHALATE)
DOT HAZARD CLASS: 5.2, II
DOT LABEL(S): ORGANIC PEROXIDE
UN/NA NUMBER: UN3107
PLACARDS: ORGANIC PEROXIDE
EPA HAZARD WASTE: D003 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
C OXIDIZING MATERIALS
D1A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 85
TRANSPORTATION CLASS: IMDG: 5.2, PG 5227, TYPE E
IATA: TYPE E
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 3 , HEALTH 1
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY	SKN =	SKIN
		TS =	TRADE SECRET

STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)

R = RECOMMENDED
MST = MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 10/01/93
PREPARER: A L DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 73525
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: POLYESTER RESIN
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
DIALLYL ISOPHTHALATE	15-40	NA	NA	NA	1087-21-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA A(F) NA (C)	% VOLATILE BY WEIGHT	: NEGLIG
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NF (F) NF (C)	SPECIFIC GRAVITY	: 1.18
MELTING POINT	: NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: LIQUID	DENSITY	: NF
ODOR	: MILD PLEASANT	ODORACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		

COLOR : AMBER PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

DIALLYL ISOPHTHALATE
BOILING POINT: >365(F) >185(C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1.0

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 198 (F) 92 (C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NF UPPER NF
SENSITIVITY TO MECHANICAL IMPACT (Y/N): UNKNOWN
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
COMBUSTIBLE.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ALCOHOLS.
FUMES OF ALLYIC COMPOUNDS.
ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.
UV LIGHT EXPOSURE.

TEMPERATURE OVER 200'F.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
UNCURED PRODUCT CONTACT MAY IRRITATE THE SKIN.
INHALATION
CAUSES MILD RESPIRATORY IRRITATION.
EYE CONTACT
CAUSES CORNEAL BURNS.
MAY CAUSE MODERATE EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
RESPIRATORY
LIVER, KIDNEY
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
MONITOR FOR 24 HRS., OBSERVE AND SUPPORT LIVER FUNCTION.

TOXICITY: DIALLYL ISOPHTHALATE
ACUTE ORAL LD50: 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400(RBT) MG/KG
ACUTE INHALATION: LC50 >2.1 & <200 MG/L (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.

INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
MONOGOGGLES.
FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.

AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS

EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION, LIQUID

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION

THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR

BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
	TS =	TRADE SECRET
	R =	RECOMMENDED
	MST =	MIST

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 04/15/96
PREPARER: A L DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 74010
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: AMINE CATALYST SOLUTION
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
N-BUTYL ALCOHOL	15-40	50 C	50 C	PPM	71-36-3
TOLUENE	15-40	100	100	PPM	108-88-3
POLYAMINE ADDUCT	10-30	NA	NA	NA	68610-56-0
1-METHOXY-2-PROPANOL	3-7	100	100	PPM	107-98-2
METHYL ISOBUTYL KETONE	3-7	50	50	PPM	108-10-1
XYLENE	1-5	100	100	PPM	1330-20-7
DIETHYLENE TRIAMINE	1-5	1SKN	1SKN	PPM	111-40-0
ETHYL BENZENE	1-5	100	100	PPM	100-41-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLE: 108-88-3 TOLUENE 32.8%; 71-36-3 N-BUTYL ALCOHOL 32.8%; 108-10-1 METHYL ISOBUTYL KETONE 6.0%; 1330-20-7 XYLENE 4.8%; 100-41-4 ETHYL BENZENE 1.1% CA PROP 65: 108-88-3 TOLUENE 32.8%; 71-43-2 BENZENE <40 PPM

*** III PHYSICAL DATA ***

** PRODUCT INGORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT	: 86
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: >1
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NF (F) NF (C)	SPECIFIC GRAVITY	: 0.88
MELTING POINT	: NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: LIQUID	DENSITY	: NA
ODOR	: PLEASANT ODOR	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		
COLOR	: AMBER	PH	: NA

SOLUBILITY IN WATER (20C): APPRECIABLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

N-BUTYL ALCOHOL
BOILING POINT: 243 (F) 117 (C)
VAPOR PRESSURE: (20 C) 4.4 MM HG
VAPOR DENSITY: (AIR=1) 2.6

TOLUENE
BOILING POINT: 231 (F) 111 (C)
VAPOR PRESSURE: (20 C) 22 MM HG
VAPOR DENSITY: (AIR=1) 3.2

POLYAMINE ADDUCT
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) >1

1-METHOXY-2-PROPANOL
BOILING POINT: 246 (F) 119 (C)
VAPOR PRESSURE: (20 C) 8 MM HG
VAPOR DENSITY: (AIR=1) 3.1

METHYL ISOBUTYL KETONE
BOILING POINT: 241 (F) 116 (C)
VAPOR PRESSURE: (20 C) 15 MM HG
VAPOR DENSITY: (AIR=1) 3.5

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XYLENE
BOILING POINT: 279 (F) 137 (C)
VAPOR PRESSURE: (20 C) 5.10 MM HG
VAPOR DENSITY: (AIR=1) 3.6

DIETHYLENETRIAMINE
BOILING POINT: 405 (F) 207 (C)
VAPOR PRESSURE: (20 C) 0.22 MM HG
VAPOR DENSITY: (AIR=1) 3.48

ETHYL BENZENE
BOILING POINT: 277 (F) 136 (C)
VAPOR PRESSURE: (20 C) <10 MM HG
VAPOR DENSITY: (AIR=1) 3.66

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 61 (F) 16 (C) BY PMCC
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.0 UPPER 7.0
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
EXTREMELY FLAMMABLE.
CORROSIVE MATERIAL.
POSITIVE PRESSUR, SELF-CONTAINED BREATHING APPARATUS
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.
TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.
CONTAINERS CAN BUILD UP PRESSURE IF EXPOSED TO HEAT (FIRE).

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
OXIDES OF NITROGEN.
ALCOHOLS.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
CAUSES VOMITING,NAUSEA,AND DIARRHEA
IRRITATION OF THE MOUTH, THROAT, AND STOMACH
ASPIRATION CAN BE A HAZARD IF THIS MATERIAL IS SWALLOWED.
MAY CAUSE PULMONARY EDEMA.
SKIN CONTACT
CAUSES MODERATE SKIN IRRITATION.
MAY CAUSE AN ALLERGIC SKIN REACTION.
MAY CAUSE A RASH AND ITCHING OF THE SKIN.
CONTAINS A COMPONENT WHICH IS A KNOWN OR SUSPECTED SKIN SENSITIZER.
INHALATION
EXCESSIVE INHALATION CAUSES HEADACHE,DIZZINESS,NAUSEA AND INCOORDINATION.
CAUSES IRRITATION OF THE MOUTH,NOSE,AND THROAT.
CAN CAUSE UNCONSCIOUSNESS IF INHALED.

MAY CAUSE ALLERGIC RESPIRATORY REACTION.

EYE CONTACT
MAY CAUSE SEVERE EYE IRRITATION.
CAUSES REDNESS AND TEARING.
CAUSES BLURRED VISION.

MEDICAL CONDITIONS AGGRAVATED
RESPIRATORY
PULMONARY DISORDERS.
LIVER, KIDNEY
DERMAL AILMENTS.
CENTRAL NERVOUS SYSTEM DISORDERS.
EYE AILMENTS.

OTHER
NONE KNOWN.

CHRONIC EFFECTS OF EXPOSURE
DERMATITIS.
RESPIRATORY AILMENTS.
CENTRAL NERVOUS SYSTEM DAMAGE.
LIVER AND KIDNEY DAMAGE.
PULMONARY EDEMA.
EYE DAMAGE.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION
DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION
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.

EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN
MONITOR FOR 24 HRS., OBSERVE AND SUPPORT LIVER FUNCTION.
ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: N-BUTYL ALCOHOL
ACUTE ORAL LD50: 790 (RAT) MG/KG
ACUTE DERMAL LD50: 3400 (RBT) MG/KG
ACUTE INHALATION: LC50 8000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: TOLUENE
ACUTE ORAL LD50: 5000 (RAT) MG/KG
ACUTE DERMAL LD50: 12,124 (RBT) MG/KG
ACUTE INHALATION: LCLo 4000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: POLYAMINE ADDUCT
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: 1-METHOXY-2-PROPANOL
ACUTE ORAL LD50: 5,660 (RAT) MG/KG
ACUTE DERMAL LD50: 13,000 (RBT) MG/KG
ACUTE INHALATION: LCLo 7000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: METHYL ISOBUTYL KETONE
ACUTE ORAL LD50: 2080 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: LC 8,000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

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TOXICITY: XYLENE
ACUTE ORAL LD50: 4,300 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: LC50 5000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIETHYLENE TRIAMINE
ACUTE ORAL LD50: 1080 (RAT) MG/KG
ACUTE DERMAL LD50: 1090 (RBT) MG/KG
ACUTE INHALATION: NA
OTHER: CORROSIVE TO SKIN AND EYES.
AMES TEST: UNKNOWN

TOXICITY: ETHYL BENZENE
ACUTE ORAL LD50: 3500 (RAT) MG/KG
ACUTE DERMAL LD50: 17800 (RBT) MG/KG
ACUTE INHALATION: LCLo 4000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
ABSORPTION THROUGH SKIN.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NBR NITRILE.
EYE AND FACE PROTECTION
MONOGOGGLES.
FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WASH WALKING SURFACES WITH DETERGENT AND WATER TO REDUCE SLIPPING HAZARD.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
DANGER! CORROSIVE.
DANGER! EXTREMELY FLAMMABLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.

DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS
EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE N.O.S.; DIETHYLENETRIAMINE, TOLUENE
DOT HAZARD CLASS: 8, II
DOT LABEL(S): CORROSIVE, FLAMMABLE LIQUID
UN/NA NUMBER: UN2734
PLACARDS: CORROSIVE, FLAMMABLE LIQUID
EPA HAZARD WASTE: D001, D018 RQ=100/45.4
OSHA HAZARD CLASS: SENSITIZER, CORROSIVE
WHMIS HAZARD CLASS:
B2 FLAMMABLE LIQUIDS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
E CORROSIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 8 PG 8109-1
IATA: 8, II
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 3 , REACTIVITY 0 , HEALTH 2
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....

C = CEILING LIMIT	NEGL = NEGLIGIBLE
EST= ESTIMATED	NF = NONE FOUND
NA = NOT APPLICABLE	UNKN = UNKNOWN
NE = NONE ESTABLISHED	REC = RECOMMENDED
ND = NONE DETERMINED	V = RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-	SKN = SKIN
PRODUCT, TSCA INVENTORY	TS = TRADE SECRET
STATUS NOT REQUIRED UNDER	R = RECOMMENDED
40 CFR PART 720.30(H-2)	MST = MIST

.....
THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.....
.....
THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.
.....

Provided By Electrical Insulation Suppliers Inc.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 02/27/96
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 74010A
CHEMICAL FAMILY: INSULATING VARNISH
CHEMICAL NAME: EPOXY SOLUTION
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
EPOXY RESIN	30-60	NA	NA	NA	25036-25-3
1-METHOXY-2-PROPANOL	10-30	100	100	PPM	107-98-2
METHYL ISOBUTYL KETONE	10-30	50	50	PPM	108-10-1
XYLENE	7-13	100	100	PPM	1330-20-7
ETHYL BENZENE	1-5	100	100	PPM	100-41-4
UREA-FORMALDEHYDE RESIN	1-5	NA	NA	NA	68002-19-7

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLES: 108-10-1 METHYL METHYL ISOBUTYL KETONE 13.2%, 1330-20-7 XYLENE 11.2%, 100-41-4 ETHYL BENZENE 2.5% CA PROP 65: 50-00-0 FORMALDEHYDE <.05%, 71-43-2 BENZENE <50PPM, 106-89-8 EPICHLOROHYDRIN <0.6PPM

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT	: 41
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: >1
VAPOR DENSITY(AIR=1)	: NA		
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY (WATER=1 @ 25C)	: 1.00
MELTING POINT	: NA (F) NA (C)		
PHYSICAL STATE	: LIQUID	DENSITY	: NA
ODOR	: PLEASANT	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNKNOWN (PPM)		
COLOR	: AMBER	PH	: NA

SOLUBILITY IN WATER (20C): APPRECIABLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

EPOXY RESIN
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

1-METHOXY-2-PROPANOL
BOILING POINT: 246 (F) 119 (C)
VAPOR PRESSURE: (20 C) 8 MM HG
VAPOR DENSITY: (AIR=1) 3.1

METHYL ISOBUTYL KETONE
BOILING POINT: 241 (F) 116 (C)
VAPOR PRESSURE: (20 C) 15 MM HG
VAPOR DENSITY: (AIR=1) 3.5

XYLENE
BOILING POINT: 279 (F) 137 (C)
VAPOR PRESSURE: (20 C) 5.10 MM HG
VAPOR DENSITY: (AIR=1) 3.6

ETHYL BENZENE
BOILING POINT: 277 (F) 136 (C)
VAPOR PRESSURE: (20 C) <10 MM HG
VAPOR DENSITY: (AIR=1) 3.66

UREA-FORMALDEHYDE RESIN

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BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 66 (F) 19 (C) BY PMCC
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.0 UPPER 7.0
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
EXTREMELY FLAMMABLE.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
OXIDES OF NITROGEN.
AMMONIA.
FORMALDEHYDE.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
CAUSES VOMITING,NAUSEA,AND DIARRHEA
IRRITATION OF THE MOUTH, THROAT, AND STOMACH
ASPIRATION CAN BE A HAZARD IF THIS MATERIAL IS SWALLOWED.
SKIN CONTACT
CAUSES MODERATE SKIN IRRITATION.
MAY CAUSE AN ALLERGIC SKIN REACTION.
MAY CAUSE SKIN DEFATTING WITH PROLONGED EXPOSURE.
CAN DRY SKIN.
INHALATION
EXCESSIVE INHALATION CAUSES HEADACHE,DIZZINESS,NAUSEA AND INCOORDINATION.
CAUSES IRRITATION OF THE MOUTH,NOSE,AND THROAT.
CAN CAUSE UNCONSCIOUSNESS IF INHALED.
EYE CONTACT
CAUSES EYE IRRITATION.
VAPOR AND/OR LIQUID CAUSES IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
RESPIRATORY
PULMONARY DISORDERS.
LIVER, KIDNEY
DERMAL AILMENTS.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
DERMATITIS.
RESPIRATORY AILMENTS.
CENTRAL NERVOUS SYSTEM DAMAGE.
LIVER AND KIDNEY DAMAGE.
PULMONARY EDEMA.
EYE DAMAGE.
LUNG DAMAGE.

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EMERGENCY AND FIRST AID PROCEDURES
INGESTION
DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN
ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: EPOXY RESIN
ACUTE ORAL LD50: 30,000 (RAT) MG/KG
ACUTE DERMAL LD50: >3000 (RAT) MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: 1-METHOXY-2-PROPANOL
ACUTE ORAL LD50: 5,660 (RAT) MG/KG
ACUTE DERMAL LD50: 13,000 (RBT) MG/KG
ACUTE INHALATION: LCLo 7000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: METHYL ISOBUTYL KETONE
ACUTE ORAL LD50: 2080 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: LC 8,000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: XYLENE
ACUTE ORAL LD50: 4,300 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: LC50 5000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL BENZENE
ACUTE ORAL LD50: 3500 (RAT) MG/KG
ACUTE DERMAL LD50: 17800 (RBT) MG/KG
ACUTE INHALATION: LCLo 4000 PPM/4H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: UREA-FORMALDEHYDE RESIN
ACUTE ORAL LD50: 1900 (RAT) MG/KG
ACUTE DERMAL LD50: 4100 (RBT) MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED

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OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
SAFETY GLASSES.
MONOGOGGLES.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
WEAR EYE PROTECTION AND PROTECTIVE CLOTHING.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WASH WALKING SURFACES WITH DETERGENT AND WATER TO REDUCE SLIPPING HAZARD.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
OPEN CONTAINER CAUTIOUSLY.
USE ONLY IN A WELL VENTILATED AREA.
WARNING! FLAMMABLE.
DO NOT INHALE VAPORS.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
AVOID CONTACT WITH EYES.
ENGINEERING CONTROLS
EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: RESIN SOLUTION

DOT HAZARD CLASS: 3, II
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1866
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B2 FLAMMABLE LIQUIDS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 3.2, PG 3278
IATA: 3, II
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 3 , REACTIVITY 0 , HEALTH 2
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD

REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....

C	= CEILING LIMIT	NEGL	= NEGLIGIBLE
EST	= ESTIMATED	NF	= NONE FOUND
NA	= NOT APPLICABLE	UNKN	= UNKNOWN
NE	= NONE ESTABLISHED	REC	= RECOMMENDED
ND	= NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT	= REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.....

Provided By Electrical Insulation Suppliers Inc.

****
NUFACTURER'S INFORMATION
****

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 03/12/92
PREPARER: A L DRAKE

****
SECTION - I PRODUCT IDENTIFICATION
****

PRODUCT IDENTIFICATION: 74100
CHEMICAL FAMILY: COMPOUNDS AND ADHESIVES
CHEMICAL NAME: FILLED EPOXY RESIN
FORMULA: MIXTURE

****
SECTION II - PRODUCT COMPONENTS
****

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
OXY RESIN	40-70	NA	NA	NA	25068-38-6
LLASTONITE	10-30	10	15	MG/M3	13983-17-0
SILICON DIOXIDE, AMORPHOUS	3-7	10	6	MG/M3	7631-86-9

FORMULATION INFORMATION:
NONE

****
SECTION - III PHYSICAL DATA
****

**PRODUCT INFORMATION

BOILING POINT	: NF	(F) NF	(C)	% VOLATILE BY VOLUME: 0	
VAPOR PRESSURE(20C):	NF	MM HG		EVAPORATION RATE:	NA
VAPOR DENSITY(AIR= 1:	NF			(BUTYL ACETATE = 1)	
FREEZING POINT:	NF	(F) NF	(C)	SPECIFIC GRAVITY:	1.44
MELTING POINT:	NF	(F) NF	(C)	(WATER=1)	
PHYSICAL STATE:	SOLID			DENSITY:	NF
ODOR:	EPOXY			ACIDITY/ALKALINITY:	NF

ODOR THRESHOLD: UNK (PPM)
COLOR: BROWNISH-RED PH: NF
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

EPOXY RESIN
BOILING POINT: >500(F) >260(C)
VAPOR PRESSURE: (20 C) <0.03 MM HG
VAPOR DENSITY: (AIR= 1) NA

WOLLASTONITE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

SILICON DIOXIDE, AMORPHOUS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

****
SECTION - IV FIRE AND EXPLOSION DATA
****
FLASH POINT: >201(F) >94(C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NF UPPER NF
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE: SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA:
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.

****
SECTION - V REACTIVITY DATA
****
STABILITY: STABLE

HAZARDOUS POLYMERIZATION WILL NOT OCCUR

HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.

ALDEHYDES.
ORGANIC ACID VAPORS.

INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC, BASIC OR OXIDIZING AGENTS.

CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAME.

****
SECTION - VI HEALTH HAZARD DATA
****

ACUTE SIGNS/EFFECTS OF OVEREXPOSURE:

INGESTION: HARMFUL IF SWALLOWED.

SKIN CONTACT: CAUSES MODERATE SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. MAY CAUSE A RASH AND ITCHING OF THE SKIN. CONTAINS A COMPONENT WHICH IS A KNOWN OR SUSPECTED SKIN SENSITIZER.

INHALATION: NONE KNOWN.

EYE CONTACT: CAUSES MODERATE EYE IRRITATION

MEDICAL CONDITIONS AGGRAVATED: DERMAL AILMENTS. EYE AILMENTS.

OTHER: NONE KNOWN.

CHRONIC EFFECTS OF OVEREXPOSURE: DERMATITIS. EYE DAMAGE.

EMERGENCY AND FIRST AID PROCEDURES: INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN: REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION: MOVE PERSON TO FRESH AIR.

EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN: MONITOR FOR 24 HRS.

TOXICITY: EPOXY RESIN

ACUTE ORAL LD50:	11.400 (RAT)	MG/KG
ACUTE DERMAL LD50:	>20 ML/KG (RBT)	MG/KG
ACUTE INHALATION:	LC50 NO DEATHS SAT'D	AIR 8HR (RAT)

OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: WOLLASTONITE
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: MILDLY IRRITATING TO SKIN (RBT).
AMES TEST: UNKNOWN

TOXICITY: SILICON DIOXIDE, AMORPHOUS
ACUTE ORAL LD50: 3160 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE: ORAL. DERMAL - SKIN. EYES. INHALATION.

THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA

PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

****
SECTION - VII SPECIAL PROTECTIVE EQUIPMENT
****
RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED..... OR OVER EXPOSURE IS LIKELY.

PROTECTIVE GLOVES: RUBBER GLOVES.

EYE AND FACE PROTECTION: SAFETY GLASSES.

OTHER PROTECTIVE EQUIPMENT: NONE KNOWN.

VENTILATION: USE ONLY IN WELL VENTILATED AREA.

****
SECTION VIII - SPILL, LEAK AND DISPOSAL PROCEDURE
****
ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL. WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE

EOUIPMENT SECTION. WARN OTHER WORKERS OF SPILL.

SPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

****
SECTION - IX SPECIAL PRECAUTIONS
****
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID CONTACT WITH SKIN AND EYES. USE ONLY IN A WELL VENTILATED AREA. KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS. DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL. CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST. KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS: EXHAUST VENTILATION, SHOWERS, EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

****
SECTION - X SHIPPING AND REGULATORY CLASSIFICATION DATA
****
DOT SHIPPING NAME: COMPOUND

OT HAZARD CLASS: NOT REGULATED
T LABEL(S): NONE
/NA NUMBER: NONE
LACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS: D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 REACTIVITY 0 HEALTH 2
ADDITIONAL INFORMATION: THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN)

[illegible]=	CEILING LIMIT	NEGL	= NEGLIGIBLE
[illegible]T=	ESTIMATED	NF	= NONE FOUND
. . =	NOT APPLICABLE	UNKN	= UNKNOWN
NE =	NONE ESTABLISHED	REC	= RECOMMENDED
ND =	NONE DETERMINED	v	= RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)		SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

****
MANUFACTURER'S INFORMATION
****

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 03/12/92
PREPARER: A.L. DRAKE

****
SECTION I - PRODUCT IDENTIFICATION
****
PRODUCT IDENTIFICATION: 74101
CHEMICAL FAMILY: COMPOUNDS AND ADHESIVES
CHEMICAL NAME: EPOXY CURING AGENT
FORMULA: MIXTURE

****
SECTION II - PRODUCT COMPONENTS
****

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
POLYAMIDE RESIN	40-70	NA	NA	NA	68410-23-1
WOLLASTONITE	15-40	10	15	MG/M3	13983-17-0
SILICON DIOXIDE, AMORPHOUS	1-5	10	6	MG/M3	7631-86-9

FORMULATION INFORMATION:
NONE

****
SECTION III - PHYSICAL DATA
****
**PRODUCT INFORMATION

BOILING POINT:	NA	(F) NA	(C)	% VOLATILE BY VOLUME:	0
VAPOR PRESSURE(20C):	NA	MM HG		EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1:	NA			(BUTYL ACETATE = 1)	
FREEZING POINT:	NA	(F) NA	(C)	SPECIFIC GRAVITY	: 1.18
MELTING POINT:	NA	(F) NA	(C)	(WATER=1)	
PHYSICAL STATE:	LIQUID			DENSITY	: NA
ODOR:	AMMONIA ODOR			ACIDITY/ALKALINITY	: NA

ODOR THRESHOLD: UNK (PPM)
COLOR: MILKY WHITE PH: NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

POLYAMIDE RESIN
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

WOLLASTONITE
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

SILICON DIOXIDE, AMORPHOUS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

****
SECTION IV - FIRE AND EXPLOSION DATA
****
FLASH POINT: >201(F) >94(C) BY PMCC
IGNITION TEMPERATURE: NF (F) NF (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE: SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA: CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS. TOXIC VAPORS ARE EMITTED IN A FIRE CONDITION.

****
SECTION V - REACTIVITY DATA
****
STABILITY: STABLE
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS:
CARBON MONOXIDE.
CARBON DIOXIDE.
SILICON DIOXIDE.

TOXIC FUMES.
OXIDES OF NITROGEN.
COMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAME.

****
SECTION VI - HEALTH HAZARD DATA
****
ACUTE SIGNS/EFFECTS OF OVEREXPOSURE: INGESTION: CAUSES BURNS OF THE MOUTH,THROAT AND STOMACH

SKIN CONTACT: CAUSES MODERATE SKIN IRRITATION.

INHALATION: CAUSES IRRITATION OF THE MOUTH, NOSE, AND THROAT.

EYE CONTACT: CAUSES SEVERE EYE IRRITATION.

MEDICAL CONDITIONS AGGRAVATED: RESPIRATORY.
DERMAL AILMENTS.
GASTROINTESTINAL DISORDERS.
EYE AILMENTS.

OTHER: NONE KNOWN.

CHRONIC EFFECTS OF OVEREXPOSURE: DERMATITIS. RESPIRATORY AILMENTS.
THIS PRODUCT CONTAINS A COMPONENT THAT IS A SUSPECTED MUTAGEN.

EMERGENCY AND FIRST AID PROCEDURES: INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF SOAP AND WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.

INHALATION: MOVE PERSON TO FRESH AIR.

EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.

NOTE TO PHYSICIAN: MONITOR FOR 24 HRS.

TOXICITY: POLYAMIDE RESIN
ACUTE ORAL LD50: >8,000 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.

AMES TEST: UNKNOWN

TOXICITY: WOLLASTONITE
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: MILDLY IRRITATING TO SKIN (RBT).
AMES TEST: UNKNOWN

TOXICITY: SILICON DIOXIDE, AMORPHOUS
ACUTE ORAL LD50: 3160 (RAT) MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE: ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA

PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

****
SECTION VII - SPECIAL PROTECTIVE EQUIPMENT
****
RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED..... OR OVER EXPOSURE IS LIKELY.

PROTECTIVE GLOVES: RUBBER GLOVES.

EYE AND FACE PROTECTION: SAFETY GLASSES.

OTHER PROTECTIVE EQUIPMENT: RUBBER APRON.

VENTILATION: USE ONLY IN WELL VENTILATED AREA. MECHANICAL VENTILATION.

****
SECTION VIII - SPILL, LEAK AND DISPOSAL PROCEDURE
****
ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL. WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE

EQUIPMENT SECTION. INCREASE AREA VENTILATION. PERSON NOT TRAINED SHOULD EVACUATE AREA.

DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

****
SECTION IX - SPECIAL PRECAUTIONS
****
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID CONTACT WITH SKIN AND EYES. USE ONLY IN A WELL VENTILATED AREA. DO NOT INHALE VAPORS. KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS. DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL. CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST. KEEP AWAY FROM FOOD AND SMOKING MATERIALS. WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS: EXHAUST VENTILATION
SHOWERS.
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

****
SECTION X - SHIPPING AND REGULATORY CLASSIFICATION DATA
****
DOT SHIPPING NAME: COMPOUND

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS: D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 REACTIVITY 0 HEALTH 2

ADDITIONAL INFORMATION: THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE

BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE

"THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN)

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)		SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

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*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 01/15/97
PREPARER: A.L. DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76593
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: FIBERGLASS/EPOXY/FORMVAR
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	10-30	10	15	MG/M3	65997-17-3
EPOXY RESIN	7-13	NA	NA	NA	25036-25-3
EPOXY NOVOLAC	7-13	NA	NA	NA	28064-14-4
ETHYL ALCOHOL	0.1-1	1000	1000	PPM	64-17-5

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
CA PROP 65:
108-88-3 TOLUENE 0.7%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA	(F) NA	(C)	% VOLATILE BY WEIGHT	: <2
VAPOR PRESSURE(20C)	: NA	MM HG		EVAPORATION RATE	: >1
VAPOR DENSITY(AIR=1	: NA			(BUTYL ACETATE = 1)	
FREEZING POINT	: NA	(F) NA	(C)	SPECIFIC GRAVITY	: 1.64
MELTING POINT	: NA	(F) NA	(C)	(WATER=1 @ 25C)	

PHYSICAL STATE : SOLID DENSITY : NA
ODOR : SLIGHT AROMATIC ACIDITY/ALKALINITY : NA
ODOR THRESHOLD : UNKNOWN (PPM)
COLOR : LIGHT YELLOW PH : NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

EPOXY RESIN
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

EPOXY NOVOLAC
BOILING POINT: >475(F) >245(C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

ETHYL ALCOHOL
BOILING POINT: 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG
VAPOR DENSITY: (AIR=1) 1.6

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE

HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
SILICON DIOXIDE.
TOXIC FUMES.
PHENOL.
OXIDES OF NITROGEN.
TIN FUMES.
FUMES OF ALLYIC COMPOUNDS.
FORMALDEHYDE.
PHOSPHORUS ACIDS.
BORON TRIFLUORIDE.
MONOETHYLAMINE.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
MAY CAUSE AN ALLERGIC SKIN REACTION.
MAY CAUSE A RASH AND ITCHING OF THE SKIN.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
CONTAINS A COMPONENT WHICH IS A KNOWN OR SUSPECTED SKIN SENSITIZER.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
RESPIRATORY.
LIVER, KIDNEY
DERMAL AILMENTS.
EYE AILMENTS.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
DERMATITIS.
RESPIRATORY AILMENTS.
LIVER AND KIDNEY DAMAGE.

EYE DAMAGE.
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1-1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION

DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN

WASH WITH SOAP AND WATER.

INHALATION

MOVE PERSON TO FRESH AIR.

EYES

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

NOTE TO PHYSICIAN

NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: EPOXY RESIN
ACUTE ORAL LD50: 30,000 (RAT) MG/KG
ACUTE DERMAL LD50: >3000 (RAT) MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: EPOXY NOVOLAC
ACUTE ORAL LD50: 10,000 (RAT) MG/KG
ACUTE DERMAL LD50: 3,000 (RBT) MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50: 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION: LC50 20,000 PPM/10H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

PRINCIPALS ROUTES OF EXPOSURE

DERMAL - SKIN.
EYES.
INHALATION.

THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA

PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: CLOTH OR TAPE, INSULATING NOI

DOT HAZARD CLASS: NOT REGULATED

DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 77.5
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 2
ADDITIONAL INFORMATION

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....

THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 08/12/92
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76830
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: POLYESTER/FIBERGLASS
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60-100	10	15	MG/M3	65997-17-3
DIALLYL PHTHALATE	7-13	NF	NF	NA	131-17-9
ETHYL ALCOHOL	0.1-1	1000	1000	PPM	64-17-5

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA	(F) NA	(C)	% VOLATILE BY WEIGHT	: 1.1
VAPOR PRESSURE(20C)	: NA	MM HG		EVAPORATION RATE	: >1
VAPOR DENSITY(AIR=1	: NA			(BUTYL ACETATE = 1)	
FREEZING POINT	: NA	(F) NA	(C)	SPECIFIC GRAVITY	: NA
MELTING POINT	: NA	(F) NA	(C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: SOLID			DENSITY	: NA

ODOR : FAINT AROMATIC ACIDITY/ALKALINITY : NA
ODOR THRESHOLD : UNK (PPM)
COLOR : OFF-WHITE PH : NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DIALLYL PHTHALATE
BOILING POINT: 581 (F) 305 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 8.8

ETHYL ALCOHOL
BOILING POINT: 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG
VAPOR DENSITY: (AIR=1) 1.6

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ACETIC ACID.

FUMES OF ALLYIC COMPOUNDS.
FORMALDEHYDE.
ACROLEIN

INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.

CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE

INGESTION
HARMFUL IF SWALLOWED.

SKIN CONTACT
SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.

INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.

EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.

MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.

OTHER
NONE KNOWN.

CHRONIC EFFECTS OF EXPOSURE
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1-1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.

SKIN
WASH WITH SOAP AND WATER.

INHALATION
MOVE PERSON TO FRESH AIR.

EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL PHTHALATE
ACUTE ORAL LD50: 770 MG/KG RAT MG/KG
ACUTE DERMAL LD50: 3300 MG/KG RBT MG/KG
ACUTE INHALATION: LC50 825 PPM/1H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50: 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION: LC50 20,000 PPM/10H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SCRAPE OR GATHER MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR DISPOSAL.

DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ROVING GLASS FIBER

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D1A VERY TOXIC MATERIALS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 70
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
C = CEILING LIMIT NEGL = NEGLIGIBLE
EST= ESTIMATED NF = NONE FOUND

NA	=	NOT APPLICABLE	
NE	=	NONE ESTABLISHED	
ND	=	NONE DETERMINED	
BY-PRODUCT	=	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	
UNKN	=	UNKNOWN	
REC	=	RECOMMENDED	
V	=	RECOMM. BY VENDOR	
SKN	=	SKIN	
TS	=	TRADE SECRET	
R	=	RECOMMENDED	
MST	=	MIST	

MATERIAL SAFETY DATA SHEET

SECTION I - MANUFACTURER'S INFORMATION

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS 518-395-3310
REVISED : 2/16/96
PREPARER: A.L. DRAKE

SECTION II - PRODUCT INFORMATION

PRODUCT IDENTIFICATION: 76831
CHEMICAL FAMILY : ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME : POLYESTER GLASS ROPE
FORMULA : MIXTURE

SECTION III - PRODUCT COMPONENTS

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT%	ACGIH TLV	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60 -100	10	15	MG/M3	65997-17-3
DIALLYL PHTHALATE	7 - 13	NF	NF	NA	131-17-9
DIALLYL ISOPHTHALATE	1 - 5	NA	NA	NA	1087-21-4
DIBUTYL PHTHALATE	0.1- 1	5	5	MG/M3	84-74-2
ETHYL ALCOHOL	0.1- 1	1000	1000	PPM	64-17-5

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLES:
84-74-2 DIBUTYL PHTHALATE 0.6 %

SECTION IV - PHYSICAL DATA

PRODUCT INFORMATION

BOILING POINT : NA (F) NA (C)
VAPOR PRESSURE (20C) : NA MM HG
VAPOR DENSITY (AIR=1): NA
FREEZING POINT : NA (F) NA (C)
MELTING POINT : NA (F) NA (C)
PHYSICAL STATE : SOLID
ODOR : FAINT AROMATIC
ODOR THRESHOLD : UNKNOWN (PPM)
COLOR : OFF-WHITE
SOLUBILITY IN WATER (20C) : SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

% VOLATILE BY WEIGHT: <1
EVAPORATION RATE : NA
(BUTYL ACETATE = 1)
SPECIFIC GRAVITY : NA
(WATER = 1 @ 25 C)
DENSITY : NF
ACIDITY/ALKALINITY : NA
PH : NA

FIBROUS GLASS
BOILING POINT : NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY : (AIR = 1) NA

DIALLYL PHTHALATE
BOILING POINT : 581 (F) 305 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY : (AIR = 1) 8.8

DIALLYL ISOPHTHALATE
BOILING POINT : >365 (F) >185 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY : (AIR = 1) >1.0

DIBUTYL PHTHALATE
BOILING POINT : 642 (F) 399 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY : (AIR = 1) 9.6

ETHYL ALCOHOL
BOILING POINT : 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG

Provided By Electrical Insulation Suppliers Inc.

VAPOR DENSITY : (AIR=1) 1.6

SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT : NA (F) NA (C) BY NA
IGNITION TEMPERATURE : NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER: NA UPPER: NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE : SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, ACETIC ACID, FUMES OF ALLYIC COMPOUNDS, FORMALDEHYDE, ACROLEIN.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC, BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAME.

SECTION VII - HEALTH HAZARD DATA

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION: HARMFUL IF SWALLOWED.
SKIN CONTACT: SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION: MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
EYE CONTACT: MAY CAUSES MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.
OTHER: NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1 - 1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.
EMERGENCY FIRST AID PROCEDURES
INGESTION: IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON, GET MEDICAL ATTENTION.
SKIN: WASH WITH SOAP AND WATER.
INHALATION: MOVE PERSON TO FRESH AIR.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN: NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50 : NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION : NA
OTHER : EYE AND SKIN IRRITANT.
AMES TEST : UNKNOWN

TOXICITY: DIALLYL PHTHALATE
ACUTE ORAL LD50 : 770 MG/KG RAT MG/KG
ACUTE DERMAL LD50: 3300 MG/KG RBT MG/KG
ACUTE INHALATION : LC50 825 PPM/1H (RAT)
OTHER : EYE AND SKIN IRRITANT
AMES TEST : UNKNOWN

TOXICITY: DIALLYL ISOPHTHALATE
ACUTE ORAL LD50 : 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400 (RBT) MG/KG
ACUTE INHALATION : LC50 >2.1 & <200 MG/L (RAT)
OTHER : EYE AND SKIN IRRITANT
AMES TEST : UNKNOWN

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TOXICITY: DIBUTYL PHTHALATE
ACUTE ORAL LD50 : 8,000 (RAT) MG/KG
ACUTE DERMAL LD50: >20 ML/KG (RBT) MG/KG
ACUTE INHALATION : LC50 7900 MG/M3 (RAT)
OTHER : EYE AND SKIN IRRITANT
AMES TEST : UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50 : 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION : LC50 20,000 PPM/10H (RAT)
OTHER : EYE AND SKIN IRRITANT.
AMES TEST : UNKNOWN
PRINCIPAL ROUTES OF EXPOSURE: DERMAL - SKIN, EYES, INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC OR OSHA.
PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

SECTION VIII - SPECIAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES: NONE KNOWN.
EYE AND FACE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT: NONE KNOWN
VENTILATION: USE ONLY IN WELL VENTILATED AREA.

SECTION IX - SPILL, LEAK AND DISPOSAL PROCEDURE

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: SCRAPE OR GATHER MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR DISPOSAL.
DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION X - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIAL.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS: EXHAUST VENTILATION.

SECTION XI - SHIPPING AND REGULATORY CLASSIFICATION DATA

DOT SHIPPING NAME : ROVING GLASS FIBER

DOT HAZARD CLASS : NOT REGULATED
DOT LABEL(S) : NONE
UN/NA NUMBER : NONE
PLACARDS : NONE
EPA HAZARD WASTE : NOT REGULATED
OSHA HAZARD CLASS : IRRITANT
WHMIS HAZARD CLASS :
D1A VERY TOXIC MATERIALS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION : CLASS 70
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY - 1; REACTIVITY - 0; HEALTH - 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN)

C = CEILING LIMIT
EST = ESTIMATED
NA = NOT APPLICABLE
NE = NONE ESTABLISHED
ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30 (H-2)

NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

0300053
GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

MATERIAL SAFETY DATA SHEET INFORMATION:

PLEASE FIND ENCLOSED MATERIAL SAFETY DATA SHEETS (MSDS) COVERING ITEMS PURCHASED FROM ELECTRICAL INSULATION SUPPLIERS (EIS). OSHA REGULATIONS REQUIRE MSDS INFORMATION BE MADE AVAILABLE TO ALL PERSONNEL WHO MAY BE EXPOSED TO HAZARDOUS MATERIALS IN THE WORK PLACE.

UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS mr30nfgJOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

IF YOU NEED FURTHER INFORMATION CONCERNING YOUR SITUATION, YOU MAY CONTACT THE EPA IN WASHINGTON, D.C. THEIR TOLL FREE NO. IS (800)535-0202; THE RCRA/SUPERFUND HOT LINE IS (800)424-9346 OR (703)920-9810; THE TSCA HOT LINE IS (202)554-1404.

BY PROVIDING THIS DOCUMENTATION, EIS IS COMPLYING WITH FEDERAL LAWS GOVERNING MSDS INFORMATION, AS IS KNOWN TO US. THIS IS A SERVICE AIMED AT HELPING YOUR BUSINESS TO ALSO COMPLY WITH GOVERNMENT REGULATIONS.

DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

33983/GENERAL ELECTRIC SERVICE

	MSDS DOCUMENT	SHIP DATE	CUSTOMER PURCHASE ORDER NUMBER
BLR240	IMI76831	01/21/97	GL4096-005162

Provided By Electrical Insulation Suppliers Inc.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 03/03/97
PREPARER: A.L. DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76841
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: FIBERGLASS/POLYESTER
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60-100	10	15	MG/M3	65997-17-3
DIALLYL ISOPHTHALATE	7-13	NA	NA	NA	1087-21-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA	(F) NA	(C)	% VOLATILE BY WEIGHT	: 0		
VAPOR PRESSURE(20C)	: NA	MM HG		EVAPORATION RATE	: NA		
VAPOR DENSITY(AIR=1	: NA			(BUTYL ACETATE = 1)			
FREEZING POINT	: NA	(F) NA	(C)	SPECIFIC GRAVITY	: NA		
MELTING POINT	: NA	(F) NA	(C)	(WATER=1 @ 25C)			
PHYSICAL STATE	: SOLID			DENSITY	: NA		
ODOR	: SLIGHT FRUITY			ODORACIDITY/ALKALINITY	: NA		

ODOR THRESHOLD : UNKNOWN (PPM)
COLOR : STRAW COLORED PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DIALLYL ISOPHTHALATE
BOILING POINT: >365(F) >185(C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1.0

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
FUMES OF ALLYIC COMPOUNDS.
ORGANIC ACID VAPORS.
ACRID FUMES.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

UV LIGHT EXPOSURE.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
WASH WITH SOAP AND WATER.
INHALATION
MOVE PERSON TO FRESH AIR.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL ISOPHTHALATE

ACUTE ORAL LD50: 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400(RBT) MG/KG
ACUTE INHALATION: LC50 >2.1 & <200 MG/L (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED

FIBERS.

ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ROVING GLASS FIBER

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 70
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

.....

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 03/07/96
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76843
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: POLYESTER GLASS BANDING TAPE
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60-100	10	15	MG/M3	65997-17-3
DIALLYL PHTHALATE	7-13	NF	NF	NA	131-17-9
ETHYL ALCOHOL	0.1-1	1000	1000	PPM	64-17-5

*COMPANY RECOMMENDED VALUE
FORMULATION INFORMATION:
CA PROP 65:
108-88-3 TOLUENE 0.6%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY VOLUME	: <1
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: NF
MELTING POINT	: NA (F) NA (C)	(WATER= 1 @ 25'C)	
PHYSICAL STATE	: SOLID	DENSITY	: NA
ODOR	: SLIGHT AROMATIC	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		
COLOR	: OFF-WHITE	PH	: NA

SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DIALLYL PHTHALATE
BOILING POINT: 581 (F) 305 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 8.8

ETHYL ALCOHOL
BOILING POINT: 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG
VAPOR DENSITY: (AIR=1) 1.6

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

Provided By Electrical Insulation Suppliers Inc.

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ACETIC ACID.
FUMES OF ALLYIC COMPOUNDS.
FORMALDEHYDE.
ACROLEIN
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF OVEREXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF OVEREXPOSURE
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1-1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
WASH WITH SOAP AND WATER.
INHALATION
MOVE PERSON TO FRESH AIR.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL PHTHALATE
ACUTE ORAL LD50: 770 MG/KG RAT MG/KG
ACUTE DERMAL LD50: 3300 MG/KG RBT MG/KG
ACUTE INHALATION: LC50 825 PPM/1H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50: 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION: LC50 20,000 PPM/10H (RAT)

OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT O.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ROVING GLASS FIBER

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D1A VERY TOXIC MATERIALS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 70
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY O , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY

(ACOIN).....
.....

C	= CEILING LIMIT	NEGL	= NEGLIGIBLE
EST	= ESTIMATED	NF	= NONE FOUND
NA	= NOT APPLICABLE	UNKN	= UNKNOWN
NE	= NONE ESTABLISHED	REC	= RECOMMENDED
ND	= NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT	= REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

.....
THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Provided By Electrical Insulation Suppliers Inc.

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0300048
GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

MATERIAL SAFETY DATA SHEET INFORMATION:

PLEASE FIND ENCLOSED MATERIAL SAFETY DATA SHEETS (MSDS) COVERING ITEMS PURCHASED FROM ELECTRICAL INSULATION SUPPLIERS (EIS). OSHA REGULATIONS REQUIRE MSDS INFORMATION BE MADE AVAILABLE TO ALL PERSONNEL WHO MAY BE EXPOSED TO HAZARDOUS MATERIALS IN THE WORK PLACE.

UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS mr30nfgJOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

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DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

	MSDS DOCUMENT	SHIP DATE	CUSTOMER PURCHASE ORDER NUMBER
BLR240	IMI76843	06/30/97	GL4096-005902

Provided By Electrical Insulation Suppliers Inc.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 07/02/92
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76844
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: FIBERGLASS RESIN BANDING TAPE
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60-100	10	15	MG/M3	65997-17-3
DIALLYL ISOPHTHALATE	7-13	NA	NA	NA	1087-21-4
ETHYL ALCOHOL	0.1-1	1000	1000	PPM	64-17-5

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY VOLUME	: <1
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: NA
MELTING POINT	: NA (F) NA (C)	(WATER=1)	
PHYSICAL STATE	: SOLID	DENSITY	: NA
ODOR	: SLIGHTLY FRUITY	ACIDITY/ALKALINITY	: NA

ODOR THRESHOLD : (PPM)
COLOR : STRAW COLORED PH : NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DIALLYL ISOPHTHALATE
BOILING POINT: >365(F) >185(C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1.0

ETHYL ALCOHOL
BOILING POINT: 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG
VAPOR DENSITY: (AIR=1) 1.6

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ACETIC ACID.
FUMES OF ALLYIC COMPOUNDS.

FORMALDEHYDE.
ACROLEIN

INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.

CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF OVEREXPOSURE

INGESTION
HARMFUL IF SWALLOWED.

SKIN CONTACT
SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.

INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.

EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.

MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.

OTHER
NONE KNOWN.

CHRONIC EFFECTS OF OVEREXPOSURE
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1-1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.

EMERGENCY AND FIRST AID PROCEDURES

INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.

SKIN
WASH WITH SOAP AND WATER.

INHALATION
MOVE PERSON TO FRESH AIR.

EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: FIBROUS GLASS

ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL ISOPHTHALATE
ACUTE ORAL LD50: 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400(RBT) MG/KG
ACUTE INHALATION: LC50 >2.1 & <200 MG/L (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50: 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION: LC50 20,000 PPM/10H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD

DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ROVING GLASS FIBER

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 70
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
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.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....
C = CEILING LIMIT NEGL = NEGLIGIBLE

EST=	ESTIMATED	NF	= NONE FOUND
NA =	NOT APPLICABLE	UNKN	= UNKNOWN
NE =	NONE ESTABLISHED	REC	= RECOMMENDED
ND =	NONE DETERMINED	V	= RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)		SKN	= SKIN
		TS	= TRADE SECRET
		R	= RECOMMENDED
		MST	= MIST

MATERIAL SAFETY DATA SHEET

SECTION I - MANUFACTURER'S INFORMATION

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS 518-395-3310
REVISED : 3/07/96
PREPARER: A.L. DRAKE

SECTION II - PRODUCT INFORMATION

PRODUCT IDENTIFICATION: 76851
CHEMICAL FAMILY : ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME : POLYETHYLENE TEREPHTHALATE
FORMULA : MIXTURE

SECTION III - PRODUCT COMPONENTS

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT%	ACGIH TLV	OSHA PEL	UNITS	CAS REG. NO.
NONE KNOWN	NA	N/A	N/A	N/A	N/A

* COMPANY RECOMMENDED VALUE
FORMULATION INFORMATION: NONE

SECTION IV - PHYSICAL DATA

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT:	<0.8
VAPOR PRESSURE (20C)	: NA MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: NA
VAPOR DENSITY (AIR=1):	NA		
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY (WATER = 1 @ 25 C)	: 1.3
MELTING POINT	: NA (F) NA (C)		
PHYSICAL STATE	: SOLID	DENSITY	: NF
ODOR	: NONE	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)	PH	: NA
COLOR	: CLEAR		

SOLUBILITY IN WATER (20C) : NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT : NA (F) NA (C) BY --
IGNITION TEMPERATURE : 4505(F) 497 (C)
FLAMMABLE LIMITS IN AIR (%): LOWER: NA UPPER: NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE : SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: PLASTIC FILMS CAN PICK UP STRONG CHARGES OF STATIC ELECTRICITY WHICH IF DISCHARGED INTO DUST OR SOLVENT LADEN AIR MIGHT CAUSE A FIRE OR EXPLOSION.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, ALCOHOL, ALDEHYDES, ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC, BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID: NONE KNOWN.

SECTION VII - HEALTH HAZARD DATA

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION: NONE KNOWN.

SKIN CONTACT: NONE KNOWN.
INHALATION: NONE KNOWN.
EYE CONTACT: NONE KNOWN.
MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.
OTHER: NONE KNOWN

CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN

EMERGENCY FIRST AID PROCEDURES
INGESTION: NONE KNOWN.
SKIN: NONE KNOWN.
INHALATION: NONE KNOWN.
EYES: NONE KNOWN.
NOTE TO PHYSICIAN: NONE KNOWN.

TOXICITY: ** PRODUCT INFORMATION

ACUTE ORAL LD50	: NA	MG/KG
ACUTE DERMAL LD50	: NA	MG/KG
ACUTE INHALATION	: NA	
OTHER	: NONE	
AMES TEST	: UNKNOWN	

PRINCIPAL ROUTES OF EXPOSURE: NONE KNOWN.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC OR OSHA.
PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

SECTION VIII - SPECIAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: NONE KNOWN.
PROTECTIVE GLOVES: NONE KNOWN
EYE AND FACE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT: NONE KNOWN
VENTILATION: NONE KNOWN.

SECTION IX - SPILL, LEAK AND DISPOSAL PROCEDURE

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: SCRAPE OR GATHER MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR DISPOSAL.
DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION X - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
NONE KNOWN ENGINEERING CONTROLS: NONE KNOWN.

SECTION XI - SHIPPING AND REGULATORY CLASSIFICATION DATA

DOT SHIPPING NAME	: CLOTH OR TAPE, INSULATING NOI
DOT HAZARD CLASS	: NOT REGULATED
DOT LABEL(S)	: NONE
UN/NA NUMBER	: NONE
PLACARDS	: NONE
EPA HAZARD WASTE	: NOT REGULATED
OSHA HAZARD CLASS	: NONE
WHMIS HAZARD CLASS	:

NO KNOWN WHIMS CLASS
NMFC CLASSIFICATION : CLASS 77.5
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY - 1; REACTIVITY - 0; HEALTH - 0
ADDITIONAL INFORMATION
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ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30 (H-2)

NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

Provided By Electrical Insulation Suppliers Inc.

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GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

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UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS mr30nfgJOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

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DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

33983/GENERAL ELECTRIC SERVICE

	MSDS DOCUMENT	SHIP DATE	CUSTOMER PURCHASE ORDER NUMBER
BLR240	IMI76851	05/14/97	GL4096-005741

Provided By Electrical Insulation Suppliers Inc.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK .12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 02/16/96
PREPARER: A L DRAKE

NOV - 3 1997

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 76870
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: POLYESTER COATED GLASS
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
FIBROUS GLASS	60-100	10	15	MG/M3	65997-17-3
DIALLYL ISOPHTHALATE	7-13	NA	NA	NA	1087-21-4
DIBUTYL PHTHALATE	0.1-1	5	5	MG/M3	84-74-2
ETHYL ALCOHOL	0.1-1	1000	1000	PPM	64-17-5

*COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
SARA 313 REPORTABLES:
84-74-2 DIBUTYL PHTHALATE 0.6%
CA PROP 65:
108-88-3 TOLUENE <0.4%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION
BOILING POINT : NA (F) NA (C)
VAPOR PRESSURE(20C): NA MM HG
VAPOR DENSITY(AIR=1: NA
FREEZING POINT : NA (F) NA (C)
MELTING POINT : NA (F) NA (C)
PHYSICAL STATE : SOLID
ODOR : MILD AROMATIC
ODOR THRESHOLD : UNK (PPM)
COLOR : WHITISH YELLOW
% VOLATILE BY VOLUME: < 0.5
EVAPORATION RATE : NA
(BUTYL ACETATE = 1)
SPECIFIC GRAVITY : NA
(WATER= 1 @ 25'C)
DENSITY : NA
ACIDITY/ALKALINITY : NA
PH : NA
SOLUBILITY IN WATER (20C): SLIGHT
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

DIALLYL ISOPHTHALATE
BOILING POINT: >365(F) >185(C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1.0

DIBUTYL PHTHALATE
BOILING POINT: 642 (F) 339 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) 9.6

ETHYL ALCOHOL
BOILING POINT: 176 (F) 80 (C)
VAPOR PRESSURE: (20 C) 46 MM HG
VAPOR DENSITY: (AIR=1) 1.6

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA

Provided By Electrical Insulation Suppliers Inc.

CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
ACETIC ACID.
FUMES OF ALLYIC COMPOUNDS.
FORMALDEHYDE.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF OVEREXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION
MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
EYE CONTACT
MAY CAUSE MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF OVEREXPOSURE
DERMATITIS.
THIS PRODUCT CONTAINS ETHYL ALCOHOL AT <1%. ETHYL ALCOHOL CONSUMPTION IS KNOWN TO CAUSE BIRTH DEFECTS. IT IS REPORTED HERE AT 0.1-1% FOR REQUIRED DISCLOSURE UNDER THE CANADIAN WHMIS ACT.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.

SKIN
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
MOVE PERSON TO FRESH AIR.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIALLYL ISOPHTHALATE
ACUTE ORAL LD50: 615 (RAT) MG/KG
ACUTE DERMAL LD50: 2400(RBT) MG/KG
ACUTE INHALATION: LC50 >2.1 & <200 MG/L (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: DIBUTYL PHTHALATE
ACUTE ORAL LD50: 8,000 (RAT) MG/KG
ACUTE DERMAL LD50: >20 ML/KG (RBT) MG/KG
ACUTE INHALATION: LC50 7900 MG/M3 (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: ETHYL ALCOHOL
ACUTE ORAL LD50: 7,060 (RAT) MG/KG
ACUTE DERMAL LD50: LDLo 20,000 (RBT) MG/KG
ACUTE INHALATION: LC50 20,000 PPM/10H (RAT)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS

THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SCRAPE OR GATHER MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR DISPOSAL.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
EXHAUST VENTILATION

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: ROVING GLASS FIBER

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE

UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT

WHMIS HAZARD CLASS:
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 70
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....

.....

THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....

.....

THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....

.....

C = CEILING LIMIT	NEGL = NEGLIGIBLE
EST= ESTIMATED	NF = NONE FOUND
NA = NOT APPLICABLE	UNKN = UNKNOWN
NE = NONE ESTABLISHED	REC = RECOMMENDED
ND = NONE DETERMINED	V = RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN = SKIN
	TS = TRADE SECRET
	R = RECOMMENDED
	MST = MIST

.....

THIS PRODUCT CONTAINS A MATERIAL THAT IS ON THE CALIFORNIA PROPOSITION 65 LIST.
WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Provided By Electrical Insulation Suppliers Inc.

33983/GENERAL ELECTRIC SERVICE /IMI775

MATERIAL SAFETY DATA SHEET

SECTION I - MANUFACTURER'S INFORMATION

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS 518-395-3310
REVISED : 4/10/97
PREPARER: A.L. DRAKE

SECTION II - PRODUCT INFORMATION

PRODUCT IDENTIFICATION: 775
CHEMICAL FAMILY : REACTIVE MONOMER
CHEMICAL NAME : VINYL TOLUENE
FORMULA : C9H10

SECTION III - PRODUCT COMPONENTS

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT%	ACGIH TLV	OSHA PEL	UNITS	CAS REG. NO.
VINYL TOLUENE	>99.200	50	100	PPM	25013-15-4

* COMPANY RECOMMENDED VALUE
FORMULATION INFORMATION: NONE

SECTION IV - PHYSICAL DATA

PRODUCT INFORMATION
BOILING POINT : 334 (F) 168 (C)
VAPOR PRESSURE (20C) : 1.1 MM HG
VAPOR DENSITY (AIR=1): 4.08
FREEZING POINT : NA (F) NA (C)
MELTING POINT : NA (F) NA (C)
PHYSICAL STATE : LIQUID
ODOR : HYDROCARBON
ODOR THRESHOLD : 50 (PPM)
COLOR : CLEAR
% VOLATILE BY WEIGHT: NEGLIG
EVAPORATION RATE : < 1
(BUTYL ACETATE = 1)
SPECIFIC GRAVITY : 0.89
(WATER = 1 @ 25 C)
DENSITY : NA
ACIDITY/ALKALINITY : NA
PH : NA
SOLUBILITY IN WATER (20C) : 0.0089%
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT : 127 (F) 53 (C) BY TCC
IGNITION TEMPERATURE : 1067 (F) 575 (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 UPPER: 5.2
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE : SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA: ALCOHOL FOAM, CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR. COMBUSTIBLE. WEAR RESPIRATORY PROTECTION IF IN A CONFINED AREA. POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS. POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE. EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC, BASIC OR OXIDIZING AGENTS. METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAME. TEMPERATURES OVER 85 F.

SECTION VII - HEALTH HAZARD DATA

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION: HARMFUL IF SWALLOWED. CAUSES VOMITING, NAUSEA AND DIARRHEA. MAY CAUSE PULMONARY EDEMA.
SKIN CONTACT: CAUSES MODERATE SKIN IRRITATION.
INHALATION: EXCESSIVE INHALATION CAUSES HEADACHE, DIZZINESS, NAUSEA AND INCOORDINATION. IRRITATES MUCOUS MEMBRANES.
EYE CONTACT: CAUSES MILD EYE IRRITATION.

MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN
OTHER: NONE KNOWN
CHRONIC EFFECTS OF EXPOSURE
PULMONARY EDEMA. EVIDENCE OF FETOTOXICITY POTENTIAL HAS BEEN REPORTED FOR VINYL TOLUENE IN A RECENT INTRAPERITIONEAL STUD
EMERGENCY FIRST AID PROCEDURES
INGESTION: DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN: REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE. WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION: 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.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN: ASPIRATION MAY CAUSE SEVER LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: **PRODUCT INFORMATION
ACUTE ORAL LD50 : 4,000 - 5,700 (RAT) MG/KG
ACUTE DERMAL LD50: > 4,500 (RAT) MG/MG
ACUTE INHALATION : LC50 3,020 MG/M3/4H (MUS)
OTHER : EYE AND SKIN IRRITANT.
AMES TEST : UNKNOWN
PRINCIPAL ROUTES OF EXPOSURE: ORAL, DERMAL - SKIN, EYES, INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC OR OSHA.
PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

SECTION VIII - SPECIAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA. USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OTHER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES: NEOPRENE.
EYE AND FACE PROTECTION: SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT: RUBBER APRON
VENTILATION: USE ONLY IN WELL VENTILATED AREA. MECHANICAL VENTILATION.

SECTION IX - SPILL, LEAK AND DISPOSAL PROCEDURE

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL. WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION. REMOVE SOURCES OF IGNITION. WARN OTHER WORKERS OF SPILL. INCREASE AREA VENTILATION.
DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. INCINERATION RECOMMENDED IN APPROVED INCINERATOR ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION X - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP. STORE UPRIGHT IN A COOL PLACE BELOW 30 DEG C (85 DEG F). KEEP CONTAINER CLOSED WHEN NOT IN USE. AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE. AVOID CONTACT WITH SKIN AND EYES. USE ONLY IN A WELL VENTILATED AREA. CAUTION! COMBUSTIBLE. DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL. CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST. KEEP AWAY FROM FOOD AND SMOKING MATERIALS. WASH HANDS BEFORE EATING AND SMOKING. UNCURED PRODUCT CONTACT IRRITATES EYES.
ENGINEERING CONTROLS: EXHAUST VENTILATION, EYEWASH STATIONS, USE IN A WELL VENTILATED AREA.

SECTION XI - SHIPPING AND REGULATORY CLASSIFICATION DATA

DOT SHIPPING NAME : VINYL TOLUENE, INHIBITED

DOT HAZARD CLASS : 3, III
DOT LABEL(S) : FLAMMABLE LIQUID
UN/NA NUMBER : UN2618
PLACARDS : FLAMMABLE LIQUID
EPA HAZARD WASTE : D001 RQ=100/45.4
OSHA HAZARD CLASS : IRRITANT
WHMIS HAZARD CLASS :
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION : CLASS 55
TRANSPORTATION CLASS: IMDG: 3.3 PG 3392 (MARINE POLLUTANT)

IATA: 3, III (VINYL TOLUENE)

NFPA/HMIS CLASSIFICATION: FLAMMABILITY - 2; REACTIVITY - 1; HEALTH - 2
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL (EINECS)

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

C = CEILING LIMIT
EST = ESTIMATED
NA = NOT APPLICABLE
NE = NONE ESTABLISHED
ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30 (H-2)

NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

Provided By Electrical Insulation Supplier's Inc.

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GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

MATERIAL SAFETY DATA SHEET INFORMATION:

PLEASE FIND ENCLOSED MATERIAL SAFETY DATA SHEETS (MSDS) COVERING ITEMS PURCHASED FROM ELECTRICAL INSULATION SUPPLIERS (EIS). OSHA REGULATIONS REQUIRE MSDS INFORMATION BE MADE AVAILABLE TO ALL PERSONNEL WHO MAY BE EXPOSED TO HAZARDOUS MATERIALS IN THE WORK PLACE.

UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS mr30nfgJOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

IF YOU NEED FURTHER INFORMATION CONCERNING YOUR SITUATION, YOU MAY CONTACT THE EPA IN WASHINGTON, D.C. THEIR TOLL FREE NO. IS (800)535-0202; THE RCRA/SUPERFUND HOT LINE IS (800)424-9346 OR (703)920-9810; THE TSCA HOT LINE IS (202)554-1404.

BY PROVIDING THIS DOCUMENTATION, EIS IS COMPLYING WITH FEDERAL LAWS GOVERNING MSDS INFORMATION, AS IS KNOWN TO US. THIS IS A SERVICE AIMED AT HELPING YOUR BUSINESS TO ALSO COMPLY WITH GOVERNMENT REGULATIONS.

DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

	MSDS DOCUMENT	SHIP DATE	CUSTOMER PURCHASE ORDER NUMBER
BLR240	IMI775	06/23/97	GL4096-005965

Provided By Electrical Insulation Suppliers Inc.

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 05/17/94
PREPARER: A.L.DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 776
CHEMICAL FAMILY: REACTIVE MONOMER
CHEMICAL NAME: INHIBITOR SOLUTION
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
VINYL TOLUENE	60-100	50	100	PPM	25013-15-4

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NF (F) NF (C)	% VOLATILE BY WEIGHT	: NEGLIG
VAPOR PRESSURE(20C)	: NF MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: <1
VAPOR DENSITY(AIR=1	: NF		
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: 0.89
MELTING POINT	: NA (F) NA (C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: LIQUID	DENSITY	: NF
ODOR	: HYDROCARBON	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: 50 (PPM)		

COLOR : CLEAR PH : NA
SOLUBILITY IN WATER (20C): .012%
SOLUBILITY IN ORGANIC SOLVENT: NF
(STATE SOLVENT)

VINYL TOLUENE
BOILING POINT: 334 (F) 168 (C)
VAPOR PRESSURE: (20 C) 1.1 MM HG
VAPOR DENSITY: (AIR=1) 4.08

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: 113 (F) 45 (C) BY PMCC
IGNITION TEMPERATURE: 1000(F) 538 (C)
FLAMMABLE LIMITS IN AIR (%): LOWER 1.1 @ 51C UPPER 5.2 @ 84C
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS EXPECTED; MATERIAL HAS A FLASH POINT BELOW 200 F.
EXTINGUISHING MEDIA
ALCOHOL FOAM
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
COMBUSTIBLE.
WEAR RESPIRATORY PROTECTION IF IN A CONFINED AREA.
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS
POLYMERIZATION MAY TAKE PLACE DURING A FIRE DUE TO ELEVATED TEMPERATURE WHERE CLOSED CONTAINERS COULD VIOLENTLY RUPTURE.
EVACUATE AREA AND FIGHT FIRE FROM A SAFE DISTANCE.

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION MAY OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
METAL SALTS SUCH AS ALUMINUM CHLORIDE.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

TEMPERATURES OVER 85 F

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION
CAUSES VOMITING,NAUSEA,AND DIARRHEA
MAY BE FATAL IF SWALLOWED.
MAY CAUSE PULMONARY EDEMA.
SKIN CONTACT
CAUSES MODERATE SKIN IRRITATION.
INHALATION
EXCESSIVE INHALATION CAUSES HEADACHE,DIZZINESS,NAUSEA AND INCOORDINATION.
IRRITATES MUCOUS MEMBRANES.
EYE CONTACT
CAUSES SEVERE EYE IRRITATION MAY DAMAGE TISSUE.
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF EXPOSURE
CORNEAL DAMAGE.
PULMONARY EDEMA.
YELLOW DISCOLORATION OF THE EYES.
CONJUNCTIVITIS.
EVIDENCE OF FETOTOXICITY POTENTIAL HAS BEEN REPORTED FOR VINYL TOLUENE IN A RECENT INTRAPERITONEAL STUDY
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
DO NOT INDUCE VOMITING. SLOWLY DILUTE WITH 1-2 GLASSES OF WATER OR MILK AND SEEK MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
SKIN
REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.
WASH WITH SOAP AND WATER.
GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION
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.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
ASPIRATION MAY CAUSE SEVERE LUNG DAMAGE. EVACUATE STOMACH IN A WAY WHICH AVOIDS ASPIRATION.

TOXICITY: VINYL TOLUENE
ACUTE ORAL LD50: 4,000-5,700 (RAT) MG/KG

ACUTE DERMAL LD50: >4,500 (RBT) MG/KG
ACUTE INHALATION: LC50 3,020 MG/M3 4HR (MUS)
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
ORAL.
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
USE APPROVED NIOSH RESPIRATORY PROTECTION IF TLV EXCEEDED OR OVER EXPOSURE IS LIKELY.
PROTECTIVE GLOVES
NEOPRENE.
EYE AND FACE PROTECTION
MONOGOGGLES.
OTHER PROTECTIVE EQUIPMENT
RUBBER APRON.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.
MECHANICAL VENTILATION.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
WIPE, SCRAPE OR SOAK UP IN AN INERT MATERIAL AND PUT IN A CONTAINER FOR DISPOSAL.
WEAR PROPER PROTECTIVE EQUIPMENT AS SPECIFIED IN THE PROTECTIVE EQUIPMENT SECTION.
REMOVE SOURCES OF IGNITION.
WARN OTHER WORKERS OF SPILL.
INCREASE AREA VENTILATION.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
INCINERATION RECOMMENDED IN APPROVED INCINERATOR ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE GROUND STRAP.
STORE UPRIGHT IN A COOL PLACE BELOW 30'C (85'F).
KEEP CONTAINER CLOSED WHEN NOT IN USE.
AVOID BREATHING VAPORS, IF EXPOSED TO HIGH VAPOR CONCENTRATION, LEAVE AREA AT ONCE.
AVOID CONTACT WITH SKIN AND EYES.
USE ONLY IN A WELL VENTILATED AREA.
CAUTION! COMBUSTIBLE.
KEEP CONTAINER CLOSED WHEN NOT IN USE TO PREVENT CONTACT WITH ACIDIC, BASIC OR OXIDIZING MATERIALS.
DURING CURE, VAPORS ARE GIVEN OFF WHICH MAY BE HARMFUL.
CURE ONLY WHERE APPROPRIATE VENTILATION SYSTEMS EXIST.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.

ENGINEERING CONTROLS
EXHAUST VENTILATION
EYEWASH STATIONS.
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: VINYL TOLUENE, INHIBITED

DOT HAZARD CLASS: 3,III
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN2618
PLACARDS: FLAMMABLE LIQUID
EPA HAZARD WASTE: D001 RQ=100/45.4
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS
F DANGEROUSLY REACTIVE MATERIAL
NMFC CLASSIFICATION: CLASS 55
TRANSPORTATION CLASS: IMDG: 3.3 PG 3392 (MARINE POLLUTANT)
IATA: 3, III (VINYL TOLUENE)
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 2 , REACTIVITY 1 , HEALTH 2
ADDITIONAL INFORMATION
THIS PRODUCT OR ITS COMPONENTS ARE ON THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-	SKN =	SKIN

PRODUCT, TSCA INVENTORY	TS	=	TRADE SECRET
STATUS NOT REQUIRED UNDER	R	=	RECOMMENDED
40 CFR PART 720.30(H-2)	MST	=	MIST

.....

MATERIAL SAFETY DATA SHEET

SECTION I - MANUFACTURER'S INFORMATION

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS 518-395-3310
REVISED : 2/20/96
PREPARER: A.L. DRAKE

SECTION II - PRODUCT INFORMATION

PRODUCT IDENTIFICATION: 77956
CHEMICAL FAMILY : ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME : ACRYLATE/POLYESTER/MICA/FIBER GLASS
FORMULA : MIXTURE

SECTION III - PRODUCT COMPONENTS

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT%	ACGIH TLV	OSHA PEL	UNITS	CAS REG. NO.
MICA	30 - 60	3	3	MG/M3	12001-26-2
FIBROUS GLASS	7 - 13	10	15	MG/M3	65997-17-3

* COMPANY RECOMMENDED VALUE
FORMULATION INFORMATION: NONE

SECTION IV - PHYSICAL DATA

PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY WEIGHT	: <0.5
VAPOR PRESSURE (20C)	: NA MM HG	EVAPORATION RATE (BUTYL ACETATE = 1)	: NA
VAPOR DENSITY (AIR=1)	: NA		
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY (WATER = 1 @ 25 C)	: NA
MELTING POINT	: NA (F) NA (C)		
PHYSICAL STATE	: SOLID	DENSITY	: NA
ODOR	: MILD KETONE	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNKNOWN (PPM)	PH	: NA
COLOR	: GREY		

SOLUBILITY IN WATER (20C) : NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

MICA
BOILING POINT : NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY : (AIR = 1) NA

FIBROUS GLASS
BOILING POINT : NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY : (AIR=1) NA

SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT : NA (F) NA (C) BY NA
IGNITION TEMPERATURE : NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER: NA UPPER: NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE : SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM, WATER MIST
SPECIAL FIREFIGHTING PROCEDURES: POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, TOXIC FUMES,

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ALCOHOLS, FUMES OF ALLYIC COMPOUNDS, ALDEHYDES, ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID): AVOID CONTACT WITH ACIDIC, BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID: KEEP AWAY FROM HEAT, SPARKS AND FLAMES.

SECTION VII - HEALTH HAZARD DATA

ACUTE SIGNS/EFFECTS OF EXPOSURE
INGESTION: MAY ACT AS OBSTRUCTION IF SWALLOWED.
SKIN CONTACT: SKIN IRRITATION IS NOT EXPECTED, BUT MAY OCCUR IN CERTAIN SENSITIVE INDIVIDUALS.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION: MAY CAUSE MILD RESPIRATORY IRRITATION.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
MICA DUST, WHICH PRODUCES PNEUMOCONIOSIS WOULD ONLY BE PRESENT IF THE MATERIAL WAS SANDED, SAWED, ETC.
EYE CONTACT: MAY CAUSES MILD EYE IRRITATION.
MEDICAL CONDITIONS AGGRAVATED: NONE KNOWN.
OTHER: NONE KNOWN
CHRONIC EFFECTS OF EXPOSURE
NONE KNOWN
EMERGENCY FIRST AID PROCEDURES
INGESTION: IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT: NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN: WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
INHALATION: MOVE PERSON TO FRESH AIR.
EYES: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION.
NOTE TO PHYSICIAN: NONE KNOWN.

TOXICITY: MICA

ACUTE ORAL LD50	: NA	MG/KG
ACUTE DERMAL LD50	: NA	MG/KG
ACUTE INHALATION	: NA	
OTHER	: NONE	
AMES TEST	: UNKNOWN	

TOXICITY: FIBROUS GLASS

ACUTE ORAL LD50	: NA	MG/KG
ACUTE DERMAL LD50	: NA	MG/KG
ACUTE INHALATION	: NA	
OTHER	: EYE AND SKIN IRRITANT.	
AMES TEST	: UNKNOWN	

PRINCIPAL ROUTES OF EXPOSURE: DERMAL - SKIN, EYES, INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT O.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC OR OSHA.
PRODUCTS/INGREDIENTS: THIS SPACE RESERVED FOR SPECIAL USE.

SECTION VIII - SPECIAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES: NONE KNOWN
EYE AND FACE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT: NONE KNOWN
VENTILATION: USE ONLY IN WELL VENTILATED AREA.

SECTION IX - SPILL, LEAK AND DISPOSAL PROCEDURE

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD: DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION X - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE ONLY IN A WELL VENTILATED AREA.
KEEP AWAY FROM FOOD AND SMOKING MATERIAL.

WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS: USE IN A WELL VENTILATED AREA.

SECTION XI - SHIPPING AND REGULATORY CLASSIFICATION DATA

DOT SHIPPING NAME : CLOTH OR TAPE, INSULATING NOI

DOT HAZARD CLASS : NOT REGULATED
DOT LABEL(S) : NONE
UN/NA NUMBER : NONE
PLACARDS : NONE
EPA HAZARD WASTE : NOT REGULATED
OSHA HAZARD CLASS : IRRITANT
WHMIS HAZARD CLASS :
D2B TOXIC MATERIALS
NMFC CLASSIFICATION : CLASS 77.5
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY - 1; REACTIVITY - 0; HEALTH - 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.

THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS)

THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN)

C = CEILING LIMIT
EST = ESTIMATED
NA = NOT APPLICABLE
NE = NONE ESTABLISHED
ND = NONE DETERMINED
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30 (H-2)
NEGL = NEGLIGIBLE
NF = NONE FOUND
UNKN = UNKNOWN
REC = RECOMMENDED
V = RECOMM. BY VENDOR
SKN = SKIN
TS = TRADE SECRET
R = RECOMMENDED
MST = MIST

RECEIVED

FEB 24 1997

LORIN G. HEWITT

0300055
GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

MATERIAL SAFETY DATA SHEET INFORMATION:

PLEASE FIND ENCLOSED MATERIAL SAFETY DATA SHEETS (MSDS) COVERING ITEMS PURCHASED FROM ELECTRICAL INSULATION SUPPLIERS (EIS). OSHA REGULATIONS REQUIRE MSDS INFORMATION BE MADE AVAILABLE TO ALL PERSONNEL WHO MAY BE EXPOSED TO HAZARDOUS MATERIALS IN THE WORK PLACE.

UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS mr30nfgJOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

IF YOU NEED FURTHER INFORMATION CONCERNING YOUR SITUATION, YOU MAY CONTACT THE EPA IN WASHINGTON, D.C. THEIR TOLL FREE NO. IS (800)535-0202; THE RCRA/SUPERFUND HOT LINE IS (800)424-9346 OR (703)920-9810; THE TSCA HOT LINE IS (202)554-1404.

BY PROVIDING THIS DOCUMENTATION, EIS IS COMPLYING WITH FEDERAL LAWS GOVERNING MSDS INFORMATION, AS IS KNOWN TO US. THIS IS A SERVICE AIMED AT HELPING YOUR BUSINESS TO ALSO COMPLY WITH GOVERNMENT REGULATIONS.

DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

	MSDS DOCUMENT	SHIP DATE	CUSTOMER PURCHASE ORDER NUMBER
BLR240	IMI77956	02/19/97	GL4096-005303

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77959 MATERIAL SAFETY DATA SHEET PAGE: 0001

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 02/19/92
PREPARER: A L DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 77959
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: ACRYLATE/POLYESTER/MICA/FIBER GLASS
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
MICA	40-70	3	3	MG/M3	12001-26-2
FIBROUS GLASS	7-13	10	15	MG/M3	65997-17-3

* COMPANY RECOMMENDED VALUE

FORMULATION INFORMATION:
NONE

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA	(F) NA	(C)	% VOLATILE BY WEIGHT	: <0.5
VAPOR PRESSURE(20C)	: NA	MM HG		EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA			(BUTYL ACETATE = 1)	
FREEZING POINT	: NA	(F) NA	(C)	SPECIFIC GRAVITY	: NA
MELTING POINT	: NA	(F) NA	(C)	(WATER=1 @ 25C)	
PHYSICAL STATE	: SOLID			DENSITY	: NA
ODOR	: GREY			ACIDITY/ALKALINITY	: NA

ODOR THRESHOLD : UNK (PPM)
COLOR : MILD ACETONE-LI PH : NA
SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

MICA
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY --
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
TOXIC FUMES.
OXIDES OF NITROGEN.
ALCOHOLS.
FUMES OF ALLYIC COMPOUNDS.
ALDEHYDES.
ORGANIC ACID VAPORS.
INCOMPATIBILITY (MATERIALS TO AVOID)

OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.
EYES.
INHALATION.
THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
USE IN A WELL VENTILATED AREA.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SWEEP OR GATHER UP MATERIAL AND PLACE IN PROPER CONTAINER FOR DISPOSAL OR RECOVERY.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE ONLY IN A WELL VENTILATED AREA.

KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.

ENGINEERING CONTROLS
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: CLOTH OR TAPE INSULATING NOI

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 77.5
TRANSPORTATION CLASS: IMDG: NOT REGULATED
IATA: NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....
THIS PRODUCT OR ITS COMPONENTS ARE ON THE AUSTRALIAN INVENTORY (ACOIN).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT =	REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)	SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

.....

*** MANUFACTURER'S INFORMATION ***

MANUFACTURED BY:
INSULATING MATERIALS INCORPORATED
1 CAMPBELL ROAD
SCHENECTADY, NEW YORK 12306

EMERGENCY TELEPHONE:
24 HRS (518) 395-3310
REVISED: 03/25/93
PREPARER: A L DRAKE

*** I PRODUCT IDENTIFICATION ***

PRODUCT IDENTIFICATION: 78054
CHEMICAL FAMILY: ELECTRICAL TAPE AND SHEETS
CHEMICAL NAME: SILICONE/MICA/FIBER GLASS
FORMULA: MIXTURE

*** II PRODUCT COMPONENTS ***

HAZARDOUS PRODUCT COMPOSITION	APPROX. WT %	ACGIH TVL	OSHA PEL	UNITS	CAS REG. NO.
MICA	30-60	3	3	MG/M3	12001-26-2
FIBROUS GLASS	10-30	10	15	MG/M3	65997-17-3
8% ZINC OCTOATE SOLUTION	1-5	NA	NA	NA	NA

FORMULATION INFORMATION:
SARA 313 REPORTABLES: ZINC COMPOUNDS
2.1%

*** III PHYSICAL DATA ***

**PRODUCT INFORMATION

BOILING POINT	: NA (F) NA (C)	% VOLATILE BY VOLUME	: 0
VAPOR PRESSURE(20C)	: NA MM HG	EVAPORATION RATE	: NA
VAPOR DENSITY(AIR=1	: NA	(BUTYL ACETATE = 1)	
FREEZING POINT	: NA (F) NA (C)	SPECIFIC GRAVITY	: NA
MELTING POINT	: NA (F) NA (C)	(WATER=1)	
PHYSICAL STATE	: SOLID	DENSITY	: NA
ODOR	: NONE	ACIDITY/ALKALINITY	: NA
ODOR THRESHOLD	: UNK (PPM)		
COLOR	: GRAY	PH	: NA

SOLUBILITY IN WATER (20C): NEGLIGIBLE
SOLUBILITY IN ORGANIC SOLVENT: NA
(STATE SOLVENT)

MICA
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

FIBROUS GLASS
BOILING POINT: NA (F) NA (C)
VAPOR PRESSURE: (20 C) NA MM HG
VAPOR DENSITY: (AIR=1) NA

8% ZINC OCTOATE SOLUTION
BOILING POINT: 315 (F) 157 (C)
VAPOR PRESSURE: (20 C) <1 MM HG
VAPOR DENSITY: (AIR=1) >1

*** IV FIRE AND EXPLOSION DATA ***

FLASH POINT: NA (F) NA (C) BY NA
IGNITION TEMPERATURE: NA (F) NA (C)
FLAMMABLE LIMITS IN AIR (%): LOWER NA UPPER NA
SENSITIVITY TO MECHANICAL IMPACT (Y/N): N
SENSITIVITY TO STATIC DISCHARGE:
SENSITIVITY TO STATIC DISCHARGE IS NOT EXPECTED.
EXTINGUISHING MEDIA
CARBON DIOXIDE
DRY CHEMICAL
FOAM
WATER MIST
SPECIAL FIREFIGHTING PROCEDURES
POSITIVE PRESSURE, SELF-CONTAINED BREATHING APPARATUS

*** V REACTIVITY DATA ***

Provided By Electrical Insulation Suppliers Inc.

STABILITY:
X STABLE _ UNSTABLE
HAZARDOUS
POLYMERIZATION WILL NOT OCCUR
HAZARDOUS DECOMPOSITION/COMBUSTION PRODUCTS
CARBON MONOXIDE.
CARBON DIOXIDE.
SILICON DIOXIDE.
TOXIC METAL FUMES.

INCOMPATIBILITY (MATERIALS TO AVOID)
AVOID CONTACT WITH ACIDIC,BASIC OR OXIDIZING AGENTS.
CONDITIONS TO AVOID
KEEP AWAY FROM HEAT,SPARKS AND FLAME.

*** VI HEALTH HAZARD DATA ***

ACUTE SIGNS/EFFECTS OF OVEREXPOSURE
INGESTION
HARMFUL IF SWALLOWED.
SKIN CONTACT
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
INHALATION
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
MICA DUST, WHICH PRODUCES PNEUMOCONIOSIS WOULD ONLY BE PRESENT IF THE MATERIAL WAS SANDED, SAWED, ETC.
EYE CONTACT
NONE KNOWN.
MEDICAL CONDITIONS AGGRAVATED
NONE KNOWN.
OTHER
NONE KNOWN.
CHRONIC EFFECTS OF OVEREXPOSURE
NONE KNOWN.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION
IF SWALLOWED INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGERS DOWN THROAT; NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION.
SKIN
WASH WITH SOAP AND WATER.
INHALATION
NONE KNOWN.
EYES
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
NOTE TO PHYSICIAN
NONE KNOWN.

TOXICITY: MICA
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: NONE.
AMES TEST: UNKNOWN

TOXICITY: FIBROUS GLASS
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: UNKNOWN

TOXICITY: 8% ZINC OCTOATE SOLUTION
ACUTE ORAL LD50: NA MG/KG
ACUTE DERMAL LD50: NA MG/KG
ACUTE INHALATION: NA
OTHER: EYE AND SKIN IRRITANT.
AMES TEST: NA
PRINCIPALS ROUTES OF EXPOSURE
DERMAL - SKIN.

THIS PRODUCT OR ONE OF ITS INGREDIENTS PRESENT 0.1% OR MORE IS NOT LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN BY NTP, IARC, OR OSHA
PRODUCTS/INGREDIENTS
THIS SPACE RESERVED FOR SPECIAL USE.

*** VII SPECIAL PROTECTIVE EQUIPMENT ***

RESPIRATORY PROTECTION
NONE KNOWN.
PROTECTIVE GLOVES
NONE KNOWN.
EYE AND FACE PROTECTION
SAFETY GLASSES.
OTHER PROTECTIVE EQUIPMENT
NONE KNOWN.
VENTILATION
USE ONLY IN WELL VENTILATED AREA.

*** VIII SPILL, LEAK AND DISPOSAL PROCEDURE ***

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED
SCRAPE OR GATHER MATERIAL AND PLACE IN A SUITABLE CONTAINER FOR DISPOSAL.
DISPOSAL METHOD
DISPOSAL SHOULD BE MADE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

*** IX SPECIAL PRECAUTIONS ***

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
USE ONLY IN A WELL VENTILATED AREA.
KEEP AWAY FROM FOOD AND SMOKING MATERIALS.
WASH HANDS BEFORE EATING AND SMOKING.
COATED FIBERGLASS IS ESSENTIALLY NON-HAZARDOUS UNLESS A DUST IS CREATED OR THE MATERIAL IS ABRADED TO REVEAL NON-COATED FIBERS.
ENGINEERING CONTROLS
USE IN A WELL VENTILATED AREA.

*** X SHIPPING AND REGULATORY CLASSIFICATION DATA ***

DOT SHIPPING NAME: MICA SHEET OR BUILT UP

DOT HAZARD CLASS: NOT REGULATED
DOT LABEL(S): NONE
UN/NA NUMBER: NONE
PLACARDS: NONE
EPA HAZARD WASTE: NOT REGULATED
OSHA HAZARD CLASS: IRRITANT
WHMIS HAZARD CLASS:
D2B TOXIC MATERIALS
NMFC CLASSIFICATION: CLASS 85
TRANSPORTATION CLASS: IMDG NOT REGULATED
RAR (IATA) NOT REGULATED
NFPA/HMIS CLASSIFICATION: FLAMMABILITY 1 , REACTIVITY 0 , HEALTH 1
ADDITIONAL INFORMATION
THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE.....
.....
THIS MATERIAL IS CONSIDERED AN ARTICLE AND EXEMPT FROM REGISTRATION UNDER THE EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICALS (EINECS).....
.....

C =	CEILING LIMIT	NEGL =	NEGLIGIBLE
EST=	ESTIMATED	NF =	NONE FOUND
NA =	NOT APPLICABLE	UNKN =	UNKNOWN
NE =	NONE ESTABLISHED	REC =	RECOMMENDED
ND =	NONE DETERMINED	V =	RECOMM. BY VENDOR
BY-PRODUCT = REACTION BY-PRODUCT, TSCA INVENTORY STATUS NOT REQUIRED UNDER 40 CFR PART 720.30(H-2)		SKN =	SKIN
		TS =	TRADE SECRET
		R =	RECOMMENDED
		MST =	MIST

00403 Provided By Electrical Insulation Suppliers Inc.

MATERIAL SAFETY DATA SHEET

COMPLIES WHITH REQUIRMENTS OF 29 CRF 1910.1200 (G)

MANUFACTURER

MANUFACTURER'S NAME.....	INSULATING MATERIALS, INCORPORATED ACME DIVISION
ADDRESS (STREET,CITY,STATE,ZIP).....	P.O. Box 1404 New Haven, CT 06505
PHONE NUMBER.....	(203)562-2171 800-424-9300 (CHEMTREC)
ISSUE DATE.....	JANUARY 28, 1995
PRODUCT IDENTIFICATION.....	COATED AND/OR LAMINATED MATERIALS FOR THERMAL, ELECTRICAL CONDUCTION OR INSULATION; SHEET, TAPE OR ROLL.

PRODUCT GROUP NUMBERS AND TRADE NAMES

18X-, 5XX-, 6XX-, ACUFLEX (DMD-70, DMD-100, NKN, NMN, RM, RMR), 192-0041, TRANSTHERM 400, 600, 1000, 1500
180-, 185-, 500-, 501-, 505-, 505H-, 507-, 508-, 509-, 510Y-, 513-, 513B-, 515-, 515B-, 516-, 517-, 518-, 520-, 521-, 600-, 602-, ACUFLEX (DMD-70,DMD-100, NKN, NMN, RM, RMR), ALM-X, EPOXY POL-FAB, MID-STIX, REAL-AL, THERM-AL H, THERM-AL H75, 605-

PRDDUCT INGREDIENTS

FULLY CURED RESINS (POLYESTER, EPOXY, POLYURETHANE, SILICONE, OIL-MODIFIED ALKYD, OR ALLOYS OF THE ABOVE) IMPREGNATED OR COATED ON VARIOUS SUBSTRATES (FIBERGLASS CLOTH, POLYESTER/FIBREGLASS CLOTH, POLYESTER MAT, POLYESTER FILM, COTTON CLOTH, SILK, KRAFT PAPER, RAG PAPER, ARAMID PAPER, ARAMID MAT, POLYIMIDE FILM).

MAY BE COATED WITH A PRESSURE-SENSITIVE ACRYLIC AND/OR SILICONE ADHESIVE OR LIGHT COVERING OF MICA DUST.

MAY BE IMPREGNATED WITH GRAPHITE (192-0041).

FULLY CURED INSULATION DOES NOT PRESENT A HEALTH HAZARD OR A PHYSICAL HAZARD AS DEFINED IN 29 CFRA 1910.1200 (C) AND MAY BE REGARDED AS AN AN "ARTICLE" AS DEFINED IN THAT SECTION.

DESCRIPTION

FLEXIBLE SHEETS OR TAPES; YELLOW, TAN. WHITE, GRAY, BLACK, BROWN OR BLUE IN COLOR. BLACK OLEORESINOUS-VARNISHED.
MATERAL MAY HAVE A CHARACTERISTIC GREASY FINISH.

FIRE AND EXPLOSION DATA

NO FLASH POINT, LEL OR UEL. SOME MATERIAL WILL SUPPORT COMBUSTION, OTHER ARE FLAME-RETARDANT (SEE INDIVIDUAL PRODUCT BULLITINS FOR MORE DETAILS). PRODUCT GROUPS 500-, 501-, 520-, 521-, 600-, AND 602- CONTAIN AIR-OXIDIZING OLEORESINOUS VARNISHES THAT MAY SUPPORT SPONTANEOUS COMBUSTION UNDER THE FOLLOWING CONDITIONS: WHEN SLIT TO NARROW WIDTHS THAT CREATE A HIGH RATIO OF EXPOSED PRODUCT AREA TO TOTAL PRODUCT ARA, AND STORED SO THAT SUFFICIENT AIR REACHES THE PRODUCT TO ADVANCE OXIDATION WITHOUT ENOUGH AIR FLOW TO PROVIDE FOR HEAT DISSIPATION. THIS IS A RARE PHENOMENA, BUT HAS BEEN KNOWN TO OCCUR. THE MOST TYPICAL INCIDENTS OF SPONTANEOUS COMBUSTION WOULD BE CAUSED BY A LARGE MASS OF NARROW SELVAGE STORED IN A OPEN HEAD DRUM OR LARGE STACKS OF NARROW SHEETS STORED IN CLOSED BOXES.

USE STANDARD FIRE EXTINGUISHING EQUIPMENT AND METHODS. WATER, DRY CHEMICAL, CO2 OR FOAM MAY BE USED. IF LARGE AMOUNTS OF MATERIAL ARE INVOLVED, FIREFIGHTERS SHOULD USE SELF-CONTAINED BREATHING APPARATUS IN CONFINED AREAS AS DECOMPOSITION AND COMBUSTION PRODUCTS MAY BE TOXIC.

HEALTH HAZARD AND PERSONAL PROTECTION INFORMATION

NO TLV OR PEL ESTABLISHED FOR PRODUCT; NOT LISTED BY OSHA, NTP, OR IARC AS CARCINOGENIC. RESINS ARE FULLY CURED AND

SUBSTRATES ARE COMPLETELY COATED OR IMPREGNATED; WILL NOT RELEASE OR OTHERWISE RESULT IN EXPOSURE TO A HAZARDOUS CHEMICAL UNDER NORMAL CONDITIONS OF USE; THEREFORE NO ADVERSE ACUTE OR CHRONIC HEALTH EFFECTS ARE EXPECTED FROM HANDLING THESE MATERIALS.

SOME INDIVIDUALS MAY EXPERIENCE MILD TRANSIENT SKIN IRRITATION FROM REPEATED HANDLING, AND EXPOSED FIBERGLASS ALONG SLIT EDGES OF MATERIAL MAY ALSO CAUSE MINOR SKIN IRRITATION: THEREFORE COTTON WORK GLOVES ARE RECOMMENDED.

IF MATERIAL IS SUPPLIED WITH MICA-DUST, INHALATION OF THIS DUST MAY PRODUCE MECHANICAL IRRITATION OF NOSE, THROAT AND UPPER RESPIRATORY TRACT. AN APPROVED DUST MASK SHOULD BE WORN IF NECESSARY FOR WORKER COMFORT OR IN THE UNLIKELY EVENT THAT AIRBORNE DUST CONCENTRATIONS GENERATED DURING HANDLING EXCEED THE OSHA PEL OF 20 MPPCF.

AS IN ALL INDUSTRIAL PROCESSES, USE OF THOROUGH GENERAL VENTILATION AND PROPER INDUSTRIAL HYGIENE ARE RECOMMENDED WHEN HANDLING THESE MATERIALS. NO SPECIAL PROTECTIVE EQUIPMENT IS REQUIRED. NO FIRST AID PROCEDURES ARE RECOMMENDED.

DISPOSAL INFORMATION

FULLY CURED INSULATION IS NOT A HAZARDOUS WASTE UNDER CURRENT RCRA AND CERCLA DEFINITIONS.
DOT SHIPPING NAME.....NOT REGULATED
DOT LABEL REQUIRED.....NONE
UN NUMBER.....NONE

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE RELIABLE. ALL RECOMMENDATIONS OR SUGGESTIONS ARE MADE WITHOUT GUARANTEE IN AS MUCH AS CONDITIONS AND METHODS OF COMMERCIAL USE ARE BEYOND OUR CONTROL.

MATERIAL SAFETY DATA SHEET

Machinery

SAFETAP **Index STOCK NO. 71911**

ITW Fluid Products Group , 30 Endicott St., Danvers, Massachusetts 01923
Emergency Telephone No.: (800) 424-9300 (CHEMTREC); Other calls: (508) 777-1100

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM RATINGS: HEALTH: 1
FLAMMABILITY: 1
REACTIVITY: 0
RL0350

REVISED: March 18, 1992

SECTION 1. PRODUCT IDENTITY

TRADENAME: SAFETAP
CHEMICAL FAMILY: Water soln. of mixed surfactants and lubricants.

OTHER PRODUCT INFORMATION: Tests for skin irritation, eye irritation, and oral toxicity have shown SafeTap to be nonhazardous according to current Federal regulations.

SECTION 2. HAZARDOUS INGREDIENTS

INGREDIENT(S)	WEIGHT PCT.	CAS NO.	TLV-TWA1,2	Notes
No hazardous ingredients				

1. "TLV" means the Threshold Limit Value exposure (8-hour time-weighted average, unless otherwise noted) established by ACGIH. "OSHA PEL" refers to the Permissible Exposure Limits for airborne contaminants as specified in 29 CFR 1900.1000.
2. "N/E" indicates that neither TLV nor OSHA Permissible Exposure Limit has been established.

NOTES: A1--human carcinogen. A2--suspect carginogen. C--ceiling limit (not a TWA). D--the TLV applies to dusts; this ingredient is not a dust as sold in our product. $--absorption through skin may be a significant route of exposure. "TC" indicates a "Toxic Chemical" subject to the reporting requirements of SARA Section 313 (40 CFR Sec. 372).

SECTION 3. PHYSICAL PROPERTIES

BOILING POINT (F): 221
MELTING POINT (F): n/d
PERCENT SOLIDS BY WEIGHT: <20
pH (5% by weight in water): 8.4
VAPOR DENSITY (Air=1): n/d
SPECIFIC GRAVITY: 1.04
APPEARANCE AND ODOR: Light amber liquid with very slight odor.
EVAPORATION RATE (BuAc=1): <1
SOLUBILITY IN WATER: Miscible
VAPOR PRESSURE (mmHg): 3.7 at 68 F

VOLATILE ORGANIC COMPOUNDS (VOC): 0 lbs/gal (EPA Reference Method 24) NOTE: "n/d" = "not determined".

SECTION 4. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: none F; METHOD: EXPLOSIVE LIMITS IN AIR: Lower--n/d; Upper--n/d

EXTINGUISHING MEDIA:	Water	CO2	Dry chemical	Foam	Alcohol foam
	yes	yes	yes	yes	no

SPECIAL FIREFIGHTING PROCEDURES: Fire fighters should wear self-contained breathing apparatus in confined areas.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

SECTION 5. HEALTH HAZARD DATA

EMERGENCY AND FIRST AID PROCEDURES--

EYES: Flush with plenty of water in a gentle stream for at least 15 minutes.
SKIN: Wash with soap and water. Soaked clothing should be changed.
INHALATION: Remove patient to fresh air.
INGESTION: Do not induce vomiting. Give 2 glasses of water to dilute. Consult physician.

SECTION 5. HEALTH HAZARD DATA (cont'd)

TOXICITY DATA--Oral LD50 (rat): No data
Dermal LD50 (rabbit): No data
Inhalation LC50 (rat): No data; Exposure time: -- hours

SYMPTOMS OF ACUTE OVEREXPOSURE--

EYES: Slight irritation
SKIN: Slight irritation
INHALATION: None
INGESTION: Slight irritation.

EFFECTS OF CHRONIC OVEREXPOSURE: None reported

MEDICAL CONDITIONS WHICH EXPOSURE MAY AGGRAVATE: none reported

CARCINOGENICITY--OSHA regulated? no
National Toxicology Program? no
Ingredient(s) listed: None
ACGIH? no
International Agency for Research on Cancer? no

SECTION 6. REACTIVITY DATA

STABILITY: Chemically stable
Conditions to avoid: None
Materials to avoid: Strong acids and oxidizers.
Hazardous decomposition products: CO, CO2, mixed oxides of nitrogen.

HAZARDOUS POLYMERIZATION: will not occur.
Conditions to avoid: None.

SECTION 7. SPILL OR LEAK PROCEDURES

SPILL CONTROL: Small spills may be flushed with water. Large amounts should be absorbed with suitable material and scraped up. Scrub spill area with detergent and water to remove slippery residues.

WASTE DISPOSAL: Dispose of in accordance with local, state and federal laws. Not a hazardous waste under RCRA or CERCLA.

Applicable CERCLA/RCRA Hazardous Waste Codes: None
Reportable Quantity under CERCLA, in pounds: ----

SECTION 8. PROTECTIVE EQUIPMENT

EYES: Safety glasses or goggles.
SKIN: Rubber gloves, if desired.
RESPIRATORY: None needed in normal use.
VENTILATION: General mechanical ventilation is normally adequate.

SECTION 9. PRECAUTIONS FOR STORAGE, HANDLING, ETC.

---Avoid freezing or high temperature which could cause full containers to burst. If lubricants and water separate after freezing and thawing, agitate to reform a clear solution before using.

PROPER SHIPPING NAME: Not regulated
D.O.T. HAZARD CLASS: None

ITW Fluid Products Group bases the information and recommendations in this document on data believed to be correct. No warranty of any kind, however, is made as to the information in this document.

HARRIS
SOLDER, BRAZING & WELDING PRODUCTS

MATERIAL SAFETY DATA SHEET

ALUMINUM WELDING WIRE AND ROD

SECTION 1 - MATERIAL IDENTIFICATION

MANUFACTURERS NAME J.W. HARRIS CO., INC.

ADDRESS 10930 DEERFIELD ROAD

EMERGENCY TELEPHONE (513) 891-2000

DISTRIBUTOR NAME (IF APPLICABLE)_____

ADDRESS CINCINNATI, OHIO 45242

MSDS DATE NOVEMBER 1985

THE FOLLOWING TABLE LISTS THE TRADE NAME AND COMPOSITION OF PRODUCTS COVERED BY THE MATERIAL SAFETY DATA SHEET. SEE SECTION 2 AND ESPECIALLY SECTION 6 FOR IMPORTANT HEALTH HAZARD DATA.

TRADE NAME	CHEMICAL COMPOSITION (%)								
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
1100	a	a	0.05-0.20	0.05			0.10		99.0 Minimum
2319	0.20	0.30	5.8-6.8	0.20-0.40	0.02		0.10	0.10-0.20	Remainder
4043	4.5-6.0	0.8	0.30	0.05	0.05		0.10	0.20	Remainder
5183	0.40	0.40	0.10	0.05-1.0	4.3-5.2	0.05-0.25	0.25	0.15	Remainder
5356	0.25	0.40	0.10	0.50-0.20	4.5-5.5	0.5-0.20	0.10	0.06-0.20	Remainder
5554	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	0.25	0.05-0.20	Remainder
5556	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	0.25	0.05-0.20	Remainder
5654	c	c	0.10	0.10	3.1-3.9	0.15-0.35	0.20	0.05-0.15	Remainder
718(4047)	11.0-13.0	0.8	0.30	0.15	0.10		0.20		Remainder

Single figures are maximum
a. - Si + Fe = 0.95 max.
b. - Vanadium 0.05-0.15, c. - Si + Fe = 0.45 max.

SECTION 2 - HAZARDOUS MATERIALS

Welding rod or wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding or brazing. Section 1 lists product designations and composition as manufactured. IMPORTANT - SEE SECTION 6 FOR INFORMATION ON POTENTIAL FUME HAZARD RESULTING FROM USE OF THE PRODUCT.

SECTION 3 - PHYSICAL DATA

Solid wire or rod.

SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Welding arc, open flame and sparks can ignite combustibles, See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA - ALUMINUM WELDING WIRE

EXPOSURE: Section 1 lists normal composition of aluminum welding wire. Section 6 lists exposure limits for hazardous decomposition products which might be present in fume generated during welding or brazing. Actual exposure should be determined by monitoring fume in the operator's breathing zone.

PRIMARY ROUTE OF EXPOSURE: Inhalation of fume.

PRE-EXISTING MEDICAL CONDITIONS: Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

POSSIBLE EFFECTS OF EXPOSURE: Short term exposure to welding fume may result in discomfort, dizziness, nausea, dryness or irritation of the throat. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. Some compounds of hexavalent chromium have been reported to be carcinogenic. No clear association however, has been established between chromium in welding fume and the development of cancer. Exposure limits should be maintained below the levels listed in Section 6. Copper fume may cause metal fume fever which may include fever, body aches, and chills.

EMERGENCY FIRST AID: Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

OTHER HEALTH CONSIDERATIONS -
ARC RAYS from electric arc welding operations can injure eyes and burn skin.

ELECTRIC SHOCK - From arc welding equipment can kill.

HEAT RAYS - (Infrared radiation from flame or hot metal) can injure eyes.

SECTION 6 - REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presences of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the filler metal is consumed, the fume and gas decomposition products generated are different and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products, and the ingredients in the electrode or wire are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode or wire may form. Decomposition products of normal operation include those originating from the base metal and coating, etc., as noted above.

Section 1 lists composition of the aluminum wire or rod. The chart below lists those constituents, defined as hazardous, which are likely to be present in the welding fume.

ELEMENT	CAS#	PEL mg/m3(1)	TLV mg/m3(2)
Silicon (SiO2, amorphous, respirable)	60676-86-0	Not Listed	5mg/m3 Respirable dust 10mg/m3 total dust
Iron (oxide fume)	1309-37-1	10.0	5.0
Copper (fume)	7440-50-8	0.1	0.2
Manganese	7439-96-5	5.0 (ceiling)	1.0 (fume)
Magnesium (oxide fume)	1309-48-4	15.0	10.0
Zinc (oxide)	1314-13-2	5.0 (fume)	5.0)fume)
Titanium (dioxide)	13463-67-7	15.0	10mg/m3 of total dust or 5mg/m3 respirable dust
Aluminum (welding fume)	7429-90-5	Not Listed	5.0
Chromium (VI)	7440-47-3	0.1	0.05

(1) Permissible exposure limit OSHA 29CFR 1910.100 Subpart Z
(2) Threshold limit value American Conference of Government Industrial Hygenists

Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by radiation from the arc during electric arc welding.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, Fl. 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, Fl. 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on the following.

VENTILATION: Use enough ventilation, local exhaust at the arc (or flame), or both. to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

RESPIRATORY PROTECTION: Use respirable fume respirator or air supplied respirator when welding or brazing, or soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION: Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 - Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING: Wear head and body protection which help to prevent injury from radiation, sparks, flame, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate himself from work and ground.

The information and recommendations contained in the publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by J.W. Harris Co.,Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; J.W. Harris co.,Inc. assume no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

HARRIS
SOLDERING BRAZING & WELDING PRODUCTS

MATERIAL SAFETY DATA SHEET

BRAZING ALLOYS

(COPPER - PHOSPHOROUS) (SILVER)

SECTION 1 - MATERIAL IDENTIFICATION

MANUFACTURER'S NAME
J.W. HARRIS CO., INC.

EMERGENCY TELEPHONE #
1-800-424-9300

ADDRESS
19030 DEERFIELD RD.
CINCINNATI, OH. 45242

TELEPHONE # FOR INFORMATION
1-513-891-2000

SIGNATURE OF PREPARER:(NAME)

DATE PREPARED: 4/90 SUPERCEDES 11/85

CADMIUM FREE

NOMINAL CHEMICAL COMPOSITION (%)

TRADE NAME	Ag	Cu	Sn	P
STAY SILV 0		92.9		7.1
STAY SILV OLP		93.2		6.8
STAY SILV OHP		92.6		7.4
BRAYZON	1	92.0		7.0
STAY SILV 2		91.0		7.0
STAY SILV 2LP	2	91.4		6.6
STAY SILV 2HP	2	90.6		7.4
QUICKSILVER	1.	90.	1.5	6.0
SILVER 'N BRASS	1.7	90.8	1.5	6.0
STAY SILV 5		89.0		6.0
STAY SILV 5LP	5	89.3		5.7
STAY SILV 5HP	5	88.5		6.5
STAY SILV 6		87.5		6.5
STAY SILV 6LP	6	87.8		6.2
STAY SILV 6HP	6	86.8		7.2
DYNAFLOW	6	87.9		6.1
STAY SILV 15	15	80.0		6.0
STAY SILV 15LP	15	80.3		4.7
STAY SILV 15HP	15	79.6		5.4
PHOSON +	15	77.7		7.3
PHOSON	<1	<96		<7

ALL OF THE ABOVE NAMES ARE TRADEMARKS OF THE J.W. HARRIS CO.

SECTION 2 - HAZARDOUS INGREDIENTS

IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING BRAZING WITH NORMAL USE OF THE PRODUCT ARE COVERED IN SECTION 6.

SARA SECTION 313 SUPPLIER NOTIFICATION: INDIVIDUAL FILLER METALS COVERED BY THIS MSDS MAY CONTAIN THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW ACT OF 1986 & OF 40CFR 372: ALUMINUM, CHROMIUM, COBALT, COPPER, MANGANESE, AND NICKEL. REFER TO SECTION 1 OF THIS MSDS FOR THE FILLER METAL NAME & THE % BY WT., AND SECTION 2 FOR THE CAS NUMBER FOR EACH CHEMICAL.

SECTION 2 (CONTINUED)

INGREDIENT	CAS NUMBER	PEL mg/m3	TLV mg/m3
SILVER (METAL)	7440-22-4	.01-.1	.01-.1
SILVER (SOLUBLE COMPOUNDS)	7440-22-4	.01	.01
COPPER (DUST)	7440-50-8	1	
PHOSPHOROUS	7723-14-0	.1	.1

NFPA HAZARD SIGNAL

HEALTH	0	FLAMMABILITY	0
STABILITY	0	SPECIAL	0

ONE RECOMMENDED WAY TO DETERMINE THE COMPOSITION AND QUANTITY OF FUMES AND GASES TO WHICH WORKERS ARE EXPOSED IS TO TAKE AN AIR SAMPLE IN THE WORKER'S BREATHING ZONE. SEE ANSI/AWS F1.1 AVAILABLE FROM THE AMERICAN WELDING SOCIETY, P.O. BOX 351040, MIAMI, FL. 33135.

SECTION 3 - PHYSICAL AND CHEMICAL DATA

THESE PRODUCTS ARE SHIPPED AS NONHAZARDOUS, NONFLAMMABLE, NON-EXPLOSIVE, AND NON-REACTIVE SOLID MATERIALS.

SECTION 4 - FIRE AND EXPLOSION DATA

(NON-FLAMMABLE) OPEN FLAME AND SPARKS CAN IGNITE COMBUSTIBLES. SEE ANSI/ASC Z49.1-1983 SECTION 6

SECTION 5 - HEALTH HAZARD DATA-BRAZING ALLOYS

EXPOSURE: SECTION 1 LISTS NOMINAL COMPOSITION OF BRAZING FILLER METALS. SECTION 2 LISTS EXPOSURE LIMITS FOR HAZARDOUS DECOMPOSITION PRODUCTS WHICH MIGHT BE PRESENT IN FUME GENERATED DURING BRAZING. ACTUAL EXPOSURE SHOULD BE DETERMINED BY MONITORING FUME IN THE OPERATOR'S BREATHING ZONE.

PRIMARY ROUTE OF EXPOSURE: INHALATION OF FUME.

PRE-EXISTING MEDICAL CONDITIONS: INDIVIDUALS WITH IMPAIRED PULMONARY FUNCTIONS OR ILLNESS MAY HAVE SYMPTOMS EXACERBATED BY FUME IRRITANTS.

POSSIBLE EFFECTS OF EXPOSURE: COPPER AND ZINC FUME MAY CAUSE METAL FUME FEVER. SHORT TERM SYMPTOMS MAY INCLUDE A METALLIC TASTE IN THE MOUTH, DRYNESS OR IRRITATIONS OF THE THROAT FOLLOWED BY COUGHING, SHORTNESS OF BREATH, NAUSEA, FEVER, BODY ACHE, AND CHILLS. LONG TERM EXPOSURE TO WELDING FUME, GASES OR DUST MAY CONTRIBUTE TO PULMONARY IRRITATION OR PNEUMOCONIOSIS.

EMERGENCY FIRST AID: REMOVE FROM DUST OR FUME EXPOSURE. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. SUMMON MEDICAL AID IMMEDIATELY.

OTHER HEALTH CONSIDERATIONS: BRAZING ALLOYS ARE FREQUENTLY USED WITH A FLUORIDE TYPE FLUX. IF APPLICABLE, FLUX FUME SHOULD BE CONSIDERED IN EVALUATION OF HAZARDS.

CARCINOGENICITY NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

SECTION 6 - REACTIVITY DATA HAZARDOUS DECOMPOSITION PRODUCTS

BRAZING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY. THE COMPOSITION AND QUANTITY OF BOTH ARE DEPENDENT UPON THE METAL BEING BRAZED, THE PROCESS, PROCEDURES, AND FILLER METALS BEING USED. OTHER CONDITIONS WHICH ALSO INFLUENCE TO COMPOSITION AND QUANTITY OF THE FUMES AND GASES TO WHICH WORKERS MAY BE EXPOSED INCLUDE: COATINGS ON THE METAL BEING BRAZED (SUCH AS PAINT, PLATING, OR GALVANIZING), THE NUMBER OF OPERATORS AND THE VOLUME OF THE WORK AREA, THE QUALITY AND AMOUNT OF VENTILATION, THE POSITION OF THE OPERATOR'S HEAD WITH RESPECT TO THE FUME PLUME, AS WELL AS THE PRESENCE OF CONTAMINANTS IN THE ATMOSPHERE (SUCH AS CHLORINATED HYDROCARBON VAPORS FROM CLEANING AND DEGREASING ACTIVITIES).

WHEN THE FILLER METAL IS CONSUMED, THE FUME AND GAS DECOMPOSITION PRODUCTS GENERATED ARE DIFFERENT IN PERCENT AND FORM FROM THE SOLID WIRE OR ROD INGREDIENTS LISTED IN SECTION 1. FUME AND GAS DECOMPOSITION PRODUCTS, AND NOT THE INGREDIENTS IN THE ROD OR WIRE ARE IMPORTANT. THE CONCENTRATION OF A GIVEN FUME OR GAS COMPONENT MAY DECREASE OR INCREASE BY MANY TIMES THE *ORIGINAL CONCENTRATION IN THE FILLER METAL. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM THE* ATILIZATION REACTION OF THE WIRE.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 & 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTIONS AND THE PRECAUTIONARY LABEL ON THE PRODUCT. SEE AMERICAN NATIONAL STANDARD Z49.1, SAFETY IN WELDING AND CUTTING PUBLISHED BY THE AMERICAN WELDING SOCIETY, P.O. BOX 351040, MIAMI, FL. 33135 AND OSHA PUBLICATION 2206 (29CFR1910), U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402 FOR MORE DETAIL ON MANY OF THE FOLLOWING:

VENTILATION: USE ENOUGH VENTILATION AND LOCAL EXHAUST AT THE FLAME TO KEEP THE FUMES AND GASES BELOW TLV'S IN THE WORKER'S BREATHING ZONE AND THE GENERAL AREA. TRAIN THE EMPLOYEE TO KEEP HIS HEAD OUT OF THE FUMES. SEE ANSI/ASC Z49.1 SECTION 5.

RESPIRATORY PROTECTION: USE RESPIRABLE FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN BRAZING IN CONFINED SPACE OR WHERE LOCAL EXHAUST OR VENTILATION DOES NOT KEEP EXPOSURE BELOW TLV.

EYE PROTECTION: WEAR SAFETY GLASSES, GOGGLES OR USE FACE SHIELD WITH FILTER LENS OF APPROPRIATE SHADE NUMBER (ANSI/ASC Z49.1 SECTION 4.2). PROVIDE PROTECTION SCREENS AND FLASH GOGGLES, IF NECESSARY, TO SHIELD OTHERS.

PROTECTIVE CLOTHING: WEAR HEAD AND BODY PROTECTION WHICH HELP TO PREVENT INJURY FROM HEAT RADIATION SPARKS, AND FLAME. SEE ANSI Z49.1. AT A MINIMUM THIS INCLUDES GLOVES AND A PROTECTIVE FACE SHIELD, AND MAY INCLUDE ARM PROTECTORS, APRONS, HATS, SHOULDER PROTECTION, AS WELL AS DARK SUBSTANTIAL CLOTHING.

THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THE PUBLICATION HAVE BEEN COMPILED FROM SOURCES BELIEVED TO BE RELIABLE AND TO REPRESENT THE BEST INFORMATION ON THE SUBJECT AT THE TIME OF ISSUE. NO WARRANTY, GUARANTEE, OR REPRESENTATION IS MADE BY J.W. HARRIS CO., INC. AS TO THE ABSOLUTE CORRECTNESS OR SUFFICIENCY OF ANY REPRESENTATION CONTAINED IN THIS AND OTHER PUBLICATIONS. J.W. HARRIS CO., INC. ASSUMES NO RESPONSIBILITY IN CONNECTION THEREWITH, NOR CAN IT BE ASSUMED THAT ALL ACCEPTABLE SAFETY MEASURES ARE CONTAINED IN THIS (AND OTHER PUBLICATIONS), OR THAT OTHER OR ADDITIONAL MEASURES MAY NOT BE REQUIRED UNDER PARTICULAR OR EXCEPTIONAL CONDITIONS OR CIRCUMSTANCES.

J.W.HARRIS
SOLERING, BRAZING
AND WELDING PRODUCTS

MATERIAL SAFETY DATA SHEET-BRAZING FLUXES
STAY SILV(TM) WHITE BRAZING FLUX
STAY SILV(TM) BLACK BRAZING FLUX
GB 88 FLUX.AUTO DISPENSE FLUX
STAY SILV(TM) #99 SILVER BRAZING FLUX POWDER
STAY-SILVR POWDERED BRAZING FLUX

SECTION 1

Manufacturer's Name
J. W. Harris Co., Inc.

Emergency Telephone No.
1-800-424-9300

Address
10930 Deerfield Rd.
Cincinnati, OH 45242

Telephone No. for Information
1-513-891-2000

Signature of Preparer:

Date Prepared 3/93 SUPERSEDES 6/92

SECTION 2
HAZARDOUS INGREDIENTS

INGREDIENT		CAS NUMBER	PEL MG/M3	TLV MG/M3
Potassium Tetraborate		1332-77-0	15	10
Potassium Pentaborate		11128-29-3	15	10
Boric Acid as H3Bo	30-50%	10043-35-3	15	10
Potassium Bifluoriie(F)	25-40%	7789-29-9	2.5	2.5
Water	15-25%	7732-18-5	Not Listed	Not Listed
C. W. A.		N/A	N/A	N/A

Important: This section covers the materials from which the product is manufactured. Additional information about the fumes and gases produced during brazing with normal use of this product are covered in Section 6.

SARA SECTION 313 SUPPLIER NOTIFICATION: Individual fluxes covered by this MSDS may contain toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40CFR 372. Refer to Section 2 for the CAS Number for each chemical ingredient.

*C. W. A. is a copper wetting agent for Stay-Silv Powdered Flux only.

NFPA HAZARD SIGNAL

Health	1	Flammability	0
Stability	0	special	0

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the workers' breathing zone. See ANSI/AWS Fl.1 available from the American Welding Society, P. 0. Box 351040, Miami, FL 33135.

OUR PRODUCTS HAVE NO OZONE DEPLETING SUBSTANCES.(DDS)

SECTION 3 - PHYSICAL AND CHEMICAL DATA

These products are shipped as nonhazardous, nonflammable, non explosive, and non reactive solid materials.

Boiling Point	760 mm HG'F	Specific Gravity	White 1.54
Vapor Pressure	N/A		Black 1.66
Vapor Density	N/A	Melting Point	N/A
Solubility in water	Moderate	Evaporation Rate	N/A

Appearance and odor:

Stay-Silv White Flux, GB 88 Flux, and Auto Dispense Flux are smooth white pastes with no odor.
Stay-Silv Black Flux is a smooth black paste with no odor.
Stay-silv #99 Flux is a fine white powder with no odor.
Stay-Silv Powdered Flux is a white powder with no appreciable odor.

SECTION 4 - FIRE AND EXPLOSION DATA

Nonflammable. open flame and sparks can ignite combustibles. See ANSI/ASC-Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA

EXPOSURE-Section 2 covers ingredients and exposure limits on STAY-SILV White and STAY-SILV Black Brazing Flux. See Section 6 for additional information. Actual exposure limits should be determined by monitoring the fume in the operator's breathing zone.

PRIMARY ROUTE OF EXPOSURE-Inhalation of fume. Skin or eye contact is also possible.

POSSIBLE EFFECTS OF EXPOSURE-Fumes are irritating to skin, eyes, and the respiratory tract.

EMERGENCY FIRST AID-Remove from fume exposure. If breathing has stopped perform artificial respiration. If swallowed, induce vomiting. Never give anything by mouth to an unconscious person. For skin contact, wash with water. For eye contact, immediately flush eyes for 15 minutes with plenty of water. Got medical aid immediately.

OTHER HEALTH CONSIDERATIONS-Fluxes are used with brazing filler metals. When melted, these filler metals may produce fumes which are hazardous. Filler metals may contain cadmium. Fume generated during brazing with cadmium alloys may be toxic. Consult the material safety data sheets that pertain to these products.

CARCINOGENICITY NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

SECTION 6 - REACTIVITY DATA
HAZARDOUS DECOMPOSITION PRODUCTS

Brazing fumes cannot be classified simply. The composition and quantity are dependent upon the metal being brazed, the procedures, and the filler metal used. Other conditions which also influence the composition and quantity of the fumes to which workers may be exposed include: coatings on the metal being soldered (such as paint, plating, or galvanizing), the amount of ventilation, and the position of the operator's head with respect to the fume. The fume decomposition products generated may be different in percent and form from the ingredients listed in section 2.

SECTION 7 - SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES-Large spills should be neutralized with a slaked lime-soda ash slurry. Follow Federal, State, and Local regulations for disposal.

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, PO BOX 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing Office, Washington, D.C. 20402 for more details on many of the following.

VENTILATION-Use enough ventilation to kee the fumes below TLV's in the workers breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section S.
RESPIRATORY PROTECTION-Use respirable fume respirator or air supplied respirator when brazing in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION-wear safety glasses, goggles or use face shield with filter lens of appropriate shade number (see ANSI/ABC Z49.1-Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING-Wear head and body protection which help to prevent injury from radiation, sparks, and flame. See ANSI Z49.1. At a minimum this includes gloves and a protective face shield or goggles, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by J. W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; J. W. Harris Co., Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

UNIBRAZE
SUBSIDIARY OF J.W. HARRIS CO. INC.

MATERIAL SAFETY DATA SHEET

COPPER BASED WELDING AND BRAZE WELDING WIRE AND ROD 203

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name **J. W. Harris Co., Inc.** Distributor Name (If Applicable) _____

Address **10930 Deerfield Road**

Address **Cincinnati, Ohio 45242**

Emergency Telephone **(513) 891-2000**

MSDS Date **November 1985**

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See Section 2 and especially Section 6 for important health hazard data.**

Bare Rod or Wire

Trade Name	Chemical Composition (%)								
	Cu	Zn	Sn	Al	Mn	Fe	Si	Ni	P
Naval Bronze	57-61	Balance	0.25-1.00						
Nickel Bronze	56-60	Balance	0.8-1.1		0.01-0.50	0.25-1.2	0.04-0.15	0.2-0.8	
Harris American Low Fuming Bronze ①	56-60	Balance	0.8-1.1		0.01-0.50	0.25-1.2	0.04-0.15		
Nickel Silver	46-50	Balance					0.04-0.25	9.0-11.0	
Alloy 670	Balance					0.40-0.75		29.0-32.0	
Aluminum Bronze 40	Balance			7.0-8.0	11.0-14.0	2.-4.0		1.5-3.0	
Nickel Aluminum Bronze 46	Balance			8.5-9.5	0.6-3.5	3.0-5.0		4.0-5.5	
Aluminum Bronze A3	Balance			10.0-11.0		3.0-5.0			
Aluminum Bronze A1	Balance	0.10		6.0-8.5	0.50		0.10		
Aluminum Bronze A2	Balance	0.02		8.5-11		1.5	0.10		
De-Ox Copper	98.0 min.		1.0		0.5		0.5		0.15
Silicon Bronze	94 min.	1.5	1.5		1.5	0.5	2.8-4.0		
Phos Bronze A	93.5 min.		4.0-6.0						0.10-0.35
Phos Bronze C	Balance		7.0-9.0						0.05-0.35

Flux Coating (% of coating weight)

Boric Acid	Over 50
Sodium Tetraborate	Over 10
Binder	Under 10

SECTION 2 - HAZARDOUS MATERIALS

Welding rod or wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding or brazing. Section 1 lists product designations and composition as manufactured. **IMPORTANT - See Section 6 for information on potential fume hazard resulting from use of the product.**

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SECTION 3 - PHYSICAL DATA

Solid wire or rod. Rods may be coated with a chemical flux. Flux coating may be white or other colors.

SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Welding arc, open flame and sparks can ignite combustibles. See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA - COPPER BASED WELDING AND BRAZE WELDING ALLOYS

Exposure - Section 1 lists normal composition of copper based filler metals. Section 6 lists exposure limits for hazardous decomposition products which might be present in fume generated during welding or brazing. Actual exposure should be determined by monitoring fume in the operator's breathing zone.

Primary Route of Exposure - Inhalation of fume.

Pre-existing medical conditions - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

Possible Effects of Exposure - Copper and zinc fume may cause metal fume fever. Short term symptoms may include a metallic taste in the mouth, dryness or irritation of the throat followed by coughing, shortness of breath, nausea, fever, body ache, and chills. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. Nickel should be considered a possible carcinogen per OSHA 29 CFR 1910.1200. Certain nickel compounds have been implicated based on experience in some nickel refining operations. The specific compounds, however, have not been determined and a direct association between nickel in welding fume and cancer has not been demonstrated.

Emergency First Aid - Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

Other Health Considerations -
Arc Rays from electric arc welding operations can injure eyes and burn skin.

Electric Shock - From arc welding equipment can kill.

Heat Rays - (Infrared radiation from flame or hot metal) can injure eyes.

SECTION 6 - REACTIVITY DATA

Hazardous Decomposition Products

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the filler metal is consumed, the fume and gas decomposition products generated are different in percent and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products, and not the ingredients in the electrode or wire are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode or wire may form. Decomposition products of normal operation include those originating from the base metal and coating, etc., as noted above.

Section 1 lists composition of the aluminum wire or rod. The chart below lists those constituents, defined as hazardous, which are likely to be present in the welding fume.

Element	CAS#	PEL mg/m^3(1)	TLV mg/m^3(2)
Copper (fume)	7440-50-8	0.1	0.2
Zinc (oxide)	1314-13-2	5.0	5.0 (fume)
Tin (oxide)	7440-31-5	2.0	2.0
Aluminum (welding fume)	7429-90-5	Not Listed	5.0
Manganese	7439-96-5	5.0 (ceiling)	1.0 (fume)
Iron (oxide fume)	1309-37-1	10.0	5.0
Silicon (SiO_2, amorphous, respirable)	60676-76-86-0	Not Listed	5mg/m^3 respirable dust 10 mg/m^3 total dust
Nickel (soluble compounds)	7440-02-0	1.0	0.1

Some of these products are coated with a chemical flux. For flux coated rod the following should be included with the above bare rod fume constituent.

Element	CAS#	PEL	TLV
Boric Acid (Boron Oxide)	1303-86-2	15.0	10.0
Sodium tetraborate	1303-96-4	Not Listed	1.0

(1) Permissable exposure limit OSHA 29CFR 1910.1000 Subpart Z
(2) Threshold limit value American Conference of Government Industrial Hygenists

Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by the radiation from the arc during electric arc welding.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, *Safety in Welding and Cutting* published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

Ventilation
Use enough ventilation, local exhaust at the arc (or flame), or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

Respiratory Protection
Use respirable fume respirator or air supplied respirator when welding, brazing, or soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection
Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 - Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

Protective Clothing
Wear head and body protection which help to prevent injury from radiation, sparks, flame, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate himself from work and ground.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by Unibraze Corp. or J.W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Unibraze Corp. and J.W. Harris Co., Inc. assume no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

HARRIS

J. W. HARRIS CO., INC.
UNIBRAZE CORP.

10930 DEERFIELD ROAD
7502 WEST STATE RT. 41

CINCINNATI, OHIO 45242
COVINGTON, OHIO 45318

513-891-2000
513-473-2001

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

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MATERIAL SAFETY DATA SHEET

NICKEL AND NICKEL ALLOY COATED ELECTRODES

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name **J. W. Harris Co., Inc.** Distributor Name (If Applicable)_____

Address **10930 Deerfield Road**

Address **Cincinnati, Ohio 45242**

Emergency Telephone **(513) 891-2000**

MSDS Date **November 1985**

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See section 2 and especially section 6 for important health hazard data.**

	Nominal Chemical Composition													
Trade Name	**C**	**Mn**	**Fe**	**S**	**Si**	**Cu**	**Cr**	**Cb**	**Mo**	**Ni**	**Al**	**Ti**	**Co**	**W**
Harris "A" electrode	0.10	2.25	9.00	0.02	0.75	0.50	15.0	2.0	1.50	Rem				
1320 Electrode	0.08	1.5	11.0	0.015	0.75	0.50	15.0	2.75		68.0				
1350 Electrode	0.08	1.88	Rem	0.03	0.75	1.75	28.5		3.65	37.5				
1410 Electrode	0.10	0.75	0.02	1.25	0.25						1.0	2.5		
1820 Electrode	0.10	7.75	8.0	0.015	1.0	0.50	15.0	1.75				1.0	0.12	
1870 Electrode	0.05	1.75	0.58	0.025	0.50	Rem				31.0	1.0	0.50		
1900 Electrode	0.15	4.0	2.5	0.015	1.0	Rem				65.0	0.75	1.0	0.02	
C-276 Electrode	0.02	1.0	5		0.08		15.5		16	57.0			2.5	4
Alloy G Electrode	0.05	1.5	19.5		1.0		22		6.5	43			2.5	1.0
Alloy B, B2 Electrode	0.02	1.0	2.0		0.10		1.0		28	69			1.0	
Alloy X Electrode	0.10	1.0	18.5		1.0		22		9	47			1.5	0.60
Alloy W Electrode	0.12	1.0	6		1.0		5		24	63			2.5	
Nickel 55 Electrode	1.5	0.3	44.5	0.005	0.5	0.1				53.0				
Nickel 99 Electrode	1.00	0.3	3.00	0.005	0.5	0.1				95.0				

SECTION 2 - HAZARDOUS MATERIALS

Welding electrodes are a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding. Section 1 lists product designations and composition as manufactured. IMPORTANT - See Section 6 for information on potential fume hazard resulting from use of the product.

SECTION 3 - PHYSICAL DATA

Solid wire or rod.

SECTION 4 - FIRE AND EXPLOSION DATA

Nonflammable. Welding arc, open flame and sparks can ignite combustibles, See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA

Exposure - Section 1 lists nominal composition of Nickel Coated Electrodes. Section 6 lists exposure limits for hazardous decomposition products which might be present in fume generated during welding or brazing. Actual exposure should be determined by monitoring the fume in the operator's breathing zone.

Primary Route of Exposure - Inhalation of fume.

Pre-Existing Medical Conditions - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

Possible Effects of Exposure - Short term exposure to welding fume may result in discomfort, dizziness, nausea, or dryness or irritation of the throat. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. Copper fume may cause metal fume fever. Short term symptoms may include a metallic taste in the mouth, dryness or irritation of the throat followed by coughing, shortness of breath, nausea fever, body ache, and chills. Nickel and chromium should be considered possible carcinogens per OSHA 29CFR 1910.1200. Certain nickel compounds have been implicated based on experience in some nickel refining operations. The specific compounds, however, have not been determined and a direct association between nickel in welding fume and cancer has not been demonstrated. Some compounds of hexavalent chromium have been reported to be carcinogenic. No clear association, however, has been established between chromium in welding fume and the development of cancer. Exposure limits should be maintained below the levels listed in Section 6.

Emergency First Aid - Remove from dust or fume exposure. If breathing has stopped perform artificial respiration. Summon medical aid immediately.

Other Health Considerations
Arc Rays - From electric arc welding operations can injure eyes and burn skin.
Electric Shock - From arc welding equipment can kill.
Heat Rays - Infrared radiation from flame or hot metal can injure eyes.

SECTION 6 - REACTIVITY DATA

Hazardous Decomposition Products

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the filler metal is consumed, the fume and gas decomposition products generated are different in percent and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products, and not the ingredients in the electrode or wire are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode or wire may form. Decomposition products of normal operation include those originating from the base metal and coating, etc., as noted above.

Section 1 lists composition of the stainless steel wire or electrode. The chart below lists those constituents, defined as hazardous, which are likely to be present in the welding fume.

Core Wire

Element	CAS#	PEL mg/m^3(1)	TLV mg/m^3(2)
Manganese (fume)	7439-96-5	5.0 (ceiling)	1.0
Iron (oxide fume) Fe_2O_3	1309-37-1	10.0	5.0
Silicon (SiO_2 amorphous - respirable)	60676-86-0	Not Listed	5mg/m3 - Respirable dust 10mg/m3 total dust
Copper (fume)	7440-50-8	0.1	0.2
Chromium (VI)	7440-47-3	0.1	0.05
Molybdenum (soluble)	7439-98-7	5.0	5.0
Nickel (soluble)	7440-02-0	1.0	0.1
Aluminum (welding fume)	7429-90-5	Not Listed	5.0
Titanium (dioxide)	13463-67-7	15.0	10mg/m3 total dust or 5mg/m3 respirable dust
Cobalt (dust & fume)	7440-48-4	0.1	0.05
Tungsten	7440-33-7	Not Listed	5.0

Flux Coating

Element	CAS#	PEL	TLV
Titanium Dioxide	13463-67-7	15.0	10.0
Calcium Carbonate	1317-65-3	5.0 (CaO)	10.0
Calcium Fluoride	14542-23-5	2.5 (F)	2.5 (F)
Cryolite	15096-52-3	2.5 (F)	2.5 (F)
Feldspar	68476-25-5	Not Listed	2.0
Chromium Oxide	1308-38-9	0.05 (CR VI)	0.05 (CR VI)
Potassium Silicate	1312-76-1	Not Listed	5.0
Sodium Silicate	1344-09-8	Not Listed	5.0
Potassium Hydroxide	1310-58-3	Not Listed	2.0

(1) Permissable exposure limit OSHA 1910 Subpart Z.
(2) Threshold limit value American Conference of Government Industrial Hygenists.

Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by the radiation from the arc during electric arc welding.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

Not Applicable.

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, *Safety in Welding and Cutting* published by the American Welding Society, P.O. Box 351040, Miami FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

Ventilation
Use enough ventilation, local exhaust at the arc to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

Respiratory Protection
Use respirable fume respirator or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection
Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 -Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

Protective Clothing
Wear head and body protection which help to prevent injury from radiation, sparks, flame, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate himself from work and ground.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by J.W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; J.W. Harris Co., Inc. assume no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

MATERIAL SAFETY DATA SHEET

UNIBRAZE
SUBSIDIARY OF J.W. HARRIS CO. INC.

STAINLESS STEEL BARE WELDING WIRE AND COATED WELDING ELECTRODES

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name J. W. Harris Co., Inc.

Distributor Name (If Applicable)

Address 10930 Deerfield Road

Address Cincinnati, Ohio 45242

Emergency Telephone (513) 891-2000

MSDS Date November 1985

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See Section 2 and especially Section 6 for important health hazard data.**

Trade Name	Approximate Chemical Range, Bare Wire and Coated Electrode Core Wire								
	C	Cr	Ni	Mo	CbTa	Mn	Si	Cu	Fe
Bare Wire 307	0.04-0.14	19.5-22.0	8.0-10.7	0.5-1.5		3.3-4.75	0.30-0.65	0.75	Balance
Electrode 307-15, 307-16	0.04-0.14	18.0-11.5	9.0-10.7	0.5-1.5		3.3-4.75	0.90	0.75	Balance
Bare Wire 308, 308L, 308HiSil, 308LHiSil, 308H, 308MO, 308MOL	0.03-0.08	18.0-22.0	9.0-12.0	0.75-3.0		1.0-2.5	0.30-1.00	0.75	Balance
Electrode 308-15, 308-16, 308L-15, 308L-16 308H, 308MO, 308MOL	0.03-0.08	18.0-22.0	9.0-12.0	0.75-3.0		0.5-2.5	0.30-0.65	0.75	Balance
Bare Wire 309, 309L, 309HC, 309HiSil, 309LHiSil	0.03-0.12	23.0-25.0	12.0-14.0	0.75		1.0-2.5	0.30-1.00	0.75	Balance
Electrode 309-15, 309L-15, 309-16, 309L-16, 309CB-15, 309CB-16, 309MO-15, 309MO-16	0.03-0.12	23.0-25.0	12.0-14.0	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 310, 310HC	0.08-0.45	25.0-28.0	20.0-22.5	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Electrode 310-15, 310-16, 310CB-15, 310CB-16, 310MO-15, 310MO-16, 310-15HC	0.08-0.15	25.0-28.0	20.0-22.5	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 312	0.15	28.0-32.0	8.0-10.5	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Electrode 312-15, 312-16	0.15	28.0-32.0	8.0-10.5	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 316, 316L, 316HiSil, 316LHiSil	0.03-0.08	18.0-20.0	11.0-14.0	2.0-4.0		1.0-2.5	0.30-1.00	0.75	Balance

Trade Name	Approximate Chemical Range, Bare Wire and Coated Electrode Core Wire								
	C	Cr	Ni	Mo	CbTa	Mn	Si	Cu	Fe
Electrode 316-15, 316L-15, 316-16, 316L-16	0.03-0.08	18.0-20.0	11.0-14.0	2.0-4.0		1.0-2.5	0.30-0.65	0.75	Balance
B Wire 317-317L	0.03-0.08	18.5-20.5	13.0-15.0	3.0-4.0		1.0-2.5	0.30-0.65	0.75	Balance
Electrode 317-15, 317-16, 317L-16	0.03-0.08	18.5-20.5	13.0-15.0	3.0-4.0		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 318	0.08	18.0-20.0	11.0-14.0	2.0-3.0	1.0	1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 320 (20Cb-3), 320LR	0.025-0.07	19.0-21.0	32.0-36.0	2.0-3.0	1.0	1.5-2.5	0.15-0.60	3.0-4.0	Balance
Electrode 320CB-16, 320CB-15	0.025-0.07	19.0-21.0	32.0-36.0	2.0-3.0		1.5-2.5	0.15-0.60	3.0-4.0	Balance
Bare Wire 321A	0.08	18.5-20.0	9.0-10.5	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 330	0.18-0.25	15.0-17.0	34.0-37.0	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Electrode 330-15, 330-16	0.18-0.25	15.0-17.0	34.0-37.0	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 347, 347HiSil	0.08	19.0-21.5	9.0-11.0	0.75		1.0-2.5	0.30-1.00	0.75	Balance
Electrode 347-15, 347-16	0.08	19.0-21.5	9.0-11.0	0.75		1.0-2.5	0.30-0.65	0.75	Balance
Bare Wire 410, 410NiMo	0.06-0.12	11.0-13.5	0.6-5.0	0.4-0.75		0.6	0.50	0.75	Balance
Electrode 410-15, 410-16, 410NiMo-160.06-0.12	0.06-0.12	11.0-13.5	0.6-5.0	0.4-0.70		0.6	0.50	0.75	Balance
P Wire 4[illegible]	0.25-0.40	12.0-14.0	0.6	0.75		0.6	0.50	0.75	Balance
Bare Wire 430	0.10	15.5-17.0	0.6	0.75		0.6	0.50	0.75	Balance
Electrode 430-15, 430-16	0.10	15.5-17.0	0.6	0.75		0.6	0.50	0.75	Balance
Bare Wire 502	0.10	4.6-6.0	0.6	0.45-0.65		0.6	0.50	0.75	Balance
Electrode 502-15, 502-16, 502-180.10	0.10	4.6-6.0	0.6	0.45-0.65		0.6	0.50	0.75	Balance
Bare Wire 505	0.10	8.0-10.5	0.5	0.8-1.2		0.6	0.50	0.75	Balance
Electrode 505-15, 505-15	0.10	8.0-10.5	0.40	0.85-1.2		1.0	0.90	0.75	Balance
Bare Wire 630 (17-4) PH	0.05	16.0-16.75	4.5-5.0	0.75	0.15-0.30	0.25-0.75	0.75	3.25-4.00	Balance
Electrode 630-15, 630-16	0.05	16.0-16.75	4.5-5.0	0.75	0.15-0.30	0.25-0.75	0.75	3.25-4.00	Balance
Bare Wire 26-1	0.01	25.0-27.5	B	0.75-1.50		0.40	0.40	0.20B	Balance
Bare Wire 16-8-2	0.10	14.5-16.5	7.5-9.5	1.0-2.0		1.0-2.5	0.30-0.65	0.75	Balance
Electrode 16-8-2	0.10	14.5-16.5	7.5-9.5	1.0-2.0		1.0-2.5	0.30-0.65	0.75	Balance

A = Ti - 1.0 max. B = Nickel, max-0.5 minus the copper content Single figures are maximum

SECTION 2 - HAZARDOUS MATERIALS

Welding electrode or wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding.. Section 1 lists product designations and composition as manufactured. **IMPORTANT - See Section 6 for information on potential fume hazard resulting from use of the product.**

SECTION 3 - PHYSICAL DATA

Solid wire or rod. Rods are coated with flux for use with shielded metal arc (SMAW or stick) welding process.

SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Welding arc, open flame and sparks can ignite combustibles, See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA - STAINLESS STEEL BARE WELDING WIRE AND COATED ELECTRODES

Possible Effects of Exposure - Short term exposure to welding fume may result in discomfort, dizziness, nausea, or dryness or irritation of the throat. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. Long term exposure to iron fume may produce siderosis, which is generally regarded as benign. Nickel and chromium should be considered possible carcinogens per OSHA 29CFR 1910.1200. Certain nickel compounds have been implicated based on experience in some nickel refining operations. The specific compounds, however, have not been determined and a direct association between nickel in welding fume and cancer has not been demonstrated. Some compounds of hexavalent chromium have been reported to be carcinogenic. No clear association, however, has been established between chromium in welding fume and the development of cancer. Exposure limits should be maintained below the levels listed in Section 6.

SECTION 6 - REACTIVITY DATA

Hazardous Decomposition Products

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include. coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the filler metal is consumed, the fume and gas decomposition products generated are different in percent and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products, and not the ingredients in the electrode or wire are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode or wire may form. Decomposition products of normal operation include those originating from the base metal and coating, etc., as noted above.

Section 1 lists composition of the stainless steel wire or electrode. The chart below lists those constituents, defined as hazardous, which are likely to be present in the welding fume.

Bare Wire or Core Wire

Element	CAS#	PEL mg/m^3[1]	TLV mg/m^3[2]
Chromium (VI)	7440-47-3	0.1	0.05
Nickel (soluble)	7440-02-0	1.0	0.1
Molybdenum (soluble)	7439-98-7	5.0	5.0
Manganese	7439-96-5	5.0 (ceiling)	1.0 (fume)
Silicon (SiO_2, amorphous, respirable)	60676-76-86-0	Not Listed	5mg/m^3 respirable dust 10 mg/m^3 total dust
Copper (fume)	7440-50-8	0.1	0.2

Flux Coating

Element	CAS#	PEL	TLV
Titanium Dioxide	13463-76-7	15.0	10.0
Calcium Carbonate	1317-65-3	5.0 (CaO)	10.0
Calcium Fluoride	14542-23-5	2.5 (F)	2.5 (F)

(continued on back)

Cryolite	15096-52-3	2.5 (F)	2.5 (F)
Feldspar	68476-25-5	Not Listed	2.0
Chromium Oxide	1308-38-9	0.05 (CR VI)	0.05 (CR VI)
Potassium Silicate	1312-76-1	Not Listed	5.0
Sodium Silicate	1344-09-8	Not Listed	5.0
Potassium Hydroxide	1310-58-3	Not Listed	2.0

(1) Permissable exposure limit OSHA 29CFR 1910.1000 Subpart Z
(2) Threshold limit value American Conference of Government Industrial Hygenists

Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by the radiation from the arc during electric arc welding.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, *Safety in Welding and Cutting* published by the American Welding Society, P.O. Box 351040. Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

Ventilation
Use enough ventilation, local exhaust at the arc (or flame), or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

Respiratory Protection
Use respirable fume respirator or air supplied respirator when welding, brazing, or soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection
Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 - Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

Protective Clothing
Wear head and body protection which help to prevent injury from radiation, sparks, flame, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate himself from work and ground.

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HARRIS

J. W. HARRIS CO., INC. | 10930 DEERFIELD ROAD | CINCINNATI, OHIO 45242 | 513-891-2000
UNIBRAZE CORP. | 7502 WEST STATE RT. 41 | COVINGTON, OHIO 45318 | 513-473-2001

HARRIS
SOLDERING, BRAZING & WELDING PRODUCTS

UNIBRAZE
SUBSIDIARY OF J.W. HARRIS CO. INC.

MATERIAL SAFETY DATA SHEET

SOLDERS

277.

SECTION 1 - MATERIAL IDENTIFICATION

Manufacturers Name J. W. Harris Co., Inc.

Distributor Name (If Applicable)_____

Address 10930 Deerfield Road

Address Cincinnati, Ohio 45242

Emergency Telephone (513) 891-2000

MSDS Date November 1985

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. **See section 2 and especially section 6 for important health hazard data.**

	Wire Composition wt%					
Trade Name	**Sn**	**Pb**	**Sb**	**Ag**	**Cd**	**Zn**
Stay Brite®	96			4		
Stay Brite® #8	95			5		
Alsolder 500					83	17
95/5	95		5			
50/50	50	50				
60/40	60	40				
40/60	40	60				
63/37	63	37				
30/70	30	70				

Core Composition for Flux Cored Solders

	Element	Wt. (% of core Wt.)	Wt. (% of total solder Wt.)
Acid Core	Zinc Chloride	70	1-3
Rosin Core	Activated Rosin	100	1-3

SECTION 2 - HAZARDOUS MATERIALS

Solder wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during soldering. Section 1 lists product designations and composition as manufactured. IMPORTANT - See Section 6 for information on potential fume hazard resulting from use of the product.

SECTION 3 - PHYSICAL DATA

Wire, grey to silver in color. Solder may be solid or contain an inner core of flux.

SECTION 4 - FIRE AND EXPLOSION DATA

Nonflammable. Open flame and sparks can ignite combustibles, See ANSI/ASC Z49.1-1983 Section 6.

SECTION 5 - HEALTH HAZARD DATA

Exposure - Section 1 lists nominal composition of solders. Section 6 lists exposure limits for hazardous decomposition products which might be present in fume generated during soldering. Actual exposure should be determined by monitoring the fume in the operator's breathing zone.

Primary Route of Exposure - Inhalation of fume. Possible lead dust ingestion from smoking or eating after handling lead bearing solders.

Pre-Existing Medical Conditions - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants.

Possible Effects of Exposure - Ingestion of lead dust or inhalation of lead oxide fume is one of the main hazards. Over exposure can produce symptoms such as headache, nausea, dizziness, body aches, and anemia. Symptoms are similar to other illnesses and require medical verification. Lead accumulates in the body and small amounts can build up over a period of time to toxic levels. Short term exposure to cadmium fume causes irritation of the nose and throat. Chest pain, cough, fever or shortness of breath may develop after several hours. Severe over exposure can cause pulmonary edema. Prolonged inhalation exposure may cause lung or kidney damage. Cadmium compounds should be considered suspected carcinogens based on some animal tests and recent epidemiological studies. Tin and antimony fume may cause metal fume fever, characterized by fever, body ache, chills. Fumes from acid and rosin core can irritate nose, throat. Zinc chloride in acid core solder may irritate the skin

Emergency First Aid - Remove from dust or fume exposure. If breathing has stopped perform artificial respiration. Summon medical aid immediately.

Other Health Considerations - Solid wire solders are frequently used with a zinc chloride type flux. If applicable, flux fume should be considered in evaluation of hazards.

SECTION 6 - REACTIVITY DATA

Solid Wire

Soldering fumes cannot be classified simply. The composition and quantity are dependent upon the metal being soldered, the process, procedures, and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being soldered (such as paint, plating, or galvanizing), the number of operators and the volume of the work area, the quality and amount of ventilation, the position of the operator's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

A stable material in closed containers at room temperature under normal storage and handling conditions. This material can be considered a weak acid. It can be mildly corrosive to some metals, especially when hot.

Zinc chloride flux in acid core solders is incompatible with cyanides, may release HCN gas when mixed with zinc chloride. If combined with sulfides, the liquid flux may release H_2S gas.

Element	CAS#	PEL mg/m^3[1]	TLV mg/m^3[2]
Tin (oxide)	7440-31-5	2.0	2.0
Lead (as dust & fume)	7439-92-1	0.05	0.15
Silver (metal)	7440-22-4	0.01	0.1
Silver (soluble compounds)	7440-22-4	0.01	0.01
Antimony	7440-36-0	0.5	0.5
Cadmium (oxide fume)	1306-19-0	0.1	0.05
		0.3 (ceiling limit)	0.3 (ceiling limit)
Zinc (oxide)	1314-13-2	5.0	5.0 (fume)
Additional Data for Flux Core			
Zinc Chloride (acid core)	7646-86-7	1.0	1.0
Activated Rosin (Rosin core)	No Listing	None	None

(1) Permissable exposure limit OSHA 1910 Subpart Z.
(2) Threshold limit value American Conference of Government Industrial Hygenists.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, Florida 33135.

SECTION 7 - SPILL OR LEAK PROCEDURES

Not Applicable.

SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, *Safety in Welding and Cutting* published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following.

Ventilation
Use enough ventilation, local exhaust at the arc (or flame) to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

Respiratory Protection
Use respirable fume respirator or air supplied respirator when soldering in confined space or where local exhaust or ventilation does not keep exposed below TLV.

Eye Protection
Wear helmet or use face shield with filter lens of appropriate shade number (see ANSI/ASC Z49.1 -Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others.

Protective Clothing
Wear head and body protection which help to prevent injury from sparks and flame. See ANSI Z491.1. At a minimum this includes gloves and a protective face shield, and may include arm protectors, aprons, hat, shoulder protection, as well as dark substantial clothing.

Other Precautions
Wash hands thoroughly before smoking or eating after using lead bearing solders.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by Unibraze Corp. or J.W. Harris Co., Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Unibraze Corp. and J.W. Harris Co., Inc. assume no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications), or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

HARRIS

J. W. HARRIS CO., INC. | 10930 DEERFIELD ROAD | CINCINNATI, OHIO 45242 | 513-891-2000
UNIBRAZE CORP. | 7502 WEST STATE RT. 41 | COVINGTON, OHIO 45318 | 513-473-2001

KENNAMETAL

MATERIAL SAFETY DATA SHEET

K-0963-002 (3/91)
SUPERCEDES: 3/90

229

DATE PREPARED: 10/85

IDENTIFICATION

PRODUCT NAME: K1, K2S, K2S-M, K4H, K4H-M, K5H, K6, K6-M, KMN-10, K21, K21-M, K29, K40, K45, K45-M, K68, K84, K86, K90, K91-M, K92, K94, K95, K96, K96-M, K400, K420, K600, K2884, K2885, K3055D, K8735, KC210, KC250, KC800, KC810, KC820, KC850, KC910, KC950, KT101, K-ALL, KM, KWH, KWH-M, HG-100, SP139, SP145 Pins, SP240, SP266, SP278, SP291, SP316, Cycloid, Grinding Media, Kengrit, S Pellets, TS181B,

CHEMICAL NAME: Tungsten Carbide with Cobalt binder

CHEMICAL FAMILY: Refractory Metal Carbide

SYNONYMS: Hard Metal, Cemented WC, Tungsten Carbide

MOLECULAR FORMULA: Mixture

INGREDIENTS

MATERIAL	C.A.S. NUMBER	% BY WEIGHT	OSHA TLV-TWA (mg/m³)	ACGIH TLV-TWA (mg/m³)	NFPA HAZARD RATING SCALE 0-4 HEALTH	FIRE	REACTIVITY
Tungsten Carbide	12070-12-1	30.0-97.7	5	5	No NFPA Rating	0	0
*Cobalt	7440-48-4	2.0-25.0	0.05	0.05	1	3	0
Tantalum Carbide	12070-06-3	0.1-15.0	5	5	No NFPA Rating	0	0
Titanium Carbide	12070-08-5	0.1-15.0	5	None Established	No NFPA Rating	0	0
Niobium Carbide	12069-94-2	0.1-5.0	5	5	No NFPA Rating	0	0

* Identifies substances that are subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

PHYSICAL DATA

DESCRIPTION
Gray powder or solid

BOILING POINT
2870°C (5198°F)

MELTING POINT
1495°C (2723°F)

RELATIVE DENSITY (H_20 = 1)
9.5 to 15.5

VAPOR DENSITY (AIR = 1) AT AMBIENT TEMP.
Not measurable

SOLUBILITY IN WATER
Practically insoluble

SOLVENT SOLUBILITY
Practically insoluble

PERCENT VOLATILES BY VOLUME
Negligible

EVAPORATION RATE
Negligible

EMERGENCY PHONE NUMBER

Chemtrec 800-424-9300

Kennametal Inc. • P.O. Box 231, Latrobe, PA 15650 • Phone 412-539-5000

FIRE AND EXPLOSION HAZARD DATA

FIRE AND EXPLOSION HAZARDS

Finely divided tungsten carbide powder or dust from grinding is expected to be a fire and explosion hazard when exposed to high temperatures or ignition sources. Particle size and dispersion in air determine reactivity. Tungsten carbide product, except as powder or dust, is not a fire hazard.

FLASH POINT

Not determinable.

FIRE FIGHTING MEDIA

For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash.

SPECIAL FIREFIGHTING PROCEDURES

Move container from fire area if possible. Cool containers exposed to flame with water from side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles; or withdraw and let fire burn.
Avoid breathing fumes from burning material.
Firefighting personnel must use proper respiratory protection.

REACTIVITY

STABILITY

Stable under normal temperatures and pressure.

INCOMPATIBILITIES

Tungsten Carbide with:

Chlorine Trifluoride: Reacts with a flame.
Fluorine: Incandesces.
Nitrogen Dioxide, Nitrous Oxide: Burns with incandescence if heated to a dull red.
Iodine Pentafluoride, Lead Oxide: Violent Reaction.

Cobalt with:

Ammonium Nitrate + Metals or Bromine Pentafluoride: Reacts violently and sometimes explosively.
Hydrazinium Nitrate: Decomposes explosively upon rapid heating.
Nitryl Fluoride, Acetylene: Reacts incandescently.

DECOMPOSITION

Thermal decomposition may release acrid smoke and irritating fumes.

POLYMERIZATION

Not known to occur.

TOXICITY

WARNING

Overexposure to this material in the form of metallurgical powder, dust or mist from grinding or sweeping is hazardous to health. Cobalt is an eye, skin, and mucous membrane irritant and may cause temporary or permanent respiratory disease.

Permanent respiratory disease can lead to disability or death. Certain pulmonary and skin conditions may be aggravated by exposure.

Preexisting pulmonary and skin conditions such as emphysema, asthma, bronchitis, and dermatitis may be aggravated by exposure to this material.

Carcinogenic status: This material has not been identified as a known or suspected carcinogen.

Tungsten Carbide: Toxicity has not been quantified. May cause pulmonary and skin sensitization in dust form.

Cobalt: 1500 mg/kg Oral-rat LDLo; 250 mg/kg Intraperitoneal-rat LDLo; 100 mg/kg Intravenous-rat LDLo; 20 mg/kg Oral-rabbit LDLo; 100 mg/kg Intratracheal-rabbit LDLo.

Cobalt fumes or dust may cause pulmonary, skin, or eye irritation. Cobalt may be a sensitizing agent for skin and respiratory system. Chronic exposure may affect the heart, pancreas, thyroid gland, or bone marrow.

Tantalum Carbide, Titanium Carbide, Niobium Carbide: May cause mucous membrane irritation.

ROUTES OF EXPOSURE/HEALTH EFFECTS AND FIRST AID*

**Health effects listed are for exposure to metallurgical powders, dust, or mist from grinding. No health effects have been reported for exposure to this material in solid form.*

INHALATION

Irritant/Sensitizer: Inhalation may cause irritation of the nose and throat. 20 mg (Co)/m^3 is immediately dangerous to life and health.

- **ACUTE OVEREXPOSURE**

Tungsten Carbide: May cause coughing, dyspnea, soreness in the chest, weight loss, hemoptysis, bronchitis, and asthma. May also cause pulmonary fibrosis. Radiological changes may be noted in the lungs.
Cobalt: May cause shortness of breath, asthma, dyspnea on exertion, wheezing, interstitial pneumonitis, and/or lung densities.
Tantalum Carbide: None reported in humans.
Titanium Carbide : May be considered a nuisance dust and may result in dust accumulation in the lungs.
Niobium Carbide: May cause respiratory irritation.

- **CHRONIC OVEREXPOSURE**

Tungsten Carbide: May cause "hard metal lung" with symptoms as described in acute overexposure. Previously exposed individuals may be at increased risk.
Cobalt: May cause pneumoconiosis sensitization of the respiratory tract, obstructed airways syndrome, interstitial lung disease, and density of the lung with symptoms as described in acute exposure.
Tantalum Carbide: None reported in humans. Has been demonstrated to be physiologically inert in animals.
Titanium Carbide: May cause fibrosis or pneumoconiosis.
Niobium Carbide: None reported in humans.

- **FIRST AID**

If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath) remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

SKIN CONTACT

Irritant/Sensitizer: In the form of metallurgical powder, dust or mist from grinding.

- **ACUTE OVEREXPOSURE**

Tungsten Carbide: May cause irritation with dermatitis, eczema, and itching. May also cause sensitization dermatitis if previously exposed.
Cobalt: Sensitization dermatitis may occur in persons who are previously exposed. A rash may develop, usually in the flexor areas of the elbow, neck and face.
Tantalum Carbide, Titanium Carbide, Niobium Carbide: None reported in humans.

- **CHRONIC OVEREXPOSURE**

Tungsten Carbide: May cause contact dermatitis.
Cobalt: May cause contact dermatitis. Sensitization dermatitis may follow inhalation or prolonged contact.
Tantalum Carbide, Titanium Carbide, Niobium Carbide: None reported in humans.

- **FIRST AID**

If irritation or rash occurs, remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of material remains (approximately 15-20 minutes). Get medical attention.

EYE CONTACT

Irritant.

- **ACUTE OVEREXPOSURE**

Tungsten Carbide, Cobalt: May cause irritation with redness, pain and itching.
Tantalum Carbide, Titanium Carbide, Niobium Carbide: May cause irritation.

- **CHRONIC OVEREXPOSURE**

Tungsten Carbide, Cobalt, Tantalum Carbide, Titanium Carbide, Niobium Carbide: May cause conjunctivitis.

- **FIRST AID**

If irritation occurs, wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of material remains (approximately 15-20 minutes). Get medical attention immediately.

INGESTION

Irritant: In the form of metallurgical powder, dust, or mist from grinding.

- **ACUTE OVEREXPOSURE**

Tungsten Carbide: May cause gastrointestinal irritation. Large doses may cause diarrhea.
Cobalt: May cause hypotension, pain, vomiting, and sensations of hotness or nausea. Severe exposure may cause pericardial effusion, convulsions, or enlargement of the thyroid.
Niobium Carbide, Tantalum Carbide, Titanium Carbide: Systemic poisoning not known to occur.

- **CHRONIC OVEREXPOSURE**

Tungsten Carbide: None reported in humans.
Cobalt: May adversely affect the pancreas, thyroid gland, heart, or bone marrow.
Tantalum Carbide, Titanium Carbide, Niobium Carbide: None reported in humans.

- **FIRST AID**

If this material has been swallowed and person is conscious, immediately give person large amounts of water. After water has been swallowed, induce vomiting. Do not attempt to make an unconscious person drink or vomit. Get medical attention immediately.

SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Sweep up with a minimum of dust generation and place in suitable clean, dry containers for reclamation or later disposal. Residue should be cleaned up using a high-efficiency particulate filter vacuum or wet clean up. Use appropriate respiratory protection.

WASTE DISPOSAL METHOD

This is a valuable material that should be sent to an appropriate reclamation facility if available. If material cannot be sent to a reclamation facility, disposal should be made in compliance with federal, state and local environmental regulations.

CONTROL MEASURES AND PROTECTIVE EQUIPMENT

VENTILATION

Provide local exhaust ventilation or general dilution ventilation to maintain exposure levels below TLV-TWA.

RESPIRATORY PROTECTION

0.05 mg(Co)/m^3 — Single use approved dust and mist respirator.

0.5 mg(Co)/m^3 — Dust mask, except single-use respirator.

1 mg(Co)/m^3 — Dust mask, except single-use and quarter-mask respirators. Fume or high-efficiency particulate respirator.

5 mg(Co)/m^3 — High efficiency particulate respirator with a full facepiece. Supplied-air respirator with a full facepiece, helmet or hood. Self-contained breathing apparatus with a full facepiece.

20 mg(Co)/m^3 — Powered air-purifying respirator with a high-efficiency filter with a full facepiece. Type "C" supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode.

- **FIREFIGHTING**

Self-contained breathing apparatus with a full facepiece, operated in pressure-demand or other positive-pressure mode.

CLOTHING

Employee must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance. Soiled clothing should be laundered separately.

GLOVES

Employee must wear appropriate protective gloves or barrier creams to prevent contact with this substance.

EYE PROTECTION

Safety glasses with side shields or goggles are recommended. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye-wash fountain within the immediate work area for emergency use. Contact lenses should not be worn when using or reprocessing these materials.

SPECIAL PRECAUTIONS

HANDLING AND STORAGE

Minimize free fall of powder and avoid dispersion of dust in air. Finely divided particles, dust, or fumes may be flammable or explosive. Keep away from sparks or ignition sources. Contents should be stored in a clean, dry, cool area.

OTHER PRECAUTIONS

Wash hands thoroughly after handling, before eating or smoking. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming.

Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

Although Kennametal Inc. has attempted to provide current and accurate information herein, Kennametal Inc. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person.

For free powder handling or metalcutting safety booklets write: **Kennametal Inc., Attn: Safety Coordinator, P.O. Box 231, Latrobe, PA 15650.**
For additional information contact Health, Safety and Environmental Affairs Manager, **412-539-5157.**

printed in U.S.A.

ADD 289 MSDS 1140

EXPANDED VERMICULITE - MAGNESIUM ALUMINOSILICATE MINERAL

MATERIAL SAFETY DATA SHEET

DATE PREPARED: 8-15-92

IDENTITY EXFOLIATED VERMICULITE ORE, MICAFIL, POOL BASE, POOL PROTECTION

CHEMICAL NAME AND FAMILY: EXPANDED VERMICULITE - MAGNESIUM ALUMINOSILICATE MINERAL

FORMULA: $(Mg, Ca, K)(Al, Fe, Mg)_4(Si, Al)_{10}O_2(OH)_2 \cdot H_2O$

CAS: 1318-00-9

SECTION I KOOS, INC., 4500 13TH COURT, KENOSHA WI 53140
414/654-5301 Emergency No. 800-558-5667

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components OSHA PEL ACGIH TLV Other Limits Recommended - Does Not Contain Hazardous Components

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point N/A Specific Gravity Exfoliated 0.04 -0.15
Vapor Pressure NONE Melting Point N/A
Vapor Density NONE Evaporation Rate N/A
Solubility in water Negligible
Appearance and Odor Free flowing particles, light brown to gray in color - No Odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point NONE Flammable Limits NONE
LEL & UEL N/A

Extinguishing Media: N/A
Special Fire Fighting Procedures NONE
Unusual Fire and Explosion Hazards NONE

SECTION V REACTIVITY DATA

Stability VERY STABLE
Conditions to Avoid NONE
Incompatibility NONE
Hazardous Decomposition or Byproducts N/A
Hazardous Polymerization Will Not Occur
Conditions to Avoid NONE

SECTION VI HEALTH HAZARD DATA

Routes of entry
Inhalation: Slight
Skin: Negligible
Ingestion: Unlikely
Eye: Unlikely

Health Hazards
Inhalation: May cause coughing. Wear dust mask if particles are airborne.
Skin: Minor irritation
Ingestion: NONE
Eye: Minor temporary irritation

Carcinogenicity:
NTP - Not listed
LARC Monographs - Not listed
OSHA Regulated - No

Signs and Symptoms of Exposure:
Inhalation: Sneezing and coughing
Skin and eye: Minor irritation
Ingestion: Minor distress

Medical Conditions Generally Aggravated by Exposure:
Breathing difficulties can be exaggerated by inhalation of dust.

Emergency and First Aid Procedures: If inhaled get fresh air. If dust in eyes, flush with water to remove or see physician if major irritation. Wash off with soap and water. If ingested drink plenty of fluids.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:
Avoid creating dust. Reuse all material not contaminated.

Waste Disposal Method: Not considered a hazardous material. Dispose according to local, state and federal regulations.

Precautions to be taken in handling or storing: No special conditions necessary for handling or storage. Avoid mechanical damage.

SECTION VIII CONTROL MEASURES

Respiratory Protection: Dust mask as needed
Ventilation: Not required, use if available
Protected Clothing or Equipment:
Gloves: Optional
Eye Protection: Goggles, if needed
Respiratory: Dust mask, if needed
Other: No special clothes

Work/Hygienic Practices: Good hygienic practices

Date: 2/10/94
MSDS No.: US-M290
Trade Name: Jet-LH 78 MR
Sizes: All
LINCOLN ELECTRIC

MATERIAL SAFETY DATA SHEET

For U.S. Manufactured Welding Consumables and Related Products
Conforms to Hazard Communication Standard 29 CFR 1910.1200
Rev. October, 1988

SECTION I - IDENTIFICATION

Manufacturer/ Supplier: The Lincoln Electric Company
22801 St. Clair Avenue
Cleveland, OH 44117-1199
(216) 481-8100

Product Type: Covered Electrode
Classification: AWS E7018

SECTION II - HAZARDOUS MATERIALS(1)

IMPORTANT!
This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered by Section V; see it for industrial hygiene information. CAS Number shown is representative for the ingredients listed. All ingredients listed may not be present in all sizes.

(1) The term 'hazardous' in 'Hazardous Materials' should be interpreted as a term required and defined in the Hazards Communication Standard and does not necessarily imply the existence of any hazard.

Ingredients:	CAS No.	Wt.%	TLV(mg/m3)	PEL (mg/m3)
Iron	7439-89-6	10	10*	10*
Limestone and/or calcium carbonate	1317-65-3	10	10	15
Fluorides (as F)	7789-75-5	5	2.5	2.5
Silicates and other binders	1344-09-8	<5	10*	10*
Titanium dioxides (as Ti)***	13463-67-7	<5	10	10
Manganese and/or manganese alloys and compounds (as Mn)***	7439-96-5	<5	1.0(c)	1.0(c)
Silicon and/or silicon alloys and compounds (as Si)	7440-21-3	1	10*	10*
Aluminum oxide and/or Bauxite***	1344-28-1	<0.5	10	10
Zinc and/or zinc oxides***	1314-13-2	<0.5	10	10
Mineral silicates	1332-58-7	<0.5	5**	5**
Vandium alloys (as V)	7440-62-2	<0.5	.05(@)	.05(@)
Carbon steel core wire	7439-89-6	60	10*	10*

* Not listed. Nuisance value maximum is 10 mg/m3. PEL value for iron oxide is 10 mg/m3. TLV value for iron oxide is 5 mg/m3
** As respirable dust.

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* Subject to the reporting requirements of Sections 311, 312, and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 370 and 372.
(@) As V2O5 fume for dust.
(c) Values are for manganese fume. STEL (Short Term Exposure Limit) is 3.0 milligrams per cubic meter.

SECTION III - FIRE AND EXPLOSION HAZARD DATA

Non Flammable; Welding arc and sparks can ignite combustibles and flammable products. See Z49.1 referenced in Section VI.

SECTION IV - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for Welding Fume NOC- (Not Otherwise Classified) is 5 mg/m3. ACGIH-1987-88 preface states that the TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See Section V for specific fume constituents which may modify this TLV. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists. Units are milligrams per cubic meter of air.

Effects of Overexposure: Electric arc welding may create one or more of the following health hazards:

Fumes and Gases can be dangerous to your health. Common entry is by inhalation. Other possible routes are skin contact and ingestion.

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death.

Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported. Repeated exposure to fluorides may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvic and spinal column. May cause skin rash.

Arc Rays can injure eyes and burn skin.

Electric Shock can kill. If welding must be performed in damp locations or with wet clothing on metal structures or when in cramped positions such as sitting, kneeling or lying if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control .

Emergency and First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross. IF BREATHING IS DIFFICULT give oxygen. IF NOT BREATHING employ CPR (Cardiopulmonary Resuscitation) techniques. IN CASE OF ELECTRICAL SHOCK, turn off power and follow recommended treatment. In all cases call a physician.

Trade Name: Jet-LH 78 MR

SECTION V - REACTIVITY DATA

Hazardous Decomposition Products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used.

Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II, plus those from the base metal and coating, etc., as noted above.

Reasonably expected fume constituents of this product would include: Primarily iron oxide and fluorides; secondarily complex oxides of manganese, potassium, silicon, sodium and zinc.

Maximum fume exposure guideline and PEL for this product is 5.0 milligrams per cubic meter.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.4, and F1.5, available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

SECTION VI AND VII
CONTROL MEASURES AND PRECAUTIONS FOR SAFE HANDLING AND USE

Read and understand the manufacturer's instructions and the precautionary label on the product. Request Lincoln Safety Publication E205. See American National Standard Z49.1, 'Safety In Welding and Cutting', published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL, 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear helmet or use face shield with filter lens shade number 14 or darker. Shield others by providing screens and flash goggles.

Protective Clothing: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to permit electrically live parts or electrodes to contact skin . . . or clothing or gloves if they are wet. Insulate from work and ground.

Disposal Information: Discard any product, residue, disposable container, or liner as ordinary waste in an environmentally acceptable manner unless otherwise noted.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

Material Safety Data Sheet

	PRODUCT NAME BlueShield No. 1, No. 2, or No. 3	
	TELEPHONE (415) 977-6500 EMERGENCY RESPONSE INFORMATION ON PAGE 2	
LIQUID AIR CORPORATION INDUSTRIAL GASES DIVISION California Plaza, Suite 350 2121 N. California Blvd. Walnut Creek, California 94596	TRADE NAME AND SYNONYMS BlueShield No. 1, No. 2, or No. 3	CAS NUMBER Argon 7440-37-1; Helium 7440-59-7
	CHEMICAL NAME AND SYNONYMS Argon (Ar) in Helium (He) gas mixtures	NFPA 704 NUMBER (HFR) 0 0 0
ISSUE DATE REV. JUNE 1, 1986 AND REVISIONS CORPORATE SAFETY DEPT.	FORMULA Ar/He Mixes MOLECULAR WEIGHT Various Compositions BlueShield 1; 2; 3: 30.96; 21.98; 12.99	CHEMICAL FAMILY Inert gas mixture

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT No TWA is established. The gas mixtures are simple asphyxiants. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to

(Continued on last page)

SYMPTOMS OF EXPOSURE

Route of entry is through inhalation. Effects of exposure to high concentrations so as to displace the oxygen in the air necessary for life are headache, dizziness, labored breathing and eventual unconsciousness, and suffocation.

TOXICOLOGICAL PROPERTIES

Mixtures are nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life.

Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes ☐ No ☒		I.A.R.C. Monographs	Yes ☐ No ☒		OSHA	Yes ☐ No ☒

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO BLUESHIELD NO. 1, 2 OR 3. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. Medical assistance should be sought immediately.

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 such information, Liquid Air Corporation extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or consequences of its use. Since Liquid Air Corporation has no control over the use of this product, it assumes no liability for damage or loss of product resulting from proper (or improper) use or application of the product. Data Sheets may be changed from time to time. Be sure to consult the latest edition.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES
None

PHYSICAL DATA

BOILING POINT Argon = – 302.55°F (– 185.86°C), Helium = – 452.067°F (– 262.926°C)	LIQUID DENSITY AT BOILING POINT Argon = 86.95 lb/ft³ (1392.8 kg/m³) Helium = 7.801 lb/ft³ (124.96 kg/m³)
VAPOR PRESSURE @70°F (21.1°C), above the critical temp. of – 188.12°F (– 122.29°C) for Argon & – 450.31°F (– 267.95°C) for Helium	GAS DENSITY AT 70°F 1 atm BlueShield Mixtures 1; 2; and 3; lb/ft³ (kg/m³); .0801; .0569; .0336 (1.283; .9114; 5382)
SOLUBILITY IN WATER @68°F (20°C) Bunsen coefficient; Argon = .0340; Helium = .0086	FREEZING POINT Argon = – 308.87°F (– 189.37°C); Helium = λ' point = – 456.497°F (– 271.387°C) @437 psia (3013kPa)
APPEARANCE AND ODOR Colorless, odorless gas; Specific gravity @70°F (Air = 1.0) for BlueShield Numbers 1; 2; and 3: 1.07; .76, .45	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS % BY VOLUME
N/A	N/A	N/A

EXTINGUISHING MEDIA	ELECTRICAL CLASSIFICATION
Nonflammable gas mixture	Nonhazardous

SPECIAL FIRE FIGHTING PROCEDURES
N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS
Cylinders contain high pressure gas. If a cylinder is in a fire, cool it and surrounding cylinders with water spray to control rise of internal pressure. Cylinder valve pressure relief device may function to relieve internal pressure.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		N/A
Stable	X	

INCOMPATIBILITY (Materials to avoid)
None

HAZARDOUS DECOMPOSITION PRODUCTS
None

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		N/A
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in container or container valve, contact the closest Liquid Air Corporation location.

WASTE DISPOSAL METHOD
Do not attempt to dispose of waste or unused quantities. Return in the shipping container *properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place* to Liquid Air Corporation for proper disposal. For emergency disposal, contact the closest Liquid Air Corporation location.

EMERGENCY RESPONSE INFORMATION
IN CASE OF EMERGENCY INVOLVING THIS MATERIAL, CALL DAY OR NIGHT (800) 231-1366
OR CALL CHEMTREC AT (800) 424-9300

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)		
Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use. See last page.		
VENTILATION	LOCAL EXHAUST	SPECIAL
See LOCAL EXHAUST on last page.	See last page.	N/A
	MECHANICAL (Gen.)	OTHER
	N/A	N/A

PROTECTIVE GLOVES
As required when welding. See OTHER PROTECTIVE EQUIPMENT.

EYE PROTECTION
Safety goggles or glasses. When welding, wear helmet or use face shield with filter lens. See last page.

OTHER PROTECTIVE EQUIPMENT
Safety shoes and appropriate head and eye protection when welding. See last page.

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
DOT Shipping Name: Compressed gas, n.o.s. DOT Hazard Class: Nonflammable gas
DOT Shipping Label: Nonflammable gas I.D. No.: UN 1956

SPECIAL HANDLING RECOMMENDATIONS
Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide, drop or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3,000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep cylinder away from heat and flame. Do not tamper with (valve) safety device. Close valve after each use and when empty. See NFPA Pamphlet 51A "Welding and Cutting" for additional information.

For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS
Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL PACKAGING RECOMMENDATIONS
BlueShield Nos. 1, 2 and 3 are noncorrosive and may be used with any common structural material.

OTHER RECOMMENDATIONS OR PRECAUTIONS
Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

Always secure cylinders in an upright position before transporting them. *NEVER* transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

Never use the cylinder to strike an arc.

*Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, storage or use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

ADDITIONAL DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)
a partial pressure of 135 mm Hg (ACGIH, 1984-85).

RESPIRATORY PROTECTION: (Continued)
When welding in confined space or where local exhaust or ventilation does not keep exposure below welding fume TLV, use positive pressure air line with mask or self-contained breathing apparatus.

LOCAL EXHAUST: (Continued)
To prevent accumulation of high concentrations of gases so as to reduce the oxygen level in the air to less than 18 molar percent. When welding, use enough ventilation, local exhaust at the arc, or both, to keep the welding fumes and gases below the applicable TLVs in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

EYE PROTECTION: (Continued)
As a general rule, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others from ARC RAYS radiation which can injure eyes and burn skin.

OTHER PROTECTIVE EQUIPMENT: (Continued)
When welding, wear head, hand and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

CAUTION: Welding or brazing may produce fumes and gases hazardous to health. Short-term (acute) overexposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Long-term (chronic) overexposure may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. Electric shock can kill. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z-49.1 *"Safety in Welding and Cutting"* published by the American Welding Society.

Consult hazard warnings on boxes or containers (or on tags or labels thereon) containing brazing or welding filler metals, fluxes and fusible granular materials. See OSHA safety regulations under 29 CFR 1910.252 "Welding, cutting and brazing." Also see ACGIH *"TLVs (1985-1986) for Chemical Substances in the Work Environment,"* Appendix B, section B2 *"Welding Fumes"* (Total Particulate TLV-TWA, 5 mg/m³) for further information.

Consult manufacturer's material safety data sheet on welding consumables and related products for reactivity and health hazard data, and for further information regarding welding fumes.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

Material Safety Data Sheet

	PRODUCT NAME BlueShield Nos. 6, 7 or 8	
	TELEPHONE (415) 977-6500 EMERGENCY RESPONSE INFORMATION ON PAGE 2	
LIQUID AIR CORPORATION INDUSTRIAL GASES DIVISION California Plaza, Suite 350 2121 N. California Blvd. Walnut Creek, California 94596	TRADE NAME AND SYNONYMS BlueShield Nos. 6, 7 or 8	CAS NUMBER Carbon Dioxide 124-38-9; Argon 7440-37-1
	CHEMICAL NAME AND SYNONYMS Carbon Dioxide (CO_2) in Argon (Ar) gas mixtures.	NFPA 704 NUMBER (HFR) 0 0 0
ISSUE DATE REV. JUNE 1, 1986 AND REVISIONS CORPORATE SAFETY DEPT.	FORMULA CO_2/Ar Mixes MOLECULAR WEIGHT Various Compositions BlueShield 6; 7; 8: 40.35; 40.76; 40.96	CHEMICAL FAMILY Gas mixture

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT These gas mixtures contain varying quantities of gaseous carbon dioxide. Carbon dioxide has a TWA of 5,000 molar PPM. Its STEL is proposed (Continued on last page)

SYMPTOMS OF EXPOSURE

Route of entry is through inhalation. Concentrations of 20-30 percent of these mixtures when inhaled with adequate oxygen in the air will cause an increae in the respiratory rate. Higher concentrations will cause headache, nausea and eventual unconsciousness and suffocation.

TOXICOLOGICAL PROPERTIES

Carbon dioxide is the most powerful vasodilator known. Inhaling large concentrations causes rapid circulatory insufficiency leading to coma and death. Chronic harmful effects are not known from repeated inhalation of low (20-30%) concentrations of these mixtures.

Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes ☐ No ☒	I.A.R.C. Monographs	Yes ☐ No ☒	OSHA	Yes ☐ No ☒

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO BLUESHIELD NOS. 6, 7 OR 8. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. Medical assistance should be sought immediately.

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 such information, Liquid Air Corporation extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or consequences of its use. Since Liquid Air Corporation has no control over the use of this product, it assumes no liability for damage or loss of product resulting from proper (or improper) use or application of the product. Data Sheets may be changed from time to time. Be sure to consult the latest edition.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

None

PHYSICAL DATA

BOILING POINT Argon = – 302.55°F (– 185.86°C), Carbon Dioxide Sublimation Point = – 109 3°F (– 78.5°C)	**LIQUID DENSITY AT BOILING POINT** Argon = 86 95 lb/ft³ Carbon Dioxide @0°F = 63.65 lbs/ft³
VAPOR PRESSURE @70°F, above the critical temperature of – 188.12°F (– 122 29°C) for Argon and 844 7 psia for Carbon Dioxide	**GAS DENSITY AT 70°F 1 atm** BlueShield Mixtures 6, 7, and 8; lb/ft³, .1045; .1056; .1062
SOLUBILITY IN WATER @68°F (20°C) Bunsen coefficient, Argon = .0340, Carbon Dioxide = .8704	**FREEZING POINT** Argon = – 308 87°F (– 189 37°C); Carbon Dioxide = – 69.83°F @75.1 psia

APPEARANCE AND ODOR

Colorless, odorless gas; Specific gravity @70°F (Air = 1.0) for BlueShield Numbers 6; 7; and 8: 1.39; 1.41; 1.41

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	**AUTO IGNITION TEMPERATURE**	**FLAMMABLE LIMITS % BY VOLUME**
N/A	N/A	N/A

EXTINGUISHING MEDIA	**ELECTRICAL CLASSIFICATION**
Nonflammable gas mixture	Nonhazardous

SPECIAL FIRE FIGHTING PROCEDURES

N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS

Cylinders contain high pressure gas. If a cylinder is in a fire, cool it and surrounding cylinders with water spray to control rise of internal pressure. Cylinder valve pressure relief device may function to relieve internal pressure

REACTIVITY DATA

STABILITY		**CONDITIONS TO AVOID**
Unstable		N/A
Stable	X	

INCOMPATIBILITY (Materials to avoid)

None

HAZARDOUS DECOMPOSITION PRODUCTS

None

HAZARDOUS POLYMERIZATION		**CONDITIONS TO AVOID**
May Occur		N/A
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in container or container valve, contact the closest Liquid Air Corporation location.

WASTE DISPOSAL METHOD

Do not attempt to dispose of waste or unused quantities. Return in the shipping container *properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place* to Liquid Air Corporation for proper disposal. For emergency disposal, contact the closest Liquid Air Corporation location.

EMERGENCY RESPONSE INFORMATION

IN CASE OF EMERGENCY INVOLVING THIS MATERIAL, CALL DAY OR NIGHT (800) 231-1366

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use. See last page.

VENTILATION	LOCAL EXHAUST	SPECIAL
See LOCAL EXHAUST on last page.	To prevent accumulation above the TWA for carbon dioxide. See last page.	N/A
	MECHANICAL (Gen.) N/A	OTHER N/A

PROTECTIVE GLOVES
As required when welding. See OTHER PROTECTIVE EQUIPMENT.

EYE PROTECTION
Safety goggles or glasses. When welding, wear helmet or use face shield with filter lens. See last page.

OTHER PROTECTIVE EQUIPMENT
Safety shoes and appropriate head and eye protection when welding. See last page.

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
DOT Shipping Name: Compressed gas, n.o.s. DOT Hazard Class: Nonflammable gas
DOT Shipping Label: Nonflammable gas I.D. No.: UN 1956

SPECIAL HANDLING RECOMMENDATIONS
Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide, drop or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3,000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep cylinder away from heat and flame. Do not tamper with (valve) safety device. Close valve after each use and when empty. See NFPA Pamphlet 51A "Welding and Cutting" for additional information.

For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS
Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time. Do not store or use cylinders in sub-surface or closed (poorly ventilated) areas. BlueShield mixture Nos. 6, 7 and 8 are heavier than air and unvented gas could accumulate in low areas and cause suffocation without warning.

For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL PACKAGING RECOMMENDATIONS
BlueShield Nos. 6, 7 and 8 are noncorrosive and may be used with any common structural material.

OTHER RECOMMENDATIONS OR PRECAUTIONS
Analytical monitoring for carbon dioxide levels in the work atmosphere is recommended if these mixtures are used in confined areas. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

Never use the cylinder to strike an arc.

Always secure cylinders in an upright position before transporting them. *NEVER* transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

*Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, storage or use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

ADDITIONAL DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)
to be changed from 15,000 molar PPM to 30,000 molar PPM (ACGIH, 1984-85). No TWA is established for Argon which is a simple asphyxiant, i.e., it displaces the oxygen in the air necessary for life.

RESPIRATORY PROTECTION: (Continued)
When welding in confined space or where local exhaust or ventilation does not keep exposure below welding fume TLV, use positive pressure air line with mask or self-contained breathing apparatus.

LOCAL EXHAUST: (Continued)
To prevent accumulation of high concentrations of gases so as to reduce the oxygen level in the air to less than 18 molar percent. When welding, use enough ventilation, local exhaust at the arc, or both, to keep the welding fumes and gases below the applicables TLVs in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

EYE PROTECTION: (Continued)
As a general rule, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others from ARC RAYS radiation which can injure eyes and burn skin.

OTHER PROTECTIVE EQUIPMENT: (Continued)
When welding, wear head, hand and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

CAUTION: Welding or brazing may produce fumes and gases hazardous to health. Short-term (acute) overexposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Long-term (chronic) overexposure may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. Electric shock can kill. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z-49.1 *"Safety in Welding and Cutting"* published by the American Welding Society.

Consult hazard warnings on boxes or containers (or on tags or labels thereon) containing brazing or welding filler metals, fluxes and fusible granular materials. See OSHA safety regulations under 29 CFR 1910.252 "Welding, cutting and brazing." Also see ACGIH *"TLVs (1985-1986) for Chemical Substances in the Work Environment,"* Appendix B, section B2 *"Welding Fumes"* (Total Particulate TLV-TWA, 5 mg/m³) for further information.

Consult manufacturer's material safety data sheet on welding consumables and related products for reactivity and health hazard data, and for further information regarding welding fumes.

LIQUID AIR CORPORATION

Material Safety Data Sheet

PRODUCT NAME
Liquid Nitrogen
TELEPHONE (415) 977-6500
EMERGENCY RESPONSE INFORMATION ON PAGE 2

LIQUID AIR CORPORATION	TRADE NAME AND SYNONYMS	CAS NUMBER
INDUSTRIAL GASES DIVISION		
One California Plaza, Suite 350	Please see last page.	7727-37-9
2121 N. California Blvd.	CHEMICAL NAME AND SYNONYMS	
Walnut Creek, California 94596	Liquid Nitrogen	
ISSUE DATE OCTOBER 1, 1985	FORMULA	MOLECULAR WEIGHT
AND REVISIONS CORPORATE SAFETY DEPT.	Liquefied N2	28. 0 1 3 C

HEALTH HAZARD DATA (SEE NOTE ON LAST PAGE)

TIME WEIGHTED AVERAGE EXPOSURE LIMIT Nitrogen is defined as a simple asphyxiant. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg (ACGIH, 1984-85).

SYMPTOMS OF EXPOSURE *

Effects of exposure to high concentrations so as to displace the oxygen in air necessary for life may include any, all or none of the following:

- o Loss of balance or dizziness;
- o Tightness in the frontal area of the forehead;
- o Tingling of the tongue, fingertips or toes;

(Continued on last page.)

TOXICOLOGICAL PROPERTIES Nitrogen is nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life.

Frostbite effects are a change in color of the skin to gray or white possibly followed by blistering.

Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes [ ] No [X]	IARC Monographs Yes [ ] No [X]	OSHA Yes [ ] NO [X]

RECOMMENDED FIRST AID TREATMENT PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO NITROGEN. RESCUE

PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. Medical assistance should be soug

For dermal contact or frostbite, flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic

Judgments 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 such information, Liquid Air Corporation extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or consequences of its use. Since Liquid Air Corporation has no control over the use of this product, it assumes no liability for damage or loss of product resulting from proper (or improper) use or application of the product, Data Sheets may be changed from time to time. Be sure to consult the latest edition.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

None

PHYSICAL DATA

BOILING POINT
-320.445-F (-195.803-C)
VAPOR PRESSURE @ 70F (21.1C) above the critical temp. of -232.5'F (-146.95C)
SOLUBILITY IN WATER @ 68F (20C) Bunsen coefficient = .01557
APPEARANCE AND ODOR
Clear, colorless, odorless liquid

LIQUID DENSITY AT BOILING POINT
50.48 lb/ft3 (808.607 kg/m3)
GAS DENSITY AT 70F 1 atm
.07245 lb/ft3 (1.1605 kg/m3)
FREEZING POINT
-346.004-F (-210.002-C)

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS % BY VOLUME
N/A	N/A	N/A

EXTINGUISHING MEDIA
Nonflammable, inert

ELECTRICAL CLASSIFICATION
Nonhazardous

SPECIAL FIRE FIGHTING PROCEDURES
N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS
N/A

REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
Unstable	
Stable	x

INCOMPATIBILITY (Materials to avoid)
None

HAZARDOUS DECOMPOSITION PRODUCTS
None

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
May Occur	
Will Not Occur	x

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
See note on last page.

WASTE DISPOSAL METHOD
See note on last page.

EMERGENCY RESPONSE INFORMATION

IN CASE OF EMERGENCY INVOLVING THIS MATERIAL,

CALL DAY OR NIGHT (800) 231-1366 OR CALL CHEMTREC AT (800) 424-9300

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

VENTILATION	LOCAL EXHAUST	SPECIAL
See Local Exhaust on last page.	See last page. MECHANICAL (Gen.)	OTHER

PROTECTIVE GLOVES
Loose fitting, insulated
EYE PROTECTION
Safety goggles or glasses plus face shield
OTHER PROTECTIVE EQUIPMENT
Safety Shoes

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
DOT Shipping Name:Nitrogen, refrigerated liquid(cryogenic liquid)ID No.:UN 1977
DOT Shipping Label: Nonflammable Gas DOT Hazard Class: Nonflammable gas

SPECIAL HANDLING RECOMMENDATIONS
See note on last page re Spill or Leak Procedures. Also see CGA Safety Bulletin SB-2 and CGA pamphlets P-9, P-12 and P-14.

SB-2	Oxygen Deficient Atmospheres
P-9	The Inert Gases - Argon, Nitrogen and Helium
P-12	Safe Handling of Cryogenic Liquids
P-14	Accident Prevention in Oxygen-Rich and Oxygen-Deficient Atmospheres

For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS
See note on last page re Spill or Leak Procedures. Also see CGA Safety Bulletin SB-2 and CGA pamphlets P-9, P-12 and P-14.

Do not store cylinders in sub-surface or closed (poorly ventilated) areas. Nitrogen gas can cause suffocation without warning.

For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL PACKAGING RECOMMENDATIONS
Liquid nitrogen cannot be handled in carbon or low alloy steels. Eighteen-eight and 18-10 stainless steels are acceptable as are copper and its alloys, nickel and its alloys, brass, bronze, silicon alloys, Monel(R), Inconel(R), and beryllium. Also see CGA Safety Bulletin SB-2 and CGA pamphlets P-9 and P-12.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Liquefied gas cylinders should not be refilled except by qualified producers of these products. Shipment of a compressed gas container which has not been filled the owner or with his (written) consent is a violation of Federal Law (49CFR)

Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or

use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.

LIQUID AIR CORPORATION

ADDITIONAL DATA

TRADE NAME AND SYNONYMS: (Continued)

Liquid Nitrogen; LIN; Nitrogen, refrigerated liquid (cryogenic liquid)

HEALTH HAZARD DATA: (Continued)

Note: Except where specified, the health hazard data and most of the other data in this material safety data sheet are for gaseous nitrogen. One volume of liquid nitrogen at its boiling point and atmospheric pressure will vaporize into approximately 695 volumes of gaseous nitrogen at 70F (21.1C) and 1 atmosphere.

SYMPTOMS OF EXPOSURE: (Continued)

- o Weakened speech leading to the inability to utter sounds;
- o Rapid reduction in the ability to perform movements;
- o Reduced consciousness of the surroundings;
- o Loss of tactile sensations;
- o Heightened mental activity.

It should be recognized that it is possible that none of the above symptoms may occur in nitrogen asphyxia so that there are no definite warning symptoms.

Contact with the cryogenic liquid or cold piping containing the liquid can cause tissue freezing or frostbite on dermal contact or if splashed into the eyes.

*For additional information, refer to L'Air Liquide's Encyclopedia de Gaz.

NOTE re SPILL OR LEAK PROCEDURES:

Liquid nitrogen is delivered to a customer into stationary vacuum-jacketed vessels at the customer's location or in portable vacuum-jacketed "liquid" cylinders.

Stationary customer-site vessels should be operated in accordance with the manufacturer's and Liquid Air Corporation's instructions. Do not attempt to repair, adjust, or in any other way modify the operation of these vessels. If there is a malfunction or other type of operational problem with the vessel, contact the closest Liquid Air Corporation location immediately.

Liquid nitrogen cylinders should be used only in well-ventilated areas and in accordance with the manufacturer's and Liquid Air Corporation's instructions. These cylinders must always be kept in an upright position. Specialized hand trucks are needed for their movement. A "first in-first out" inventory system should be used with these cylinders.

LOCAL EXHAUST: (Continued)

To prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 18 molar percent.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

Material Safety Data Sheet

P

Liquid Oxygen
TELEPHONE (415) 977-6500
EMERGENCY RESPONSE INFORMATION ON PAGE 2

LIQUID AIR CORPORATION	TRADE NAME AND SYNONYMS	CAS NUMBER
INDUSTRIAL GASES DIVISION		
One California Plaza, Suite 350	Please see last page.	7782-44-7
2121 N. California Blvd.	CHEMICAL NAME AND SYNONYMS	
Walnut Creek, California 94596	Liquid Oxygen	
ISSUE DATE OCTOBER 1, 1985	FORMULA MOLECULAR WEIGHT	CHEMICAL FAMILY
AND REVISIONS CORPORATE SAFETY DEPT	Liquefied O_2 31.999	Oxidizer

HEALTH HAZARD DATA (SEE NOTE ON LAST PAGE)

TIME WEIGHTED AVERAGE EXPOSURE LIMIT None established (ACGIH, 1984-85). Oxygen is the "vital element" in the atmosphere in which we live and breathe (approximately 21 molar percent of the atmosphere).

SYMPTOMS OF EXPOSURE Breathing high concentrations (greater than 75 molar percent) causes symptoms of hyperoxia which include cramps, nausea, dizziness and convulsions capable of leading to death. For additional data on hyperoxia as it relates to oxygen pressure and exposure duration, refer to L'Air Liquide's Encyclopedia de Gaz.

Contact with the cryogenic liquid or cold piping containing the liquid can cause tissue freezing or frostbite on dermal contact or if splashed in the eyes.

TOXICOLOGICAL PROPERTIES

The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75 molar percent present a risk of inflammation of organic matter in the body. Frostbite effects are a change in color of the skin to gray or white possibly followed by blistering.

Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes [ ] No [X]	IARC Monographs	Yes [ ] No [X]	OSHA	Yes [ ] No [X]

RECOMMENDED FIRST AID TREATMENT
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE COGNIZANT OF EXTREME FIRE HAZARD ASSOCIATED WITH OXYGEN-RICH ATMOSPHERES.

Conscious persons should be assisted to an uncontaminated area and breathe fresh air. They should be kept warm and quiet. The physician should be informed that the victim is experiencing (has experienced) hyperoxia.

Unconscious persons should be moved to an uncontaminated area and given assisted respiration. When breathing has been restored, treatment should be as above. Continued treatment should be symptomatic and supportive.

(Continued on last page.)

Judgments 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 such information, Liquid Air Corporation extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or consequences of its use. Since Liquid Air Corporation has no control over the use of this product, it assumes no liability for damage or loss of product resulting from proper (or improper) use or application of the product. Data Sheets may be changed from time to) time. Be sure to consult the latest edition.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES
Oxygen vigorously accelerates combustion. Contact with all flammable materials should be avoided. Some materials which are not flammable in air will burn in pure oxygen or oxygen-enriched atmospheres.

Do not allow liquid oxygen to leak, drip or spill onto hydrocarbon-based paving or onto plastic-base or other flammable flooring.

PHYSICAL DATA

BOILING POINT
-297.35-F (-182.97-C)
VAPOR PRESSURE @ 70'F 21.1'C) above the critical temp. of -181.433F (-118.5740C)
SOLUBILITY IN WATER @ 68'F 20'C) Bunsen coefficient = .0310
LIQUID DENSITY AT BOILING POINT
71.23 lb/ft3 (1141 kg/m3
GAS DENSITY AT 70'F 1 atm
0828 lb/ft3 (1.326 kg/m3)
FREEZING POINT
-361.838F (-118.574-C)
APPEARANCE AND ODOR
Clear, pale blue, odorless liquid

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT(METHOD USED)	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS % BY VOLUME
N/A	N/A	N/A

EXTINGUISHING MEDIA Copious quantities of water for fires with oxygen as the oxidizer.
ELECTRICAL CLASSIFICATION Nonhazardous
SPECIAL FIRE FIGHTING PROCEDURES
If possible, stop the flow of oxygen which is supporting the fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS
Vigorously accelerates combustion.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		
Stable	x	

INCOMPATIBILITY (Materials to avoid)
All flammable materials
HAZARDOUS DECOMPOSITION PRODUCTS
None

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		
Will Not Occur	x	

SPILL OR LEAK PROCEDURES
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
See note on last page.
WASTE DISPOSAL METHOD
See note on last page.

EMERGENCY RESPONSE INFORMATION: IN CASE OF EMERGENCY *INVOLVING THIS MATERIAL*, CALL DAY OR NIGHT (800) 231-1366 OR CALL CHEMTREC AT (800) 424-9300

RESPIRATORY PROTECTION (Specify type) N/A

VENTILATION LOCAL EXHAUST To prevent accumulation SPECIAL
To prevent accumulation above 25 molar percent
above 25 molar percent MECHANICAL (Gen.) OTHER

PROTECTIVE GLOVES
Loose fitting, insulated
EYE PROTECTION
Safety goggles or glasses plus face shield
OTHER PROTECTIVE EQUIPMENT
Safety shoes, safety shower

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
DOT Shipping Name: Oxygen, refrigerated liquid(cryogenic liquid) ID No.: UN 1073
DOT Shipping Label: Oxidizer DOT Hazard Class: Nonflammable gas
SPECIAL HANDLING RECOMMENDATIONS
See note on last page re Spill or Leak Procedures. Also see CGA pamphlets G-4, P-12 and P-14.
****
G-4 Oxygen
P-12 Safe Handling of Cryogenic Liquids
P-14 Accident Prevention in Oxygen-Rich and Oxygen Deficient Atmospheres
For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.

SPECIAL STORAGE RECOMMENDATIONS
See note on last page re Spill or Leak Procedures. Also see CGA pamphlets G-4, P-12 and P-14.
For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.
SPECIAL PACKAGING RECOMMENDATIONS
Liquid oxygen can not be handled in carbon or low alloy steels. Eighteen-eight and 18-10 stainless steels are acceptable as are copper and it alloys, nickel and its alloys brass, bronze, silicon alloys, Monel(R), Inconel(R), and beryllium. Teflon(R) and Kel-F(R) are the preferred gasket materials. Also see CGA pamphlet G-4.

OTHER RECOMMENDATIONS OR PRECAUTIONS
Equipment to contain liquid oxygen must be "cleaned for oxygen service." See CGA Pamphlet G-4.1. Liquefied gas cylinders should not be refilled except by qualified producers of these products. Shipment of a compressed gas container which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

*Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.

LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

ADDITIONAL DATA

TRADE NAME AND SYNONYMS: (Continued)

Liquid Oxygen; LOX; Oxygen, refrigerated liquid (cryogenic liquid)

HEALTH HAZARD DATA: (Continued)

Note: Except where specified, the health hazard data and most of the other data in this material safety data sheet are for gaseous oxygen. One volume of liquid oxygen at its boiling point and atmospheric pressure will vaporize into approximately 860 volumes of gaseous oxygen at 70F (21.1C) and I atmosphere.

RECOMMENDED FIRST AID TREATMENT: (Continued)

For dermal contact or frostbite, flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

NOTE re SPILL OR LEAK PROCEDURES:

Liquid oxygen is delivered to a customer into stationary vacuum-jacketed vessels at the customer's location or in portable vacuum-jacketed "liquid" cylinders.

Stationary customer-site vessels should be operated in accordance with the manufacturer's and Liquid Air Corporation's instructions. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is malfunction or other type of operational problem with the vessel, contact the closest Liquid Air Corporation location immediately. No smoking or open flames should be allowed near these vessels.

Liquid oxygen cylinders should be used only in well-ventilated areas and in accordance with the manufacturer's and Liquid Air Corporation's instructions. These cylinders must always be kept in an upright position. Specialized hand trucks are needed for their movement. Full and empty cylinders should be stored away from other flammable products. A "first in-first out" inventory system should be used with these cylinders.

LOCTITE CORPORATION
1001 TROUT BROOK CROSSING
ROCKY HILL, CT 006067-3910
EMERGENCY PHONE: 203-571-5100
FAX: 203-571-5465

ISSUED: 10/07/94

I. PRODUCT IDENTIFICATION

Product Name:	Antiseize Lubricant 767
Item No.:	76759
Product Type:	Aerosol lubricant
Formula No.:	Does not apply

II. COMPOSITION

Ingredients	CAS No.	%
METHYLENE CHLORIDE*	75-09-2	60-65
Mineral Oil	64742-54-7	15-20
COPPER*	7440-50-8	5-10
Graphite	7782-42-5	5-10
Mineral Oil	64742-65-0	3-5
ALUMINUM	7429-90-5	1-3
CARBON DIOXIDE	124-38-9	1-3
SILICA AMORPHOUS TREATED	112945-52-5	0.1-1
PROPYLENE OXIDE*	75-56-9	0.1-0.5

*This component is listed as a SARA Section 313 Toxic Chemical.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Approximately 350 mm at 75 F
Vapor Density:	Approximately 2.9
Solubility in Water:	Nil
Specific Gravity	1.3 (Base only)
Boiling Point:	Approximately 100 F
Volatile Organic Compound (EPA Method 24)	1.14%; 14.2 grams per liter of material
Evaporation Rate (Ether = 1)	Not available
PH:	Does not apply
Appearance:	Metallic liquid
Odor:	Sharp

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point: None Method: Tag Closed Cup
Estimated NFPA Code:

Health Hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Specific Hazard	Does not apply
Estimated HMIS Code:	
Health Hazard:	2
Flammability Hazard:	0
Reactivity Hazard:	0
Personal Protection:	See Section X.
Explsive Limits:.	
% by volume in air Lower	13% at 25 C Methylene chloride 0 9% Mineral oil' 36 Aluminum meta
% by volume in air Upper	23% at 25 C Methylene chloride 7% Mineral oil Unknown Aluminum metal

Recommended Extinguishing Agents:	Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp	Toxic chlorides, metal vapors.
Unusual Fire or Explosion Hazards:	None
Compressed Gases:	Carbon dioxide
Pressure at Room Temp.:	65 psi

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Maintain adequate ventilation. Soak up with-an inert absorbent. Store in a closed container until disposal.
Recommended methods of disposal:	Incinerate following EPA and local regulations. Do not incinerate pressurized cans.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store below 110 F.
Handling:	Keep away from eyes. Avoid Prolonged breathing of vapor. Avoid prolonged skin contact.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)
Domestic Ground Transport

Proper Shipping Name:	Consumer Commodity
Hazard Class or Division:	ORM-D
Identification Number:	None
Marine Pollutant:	None

IATA

Proper Shipping Name:	Aerosols. non-flammable n.o.s. containing substances in Division 6.1, Packing Group III
Class or Division:	Class 2.2, Subsidiary Risk 6.1
UN or ID Number:	UN 1950

VIII. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products (non-thermal):	None
Incompatability:	Solvent may react violently with aluminum on prolonged contact.

IX. EMERGENCY TREATMENT PROCEDURES

gestion:	Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation:	Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact:	Wash with soap and water.
Eye Contact:	Flush at least 15 minutes with water. Obtain medical attention

X. PERSONAL PROTECTION

Eyes:	Safety glasses or goggles.
Skin:	Rubber or plastic gloves.
Ventilation:	Sufficient to maintain vapor concentration below TLV

XI. HEALTH HAZARD DATA

Toxicity: Eye irritant. Moderately toxic by ingestion. Estimated dermal LD50 greater than 2000 mg/kg.

Primary Routes of Entry: Inhalation, ingestion contact.

Signs and Symptoms of Exposure: Headache, nausea, dizziness. Narcosis at high concentration.

Existing Conditions Aggravated by Exposure: Graphite powder: emphysema, asthma.

Exposure Limits (TWA) Ingredients	ACGIH TLV	OSHA PEL	OTHER
METHYLENE CHLORIDE	50 ppm,TWA 174 mg/m3	500 ppm TWA 1000 ppm ceiling	None
Mineral Oil	5mg/m3 TWA mist	5mg/m3 TWA mist	None
COPPER	1 mg/m3 dust	1 mg/m3 dust	None
Graphite	2.5 mg/kg dust, respirable	2.5 mg/m3 dust respirable	None
Mineral Oil	5mg/m3 TWA mist	5mg/m3 TWA mist	None
ALUMINUM	10 mg/m3 dust	15 mg/m3 dust 5 mg/m3 dust	None
CARBON DIOXIDE	5,000 ppm TWa 9,000 mg/m3	10000 ppm TWA 18000 mg/m3	None
SILICA. AMORPHOUS TREATED	10 mg/m3 TWA	6 mg/m3 TWA	None
PROPYLENE OXIDE	20 ppm TWA 48 mg/m3	20 ppm TWA 50 mg/m3	5 ppm 6 ppm STEL

Exposure Limits (STEL) Ingredients	ACGIH TLV	OSHA PEL
METHYLENE CHLORIDE	None	300 ppm 5minutes in 3 hours
Mineral Oil	10 mg/m3 mist	None
Mineral Oil	10 mg/m3 mist	None
CARBON DIOXIDE	30,000 ppm 54,000 mg/m3	30,000 ppm 54,000 mg/m3

Ingredients for which no Exposure Limits have been established are not listed above.

Ingred.	Literature Referenced Target Organ & Other Health Effects	Carcinogen NTP	IARC	OSHA
METHYLENE CHLORIDE	AC2 EYE IRR LIV MET MUT NER	YES	2B	NO
Mineral Oil	No Data	NO	NO	NO
COPPER	GAS	NO	NO	NO
Graphite	LUN	NO	NO	NO
Mineral Oil	No Data	NO	NO	NO
ALUMINUM	No Data	NO	NO	NO
CARBON DIOXIDE	NER TER	NO	NO	NO
SILICA AMORPHOUS TREATED	LUN	NO	NA	NO
PROPYLTNE OXIDE	BLO DEV FET GAS IRR MUT NER REP RES	YES	2A	NO

Abbreviations

. Not Applicable 2A Probably carcinogenic to humans
2B Possibly carcinogenic to humans
AC2 ACGIH suspected human carcinogen

BLO Blood	DEV Developmental
EYE Eyes	FET Fetotoxic
GAS Gastrointestinal	IRR Irritant
LIV Live	LUN Lung
MET Metabolic	MUT Mutagen
NER Nervous System	REP Reproductive
RES Respiratory	TER Teratogenic

XII. PREPARATION INFORMATION

Prepared By: Stephen Repetto
Title: Research Chemist, Environmental Health & Safety
Company: Loctite Corp., 1001 Tr Br Cr, Rocky Hill, CT 06067
(24 hr) Phone: 203-571-5100
Revision Date: 01/04/94 Revision: 0027

LOCTITE CORPORATION
1001 TROUT BROOK CROSSING
ROCKY HILL, CT 06067-3910
EMERGENCY PHONE: (203) 571-5100
FAX: (203) 571-5465
ISSUED: 4/25/95

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name:	AVIATION FORM-A-GASKET(R) #2 SEALANT
Item No.:	80009
Part No.:	2A
Product Type:	Sealant

II. COMPOSITION

Ingredients	CAS No.	%
Clay	1332-58-7	50-55
Rosin	8050-09-7	15-20
Vegetable oil	68439-93-0	15-20
ISOPROPYL ALCOHOL	67-63-0	10-15
Soybean derivative	8002-43-5	1-3

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	33mm at 68'F
Vapor Density:	2.07
Solubility In Water:	Partial
Specific Gravity:	1.5 at 77'F
Boiling Point:	180'F
Volatile Organic Compound (EPA Method 24)	14.2%; 213 grams per liter
Evaporation Rate (Ether = 1)	7.7
pH:	Does not apply
Appearance:	Black paste
Odor:	Alcoholic

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	69'F	Method: Tag Closed Cup
Estimated NFPA Code:		
Health Hazard:	2	
Fire Hazard:	2	
Reactivity Hazard:	0	
Specific Hazard:	Does not apply	
Estimated HMIS Code:		
Health Hazard:	2	
Flammability Hazard:	2	
Reactivity Hazard:	0	

LOCTITE CORPORATION
PRODUCT: AVIATION FORM-A-GASKET(R) #2 SEALANT

Personal Protection: See Section X.
Explosive Limits:
(% by volume in air) Lower 2%
(% by volume in air) Upper 12%
Recommended Extinguishing Agents: Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp: Aliphatic aldehydes, carboxylic acids, oxides of carbon.
Unusual Fire or Explosion Hazards: None
Compressed Gases: None
Pressure at Room Temp.: Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak: Remove sources of ignition. Maintain adequate ventilation. Scrape up as much as possible and store in a closed container until disposal. Residues may be cleaned with isopropyl alcohol.
Recommended methods of disposal: Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Safe Storage: Store away from heat and flame.
(Contact Loctite Custom@ar Service 1-800-243-4874 for Shelf Life Information)
Handling: Avoid prolonged breathing of vapors. Keep away from eyes. Avoid prolonged skin contact.

VII. SHIPPING REGULATIONS

Domestic Ground Transport
Proper Shipping Name: Unrestricted
Hazard Class or Division: Unrestricted
Identification Number: None
Marine Pollutant: None
I A T A
Proper Shipping Name: Unrestricted
Class or Division: Unrestricted
UN or ID Number: None

VIII. REACTIVITY DATA

Stability: Stable
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Products (non-thermal): None
Incompatibility: Strong oxidizers.

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion: Induce vomiting. Obtain medical attention.
Inhalation: Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact: Wash with soap and water.
Eye Contact: Flush at least 15 minutes with water. Obtain medical attention.

X. PERSONAL PROTECTION

Eyes: Safety glasses or goggles.
Skin: Rubber or plastic gloves.
Ventilation: Must be adequate to avoid exceeding TLV.

XI. HEALTH HAZARD DATA

Toxicity: Eye irritant. Oral LD50 greater than 5000 mg/kg (estimated)
Primary Routes of Entry: Inhalation, ingestion, contact.
Signs and Symptoms of Exposure: Vapor above TLV is irritating to eyes, nose and throat and can cause headache, dizziness, nausea.
Existing Conditions Aggravated by Exposure: Skin, eye, and respiratory disorders.

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
Clay	2 mg/m3 dust	10 mg/m3 dust 5 mg/m3 respir.	None
Vegetable oil	10 mg/m3 mist	15mg/m3 mist dust 5mg m3 mist resp	None
ISOPROPYL ALCOHOL	400 ppm TWA 983 mg/m3	400 ppm TWA 980 mg/m3	None

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)
ISOPROPYL ALCOHOL	500 ppm 1230 mg/m3	500 PPM 1225 mg/m3

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Clay	BLO DEV	NO	NO	NO
Rosin	ACS ALG LUN	NO	NO	NO
Vegetable oil	No Data	NO	NO	NO
ISOPROPYL ALCOHOL	GAS IRR NER PNS REP VAS	NO	N/A	NO
Soybean derivative	No Data	NO	NO	NO

Abbreviations:

NA Not Applicable	ACS ACGIH sensitizer
ALG Allergen	BLO Blood
DEV Developmental	GAS Gastrointestinal
IRR Irritant	LUN Lung
NER Nervous System	PNS Peripheral nervous system
REP Reproductive	VAS Vascular

XII. PREPARATION INFORMATION

Prepared By:	Stephen Repetto
Title:	Research Chemist, Environmental Health Safety
Company:	Loctite Corp., 1001 Tr Br Cr, Rocky Hill CT 06067
(24hr.) Phone:	(203) 571-5100
Revision Date:	January 06, 1995 Revision: 0031

LOCTITE

MATERIAL SAFETY DATA SHEET (MSDS)

Please retain for your records.

MATERIAL SAFETY DATA SHEET 7S273 5E217

LOCTITE CORPORATION
[illegible]94
NEWINGTON, CONNECTICUT 06111
EMERGENCY PHONE: (203) 278-1280 TELEX: 275207

290 Adhesive/Sealant
29031 - 5E217

I. PRODUCT IDENTIFICATION

Product Name:	290 Adhesive/Sealant
Item No.:	29031 - 5E217
Product Type:	Anaerobic
Formula No.:	Does not apply

II. COMPOSITION

Ingredients	CAS No.	%
Polyglycol dimethacrylate	25852-47-5	90-95
CUMENE HYDROPEROXIDE*	80-15-9	3-5
SACCHARIN	81-07-2	1-3
N,N-Dialkyltoluidines	613-48-9	0.1-1

* This component is listed as a SARA Section 313 Toxic Chemical.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Less than 5mm at 80½F
Vapor Density:	Not available
Solubility in Water:	Slight
Specific Gravity:	1.07 at 80½F
Boiling Point:	More than 300½F
Volatile Organic Compound (EPA Method 24)	12.6%; 134.82 g/l
Evaporation Rate (Ether = 1)	Not available
pH:	Does not apply
Appearance:	Green liquid
Odor:	Mild

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	More than 200½F	Method: Tag Closed Cup
Estimated NFPA Code:		
Health Hazard:	1	
Fire Hazard:	1	
Reactivity Hazard:	1	
Specific Hazard:	Does not apply	
Estimated HMIS Code:		
Health Hazard:	1	
Flammability Hazard:	1	
Reactivity Hazard:	1	
Personal Protection:	See Section X.	
Explosive Limits:		
(% volume in air) Lower	Not available	
(% volume in air) Upper	Not available	
Recommended Extinguishing Agents:	Carbon dioxide, foam, dry chemical	
Hazardous Products Formed by Fire or Thermal Decomp	Irritating organic vapors	
Unusual Fire or Explosion Hazards:	None	
Compressed Gases:	None	
Pressure at Room Temp.:	Does not apply	

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Soak up with an inert absorbent. Store in partly filled, closed container until disposal.
Recommended methods of disposal:	Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store below 110½F.
Handling:	Avoid prolonged skin contact. Keep away from eyes.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)	
Domestic Ground Transport	
Proper Shipping Name:	Unrestricted
Hazard Class or Division:	Unrestricted
Identification Number:	None
Marine Pollutant:	None
IATA	
Proper Shipping Name:	Unrestricted
Class or Division:	Unrestricted
UN or ID Number:	None

VIII. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products (non-thermal):	None
Incompatibility:	None

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion:	Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation:	Does not apply
Skin Contact:	Wash with soap and water.
Eye Contact:	Flush at least 15 minutes with water.

X. PERSONAL PROTECTION

[illegible]	Safety glasses or goggles. Neoprene, rubber, or butyl rubber gloves.
[illegible]lation:	Does not apply

XI. HEALTH HAZARD DATA

Toxicity:	Estimated oral LD50 more than 10000 mg/kg. Estimated dermal LD50 more than 5000 mg/kg.
Primary Routes of Entry:	None known
Signs and Symptoms of Exposure:	May cause dermatitis on prolonged contact in sensitive individuals.
Existing Conditions Aggravated by Exposure:	None known

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Polyglycol dimethacrylate	ALG SKI	NO	NO	NO
CUMENE HYDROPEROXIDE	IRR MUT NER	NO	NO	NO
SACCHARIN	MUT	YES	2B	NO
N,N-Dialkyltoluidines	No Data	NO	NO	NO

Abbreviations

2B Possibly carcinogenic to humans	ALG Allergen
IRR Irritant	MUT Mutagen
NER Nervous System	SKI Skin

XII. PREPARATION INFORMATION

Prepared By:	Stephen Repetto	
Title:	Research Chemist, Environmental Health & Safety	
Company:	Loctite Corp., 705 N. Mt. Rd, Newington CT 06111	
(24hr.) Phone:	(203) 278-1280	
Revision Date:	January 04, 1994	Revision: 0023

LOCTITE CORPORATION
1001 TROUT BROOK CROSSING
ROCKY HILL, CT 06067-3910
EMERGENCY PHONE: (203) 571-5100
FAX: (203) 571-5465
ISSUED: 4/25/95

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name:	Locquic(R) Activator 707 (Aerosol)
Item No.:	70715
Product Type:	Aerosol Primer

II. COMPOSITION

Ingredients	CAS No.	%
ETHANE, 1,1,1-TRICHLORCO*	71-55-6	80-85
Butanal-aniline condensate	9003-37-6	10-15
CARBON DIOXIDE	124-38-9	2-5
tert-BUTYL ALCOHOL*	75-65-0	1-3
METHANE, DIMETHOXY-	109-87-5	1-3

* This component is listed as a SARA Section 313 Toxic Chemical.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Approximately 100 mm at 70 F
Vapor Density:	Approximately 4.5
Solubility in Water:	Slight
Specific Gravity:	1.20 at 80'F
Boiling Point:	Approximately 175'F
Volatile Organic Compound (EPA Method 24)	9.16%; 110 grams per liter of base material
Evaporation Rate (Ether = 1)	Not available
pH:	Not Applicable
Appearance:	Brown liquid
Odor:	Sharp

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	None	Method: Tag Closed Cup
Estimated NFPA Code:		
Health Hazard:	2	
Fire Hazard:	1	
Reactivity Hazard:	0	
Specific Hazard:	Does not apply	
Estimated HMIS Code:		
Health Hazard:	2	
Flammability Hazard:	1	
Reactivity Hazard:	0	

Personal Protection: See Section X.
Explosive Limits:
(% by volume in air) Lower 7% 1,1,1-Trichloroethane
2.4% t-Butyl alcohol
2.2% Dimethoxymethane
(% by volume in air) Upper 15% 1,1,1-Trichloroethane
8% t-Butyl alcohol
13.1% Dimethoxymethane
Recommended Extinguishing Agents: Carbon dioxide, Foam, Dry Chemical
Hazardous Products Formed by Fire or Thermal Deccomp: Toxic chlorides
Unusual Fire or Explosion Hazards: Cans may rupture in fires.
Compressed Gases: Carbon dioxide
Pressure at Room Temp.: 50 psi

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak: Allow to evaporate with good ventilation. Soak up residue in an inert absorbent.
Recommended methods of disposal: Follow EPA and local regulations for disposal of chlorinated hydrocarbons under pressure.

VI. STORAGE AND HANDLING PROCEDURES

Safe Storage: Store below 110 F.
(Contact Loctite Customer Handling: Service 1-800-243-4874 for Shelf Life Information) Avoid prolonged breathing of vapor.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)
Domestic Ground Transport
Proper Shipping Name: Consumer Commodity
Hazard Class or Division: ORM-D
Identification Number: None
Marine Pollutant: 1,1,1-Trichloroethane
I A T A
Proper Shipping Name: Aerosols, non-flammable, n.o.s. containing substances in Division 6.1, Packing Group III
Class or Division: Class 2.2, Subsidiary Risk 6.1
UN or ID Number: UN 1950

VIII. REACTIVITY DATA

Stability: Stable
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Products (non-thermal): None

Incompatibility: Solvent may react violently with aluminum on prolonged contact.

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation: Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact: Flush with water.
Eye Contact: Flush thoroughly with water. Obtain medical attention.

X. PERSONAL PROTECTION

Eyes: Safety glasses or goggles recommended.
Skin: Rubber or plastic gloves recommended.
Ventilation: Provide adequate local ventilation to maintain vapor concentration below TLV.

XI. HEALTH HAZARD DATA

Toxicity: Moderate via ingestion. Eye irritant. Estimated Dermal LD50 greater than 2000 mg/kg.
Primary Routes of Entry: Inhalation, ingestion, eye and skin contact.
Signs and Symptoms of Exposure: Headache, nausea, dizziness. Narcosis at high concentration.
Existing Conditions Aggravated by Exposure: 1,1,1-trichloroethane: CNS, liver, heart disease, alcoholism, skin disorders, eye problems, respiratory problems.

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
ETHANE, 1,1,1-TRICHLORO-	350 ppm TWA 1910 mg/m3	350 ppm TWA 1900 mg/m3	None
CARBON DIOXIDE	5,000 ppm TWA 9,000 mg/M3	10,000 ppm TWA 18,000 mg/M3	None
tert-BUTYL ALCOHOL	100 ppm TWA 303 mg/m3	100 ppm TWA 300 mg/m3	None
METHANE, DIMETHOXY-	1000 ppm TWA 3110mg/M3	1000 ppm TWA 3100mg/M3	None

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
ETHANE, 1,1,1-TRICHLORO-	450 ppm 2460 mg/m3	450 PPM 2450 mg/m3	
CARBON DIOXIDE	30,000 ppm 54,000 mg/M3	30,000 ppm 54,000 mg/M3	
tert-BUTYL ALCOHOL	None	150 ppm 450 mg/m3	

PRODUCT: Locquic(R) Activator 707 (Aerosol)

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
ETHANE, 1,1,1-TRICHLORO-	DDL GAS IRR LIV MUT NER	NO	N/A	NO
Butanal-aniline condensate	No Data	NO	NO	NO
CARBON DIOXIDE	NER TER	NO	NO	NO
tert-BUTYL ALCOHOL	DEV NER	NO	NO	NO
METHANE, DIMETHOXY-	IRR NER RES	NO	NO	NO

Abbreviations

N/A Not Applicable	DDL Developmental delay
DEV Developmental	GAS Gastrointestinal
IRR Irritant	LIV Liver
MUT Mutagen	NER Nervous System
RES Respiratory	TER Teratogenic

XII. PREPARATION INFORMATION

Prepared By: Stephen Repetto
Title: Research Chemist, Environmental Health Safety
Company: Loctite Corp., 1001 Tr Br Cr, Rocky Hill CT 06067
(24hr.) Phone: (203) 571-5100
Revision Date: January 03, 1995 Revision: 0022

LOCTITE CORPORATION
1001 TROUT BROOK CROSSING
ROCKY HILL, CT 06067-3910
EMERGENCY PHONE: (203) 571-5100
X: (203) 571-5465
SUED: 4/25/95

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name:	RETAINING COMPOUND 680
Item No.:	680
Product Type:	Anaerobic

II. COMPOSITION

Ingredients	CAS No.	%
Aromatic dimethacrylate ester	24448-20-2	40-45
Hydroxyalkyl methacrylate	27813-02-1	30-35
Bisphenol A fumarate resin	39382-25-7	15-20
CUMENE HYDROPEROXIDE*	80-15-9	1-3
1-Acetyl-2-phenylhydrazine	114-83-0	0.1-1
N,N-Dialkyltoluidines	613-48-9	0.1-1
MALEIC ACID	110-16-7	0.1-1
SACCHARIN	81-07-2	0.1-1

* This component is listed as a SARA Section 313 Toxic Chemical.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Less than 5mm at 80'F
Vapor Density:	Not available
Solubility in Water:	Slight
Specific Gravity:	1.11 at 80'F
Boiling Point:	More than 300'F
Volatile Organic Compound (EPA Method 24)	38.4%
Evaporation Rate (Ether = 1):	Not available
pH:	Does not apply
Appearance:	Green Liquid
Odor:	Mild

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	More than 200'F	Method: Tag Closed Cup
Estimated NFPA Code:		
Health Hazard:	1	
Fire Hazard:	1	
Reactivity Hazard:	1	
Specific Hazard:	Does not apply	

Estimated HMIS Code:
Health Hazard: 1
Flammability Hazard: 1
Reactivity Hazard: 1
Personal Protection: See Section X.
Explosive Limits:
(% by volume in air) Lower Not available
(% by volume in air) Upper Not available
Recommended Extinguishing Agents: Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp: Irritating organic vapors
Unusual Fire or Explosion Hazards: None
Compressed Gases: None
Pressure at Room Temp.: Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak: Soak up in an inert absorbent. Store in partly filled, closed container until disposal.
Recommended methods of disposal: Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Safe Storage: Store below 100'F.
(Contact Loctite Customer Service 1-800-243-4874 for Shelf Life Information)
Handling: Avoid prolonged skin contact. Keep away from eyes.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)
Domestic Ground Transport
Proper Shipping Name: Unrestricted
Hazard Class or Division: Unrestricted
Identification Number,: None
Marine Pollutant: None
IATA
Proper Shipping Name: Unrestricted
Class or Division: Unrestricted
UN or ID Number: None

VIII. REACTIVITY DATA

Stability: Stable
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Products (non-thermal): None
Incompatibility: None

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation: Does not apply
Skin Contact: Flush with water.
Eye Contact: Flush at least 15 minutes with water. Obtain medical attention.

X. PERSONAL PROTECTION

Eyes: Safety glasses or goggles.
Skin: Rubber or plastic gloves.
Ventilation: Does not apply

XI. HEALTH HAZARD DATA

Toxicity: Eye irritant. Oral LD50 more than 10,000 mg/kg. Estimated dermal LD50 greater than 2000 mg/kg.
Primary Routes of Entry: None known
Signs and Symptoms of Exposure: May cause dermatitis on prolonged contact in sensitive individuals
Existing Conditions Aggravated by Exposure: None known

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
Hydroxyalkyl methacrylate	None	None	3 ppm ceiling

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Aromatic dimethacrylate ester	ALG	NO	NO	NO
Hydroxyalkyl methacrylate	ALG	NO	NO	NO
Bisphenol A fumarate resin	No Data	NO	NO	NO
CUMENE HYDROPEROXIDE	IRR MUT NER	NO	NO	NO
1-Acetyl-2-phenylhydrazine	No Data	NO	NO	NO
N,N-Dialkyltoluidines	No Data	NO	NO	NO
MALEIC ACID	GAS IRR NER	NO	NO	NO
SACCHARIN	MUT	YES	2B	NO

Abbreviations:
2B Possibly carcinogenic to humans
ALG Allergen
GAS Gastrointestinal
IRR Irritant
MUT Mutagen
NER Nervous System

XII. PREPARATION INFORMATION

epared By: Stephen Repetto
Title: Research Chemist, Environmental Health Safety
Company: Loctite Corp., 1001 Tr Br Cr, Rocky Hill CT 06067
(24hr.) Phone: (203) 571-5100
Revision Date: January 03, 1995 Revision: 0025

MATERIAL SAFETY DATA SHEET (MSDS)
Please retain for your records.

MATERIAL SAFETY DATA SHEET 7S275 5E355

LOCTITE CORPORATION
12/94

NEWINGTON, CONNECTICUT 06111
EMERGENCY PHONE: (203) 278-1280 TELEX: 275207

Super Bonder(R) 495 General Purpose Inst Adh
49504 - 5E355

I. PRODUCT IDENTIFICATION

Product Name:	Super Bonder(R) 495 General Purpose Inst Adh
Item No.:	49504 - 5E355
Product Type:	Cyanoacrylate ester
Formula No.:	Not applicable

II. COMPOSITION

Ingredients	CAS No.	%
Ethyl cyanoacrylate	7085-85-0	95-100
Poly (methyl methacrylate)	9011-14-7	3-5
HYDROQUINONE	123-31-9	0.1-0.5

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	Less than 0.2mm at 75°F
Vapor Density:	Approximately 3
Solubility in Water:	Polymerized
Specific Gravity:	1.05 at 75°F
Boiling Point:	More than 300°F
Volatile Organic Compound (EPA Method 24)	Not available
Evaporation Rate (Ether = 1)	Not available
pH:	Not Applicable
Appearance:	Clear liquid
Odor:	Sharp, irritating

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	150 - 200 °F Method: Tag Closed Cup
Estimated NFPA Code:	
Health Hazard:	2
Fire Hazard:	2
Reactivity Hazard:	2
Specific Hazard:	No water
Estimated HMIS Code:	
Health Hazard:	2
Flammability Hazard:	2
Reactivity Hazard:	2
Personal Protection:	See Section X.
Explosive Limits:	
(% by volume in air)Lower	Not Applicable
(% by volume in air)Upper	Not Applicable
Recommended Extinguishing Agents:	Carbon dioxide, Foam, Dry Chemical
Hazardous Products Formed Under Fire or Thermal Decomp	Irritating organic fragments
Unusual Fire or Explosion Hazards:	None
Compressed Gases:	None
Pressure at Room Temp.:	Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Flood with water to polymerize. Soak up with an inert absorbent.
Recommended methods of disposal:	Polymerize as above. Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store below 75°F to maximize shelf life.
Handling:	Avoid contact with skin and eyes. Avoid breathing of vapors

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)
Domestic Ground Transport

Proper Shipping Name:	Unrestricted (Not more than 450 liters); Combustible liquids, n.o.s. (Cyanoacrylate ester) (More than 450 liters)
Hazard Class or Division:	Unrestricted (Not more than 450 liters) Combustible liquid (More than 450 liters)
Identification Number:	None (Not more than 450 liters); NA 1993 (More than 450 liters)
Marine Pollutant:	None

IATA

Proper Shipping Name:	Unrestricted (Not more than one pint); Other regulated substances (More than one pint)
Class or Division:	Unrestricted (Not more than one pint); Class 9 (More than one pint)
UN or ID Number:	None (Not more than one pint) ID 8027 (More than one pint)

VIII. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products (non-thermal):	None
Incompatability:	Polymerized by contact with water, alcohols, amines, or alkalies.

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion:	Ingestion is not likely. See supplemental page for emergency procedures.
Inhalation:	Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact:	Soak in warm water. See supplemental page for emergency procedures.
Eye Contact:	Flush with water. See supplemental page for emergency procedures.

X. PERSONAL PROTECTION

Eyes:	Safety glasses or goggles.
Skin:	Nitrile or polyethylene gloves and aprons. Do not use cotton. See supplemental page for additional information.
Ventilation:	Positive down-draft exhaust ventilation should be provided to maintain vapor concentration below TLV

XI. HEALTH HAZARD DATA

Toxicity:	Skin contact may cause burns. Bonds skin rapidly and strongly. Skin and eye irritant. Estimated oral LD50 more than 5000mg/kg. Estimated dermal LD 50 more than 2000 mg/kg.
Primary Routes of Entry:	Not Available
Signs and Symptoms of Exposure:	Vapor is irritating to eyes and mucous membranes above TLV. Prolonged and repeated overexposure to vapors may produce allergic reactions with asthma-like symptoms in sensitive individuals.
Existing Conditions Aggravated by Exposure:	None known

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
Ethyl cyanoacrylate	None	None	2 ppm TWA
HYDROQUINONE	2 mg/m3 TWA	2 mg/m3 TWA	2 mg/m3 TWA 4 mg/m3 STEL

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Ethyl cyanoacrylate	LUN SKI	NO	NO	NO
Poly (methyl methacrylate)	No Data	NO	N/A	NO
HYDROQUINONE	BLO IRR LIV MUT NER REP	NO	N/A	NO

Abbreviations

N/A Not Applicable	BLO Blood
IRR Irritant	LIV Liver
LUN Lung	MUT Mutagen
NER Nervous System	REP Reproductive
SKI Skin	

XII. PREPARATION INFORMATION

Prepared By:	Stephen Repetto
Title:	Research Chemist, Environmental Health & Safety
Company:	Loctite Corp., 705 N. Mt. Rd, Newington CT 06111
(24hr.) Phone:	(203) 278-1280
Revision Date:	January 04, 1994 Revision: 0024

Supplement

INFORMATION FOR FIRST AID AND CASUALTY ON TREATMENT FOR ADHESION OF HUMAN SKIN TO ITSELF IF CAUSED BY CYANOACRYLATE ADHESIVES

Cyanoacrylate adhesive is a very fast setting and strong adhesive. It bonds human tissue including skin in seconds. Experience has shown that accidents due to cyanoacrylates are handled best by passive, nonsurgical first aid. Treatment of specific types of accidents are given below.

SKIN CONTACT
Remove excess adhesive. Soak in warm, soapy water. The adhesive will come loose from the skin in several hours. Cured adhesive does not present a health hazard even when bonded to the skin.

Avoid contact with clothes, fabrics, rags, or tissue. Contact with these materials may cause polymerization. The polymerization of large amounts of adhesive will generate heat causing smoke, skin burns, and strong, irritating vapors. Wear nitrile or polyethylene gloves and apron when handling large amounts of adhesive.

SKIN ADHESION
First immerse the bonded surfaces in warm, soapy water. Peel or roll the surfaces apart with the aid of a blunt edge, e.g. a spatula or a teaspoon handle; then remove adhesive from the skin with soap and water. Do not try to pull surfaces apart with a direct opposing action.

EYELID TO EYELID OR EYEBALL ADHESION
In the event that eyelids are stuck together or bonded to the eyeball, wash thoroughly with warm water and apply a gauze patch. The eye will open without further action, typically in 1-4 days. There will be no residual damage. Do not try to open the eyes by manipulation.

ADHESIVE ON THE EYEBALL
Cyanoacrylate introduced into the eyes will attach itself to the eye protein and will disassociate from it over intermittent periods, generally covering several hours. This will cause periods of weeping until clearance is achieved. During the period of contamination, double vision may be experienced together with a lachrymatory effect, and it is important to understand the cause and realize that disassociation will normally occur within a matter of hours, even with gross contamination.

MOUTH

If lips are accidentally stuck together, apply lots of warm water to the lips and encourage maximum wetting and pressure from saliva inside the mouth. Peel or roll lips apart. Do not try to pull the lips with direct opposing action.

It is almost impossible to swallow cyanoacrylate. The adhesive solidifies and adheres in the mouth. Saliva will lift the adhesive in one half to two days. In case a lump forms in the mouth, position the patient to prevent ingestion of the lump when it detaches.

BURNS
Cyanoacrylates give off heat on solidification. In rare cases a large drop will increase in temperature enough to cause a burn. Burns should be treated normally after the lump of cyanoacrylate is released from the tissue as described above.

SURGERY
It should never be necessary to use such a drastic method to separate accidentally bonded skin.

MATERIAL SAFETY DATA SHEET

SECTION I-PRODUCT IDENTIFICATION

ENTITY(As used on Label and List): LUBRIKO M-6 GREASE

MANUFACTURER'S NAME: MASTER LUBRICANTS COMPANY
ADDRESS: P O BOX 411 WESTVILLE, N.J. 08093
TELEPHONE NUMBER: 609-848-2880
FAX NUMBER: 609-848-2799
DATE PREPARED: 5-9-95
NFPA HAZARD RATING: HEALTH: 0 FLAMMABILITY: 1 REACTIVITY: 0
CODES: 0=LEAST 1=SLIGHT 2=MODERATE 3=HIGH 4=EXTREME

SECTION II- HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components		OSHA PEL	ACGIH TLV	Other Limits	% (optional)
SODIUM STEARATE	822-16-2				11-6
CALCIUM STEARATE	1592-23-0				2-7
MINERAL OIL	64742-65-0	5MG/M3			20-25
MINERAL OIL	64742-41-2	5MG/M3			37-60
DIPHENYL AMINE	122-39-4				<.5

SECTION III-PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 475F
SPECIFIC GRAVITY(H2O=1): @ 16C 0.85
VAPOR PRESSURE(mmHg): N/A
MELTING POINT: 350F
VAPOR DENSITY(AIR=1): N/A
EVAPORATION RATE(Butyl Acetate=1): N/A
SOLUBILITY IN WATER: SOLUBLE
APPEARANCE AND ODOR: AMBER PASTE - BLAND ODOR

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT(Method Used): 500F D-92 FLAMMABLE LIMITS: N/A LEL: UEL:
EXTINGUISHING MEDIA: CO2, DRY CHEMICAL, FOAM, EARTH OR SAND.
SPECIAL FIRE FIGHTING PROCEDURES: WATER MAY CAUSE FROTHING.
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

SECTION V-REACTIVITY DATA

STABILITY IS, UNSTABLE:[ ]
STABLE:[X]
CONDITIONS TO AVOID:
INCOMPATIBILITY(materials to avoid): STRONG OXIDIZERS
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: CO AND CO2 IF INCOMPLETE COMBUSTION
HAZARDOUS POLYMERIZATION, MAY OCCUR:[ ]
WILL NOT OCCUR:[X]
CONDITIONS TO AVOID: OPEN FLAMES

SECTION VI-HEALTH HAZARD DATA

ROUTES OF ENTRY, INHALATION?:[ ] SKIN?:[X] INGESTION?:[ ]
SIGNS AND SYMPTOMS OF EXPOSURE: MAY CAUSE MILD TRANSIENT SKIN OR EYE IRRITATION UPON PROLONGED OR REPEATED CONTACT.
CARCINOGENICITY, NTP?: IARC Monographs?: OSHA Regulated?: NONE
EMERGENCY AND FIRST AID PROCEDURES: INGESTION: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION. DERMAL: WASH WITH SOAP AND WATER. REMOVE AND LAUNDER SOILED CLOTHING. EYE CONTACT: FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. INHALATION: N/A

SECTION VII-PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: ABSORB WITH SAND OR INERT MATERIAL. SWEEP OR SCOOP UP AND REMOVE.
WASTE DISPOSAL METHOD: CONSULT FEDERAL, STATE OR LOCAL AUTHORITIES FOR PROPER DISPOSAL PROCEDURES.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: WASH THOROUGHLY AFTER HANDLING. DO NOT GET IN EYES OR ON CLOTHING. KEEP CONTAINERS CLOSED AND AWAY FROM SPARKS, OPEN FLAMES, AND DIRECT SUNLIGHT.
OTHER PRECAUTIONS: NONE

SECTION VIII-CONTROL MEASURES

RESPIRATORY PROTECTION(Specify Type):
VENTILATION:LOCAL EXHAUST: SPECIAL:
MECHANICAL(General): OTHER: USE WITH ADEQUATE VENTILATION.
PROTECTIVE GLOVES: BUTYL RUBBER, NATURAL RUBBER, NEOPRENE, POLYETHYLENE.
EYE PROTECTION: FACE SHIELD
OTHER PROTECTIVE CLOTHING OR DEVICES: NONE NORMALLY REQUIRED
WORK/HYGIENIC PRACTICES: FOLLOW NORMAL GOOD HOUSEKEEPING PROCEDURES.

MARKAL PAINTSTIK "B" Fluorescent Yellow

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE: Overexposure can possibly irritate sensitive skin

EMERGENCY AND FIRST AID PROCEDURES: Wash thoroughly with soap and water.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	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 and dispose of in metal or cardboard container

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*: None necessary

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES	EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT: None necessary

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS: None necessary

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44R1387

MATERIAL SAFETY DATA SHEET

NOV - 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312 826-1700

ADDRESS (Number, Street, City, State, and ZIP Code)
250 N. Washtenaw Ave. Chicago IL 60612

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	MARKAL PAINTSTIK "B" Fluorescent Yellow
CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Stabilized abielytamines	8	

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Approximately 600° F.	SPECIFIC GRAVITY (H$_2$O=1)	
VAPOR PRESSURE (mm Hg.)	None at room temperatu	PERCENT, VOLATILE BY VOLUME (%)	None
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (. . . . . =1)	Does not evaporate at room temperature
SOLUBILITY IN WATER	Insoluble		

APPEARANCE AND ODOR Solid marker - no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Approximately 550° F.			

EXTINGUISHING MEDIA Water, CO_2, Foam, Dry Chemical

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS None

(Continued on reverse side)

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U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET NOV - 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

5409

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312 826-1700

ADDRESS (Number, Street, City, State, and ZIP Code)
250 N. Washtenaw Ave., Chicago, IL 60612

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	MARKAL PAINTSTIK "H" Yellow
CHEMICAL FAMILY	FORMULA

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Phthalic anhydride	15	2PPM
Antimony compound	3	.5mg/m^3
Insoluble nickel compounds	1.5	1
The components of the antimony-nickel pigments are combined chemically into a uniform substance which does not necessarily reflect the properties of the component oxides.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Cylindrical Stik 3/8 in. diameter x 4½ in. long		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Closed cup 304° F.			

EXTINGUISHING MEDIA
Water spray, CO_2, or dry chemical

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS

(Continued on reverse side)

MARKAL PAINTSTIK "H" Yellow

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 2 PPM

EFFECTS OF OVEREXPOSURE:
Dust and vapor cause irritation of eyes, nose and throat.

Contact with skin causes irritation--faster if moist.

EMERGENCY AND FIRST AID PROCEDURES:
If inhaled, remove to fresh air. In case of contact, wash off skin immediately with soap and water. If swallowed, induce vomiting with warm salt water.

No systemic effects have been recognized.

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid):
Keep dry, reacts with alcohol and alkali

HAZARDOUS DECOMPOSITION PRODUCTS:
Burning may produce irritating vapor and carbon monoxide.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Sweep up and dispose of in metal or cardboard container.

WASTE DISPOSAL METHOD:
Incinerate in a suitable furnace or bury with lime in an approved landfill.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type):
In concentration exceeds TLV, use Bureau of Mines approved respirator for acid vapor

VENTILATION		
	LOCAL EXHAUST: Required	SPECIAL
	MECHANICAL (General): Acceptable for small volume transfer	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Yes	

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS:
Use with adequate ventilation.

Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

OMB No. [illegible]

5461

November 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700
ADDRESS (Number, Street, City, State, and ZIP Code) 250 N. WASHTENAW AVE., CHICAGO, IL 60612	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS THERMOMELT 200°F
CHEMICAL FAMILY	FORMULA STIK & PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NOT APPLICABLE		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) +500°F		SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER			
APPEARANCE AND ODOR SOLID STIK			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel

EXTINGUISHING MEDIA WATER, FOAM, CO_2

SPECIAL FIRE FIGHTING PROCEDURES NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS NONE

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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	NONE ESTABLISHED
EFFECTS OF OVEREXPOSURE	TOXICITY BY INGESTION IS LOW
EMERGENCY AND FIRST AID PROCEDURES	ORDINARY MEASURES OF PERSONAL HYGIENCE ARE ADEQUATE. IN CASE OF CONTACT, FLUSH EYES WITH WATER, WASH OFF SKIN WITH SOAP & WATER.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS: BURNING MAY PRODUCE PHENOLIC VAPORS & CARBON MONOXIDE.

HAZARDOUS POLYMERIZATION	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 AND REMOVE TO DISPOSABLE CONTAINERS

WASTE DISPOSAL METHOD: NON-TOXIC WASTE

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*: N.A.

VENTILATION	LOCAL EXHAUST	SPECIAL: NONE
	MECHANICAL *(General)*: ACCEPTABLE	OTHER: NONE

PROTECTIVE GLOVES: N.A.	EYE PROTECTION: GOGGLES

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

USE WITH ADEQUATE VENTILATION

OTHER PRECAUTIONS: NONE

Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: MARKAL COMPANY	EMERGENCY TELEPHONE NO.: 312-826-1700
ADDRESS (Number, Street, City, State, and ZIP Code): 250 N. WASHTENAW AVE., CHICAGO, IL 60612	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS: THERMOMELT 250°F
CHEMICAL FAMILY	FORMULA: STIK AND PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
TRADE SECRET PER HAZARD COMMUNICATION STD.		
29C FR 1910.1100		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H_2O=1)	
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____=1)	0
SOLUBILITY IN WATER	SLIGHTLY		N.A.
APPEARANCE AND ODOR	SOLID STIK		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 177°C	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA: CO_2, FOAM, WATER, MIST			
SPECIAL FIRE FIGHTING PROCEDURES: NONE			
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE			

(Continued on reverse side)

250°F 5465

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
ORAL (RATS) LD 50 1660 MG/KG

EFFECTS OF OVEREXPOSURE
MAY CAUSE IRRITATION TO SKIN, METHEMOGLOBINEMIA, BRONCHIAL ASTHMA, AND RESTLESSNESS

EMERGENCY AND FIRST AID PROCEDURES
IF SUBSTANTIAL QUANTITY SWALLOWED, CALL PHYSICIAN AND IDUCE VOMITING WITH SOAPY WATER OR MILK.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS
MODERATELY DANGEROUS, WHEN HEATED TO DECOMPOSITION EMITS TOXIC FUMES.

HAZARDOUS POLYMERIZATION	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
ON SKIN & CLOTHING - WASH SKIN WITH STRONG SOAP SOLUTION & RINSE THOROUGHLY. SAME WITH CLOTHING.

WASTE DISPOSAL METHOD
INCINERATE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)* N.A.

VENTILATION	LOCAL EXHAUST OK	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES GLOVES	EYE PROTECTION GOGGLES

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING USE WITH ADEQUATE VENTILATION

OTHER PRECAUTIONS NONE

GPO 934-190

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

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MATERIAL SAFETY DATA SHEET 5469

November 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700
ADDRESS (Number, Street, City, State, and ZIP Code) 250 N. WASHTENAW AVE., CHICAGO, IL 60612	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS THERMOMELT 300°F
CHEMICAL FAMILY	FORMULA STIK & PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NOT APPLICABLE		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	SLIGHT		
APPEARANCE AND ODOR	SOLID STIK		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	385°F CC	FLAMMABLE LIMITS	Lel / Uel
EXTINGUISHING MEDIA	WATER, FOAM° CO_2, DRY CHEMICAL		
SPECIAL FIRE FIGHTING PROCEDURES	NONE		
UNUSUAL FIRE AND EXPLOSION HAZARDS	NONE		

(Continued on reverse side)

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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	NOT ESTABLISHED
EFFECTS OF OVEREXPOSURE	DUST MAY CUASE IRRITATION. WASH WITH WATER
EMERGENCY AND FIRST AID PROCEDURES	
	FOR EYES: FLUSH WITH WATER
	FOR SKIN: WASH WITH SOAP & WATER

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)	OXIDIZERS		
HAZARDOUS DECOMPOSITION PRODUCTS	CO		
HAZARDOUS POLYMERIZATION	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
WASTE DISPOSAL METHOD	DISPOSE OF IN SANITARY LANDFILL

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	N.A.		
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	N.A.	EYE PROTECTION	GOGGLES
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
USE WITH ADEQUATE VENTILATION
OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

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MATERIAL SAFETY DATA SHEET

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November 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700
ADDRESS (Number, Street, City, State, and ZIP Code) 250 N. WASHTENAW, AVE., CHICAGO, IL 60612	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS THERMOMELT 350°F
CHEMICAL FAMILY	FORMULA STIK AND PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NOT APPLICABLE		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	0
SOLUBILITY IN WATER	SOL		
APPEARANCE AND ODOR	SOLID TAN STIK		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
C O C 380°F			

EXTINGUISHING MEDIA: WATER, FOAM, FOG

SPECIAL FIRE FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	NOT ESTABLISHED
EFFECTS OF OVEREXPOSURE	MILDLY IRRITATING TO EYES & SKIN
	INHALATION - RESPIRATORY IRRITANT
EMERGENCY AND FIRST AID PROCEDURES	FLUSH EYES WITH WATER, SKIN SOAP & WATER
	CALL PHYSICIAN IF IRRITATION OR RESPIRATORY DIFFICULTIES PERSIST

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY *(Materials to avoid)*			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	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 FOR DISPOSAL AS SOLID WASTE
WASTE DISPOSAL METHOD	INCINERATE OR LANDFILL ACCORDING TO LACAL, STATE, AND FEDERAL REGULATIONS

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*	N.A.		
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL *(General)*	O.K.	OTHER
PROTECTIVE GLOVES	GLOVES	EYE PROTECTION	GOGGLES
OTHER PROTECTIVE EQUIPMENT	NONE		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	USE WITH ADEQUATE VENTILATION
OTHER PRECAUTIONS	NONE

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MATERIAL SAFETY DATA SHEET

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Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700

ADDRESS (Number, Street, City, State, and ZIP Code)
250 N. WASHTENAW AVE., CHICAGO, IL 60612

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	THERMOMELT 400°F
CHEMICAL FAMILY	FORMULA
	STIK & PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
TRADE SECRET PER HAZARD COMMUNICATION STD - 29C FR 1910.1200		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	SLIGHT		
APPEARANCE AND ODOR	SOLID STIK		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	N.A.	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	WATER, CO_2, DRY CHEMICAL			
SPECIAL FIRE FIGHTING PROCEDURES	NONE			
UNUSUAL FIRE AND EXPLOSION HAZARDS	NONE			

(Continued on reverse side)

Thermomelt 400°F

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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	LD 50 - 1850 Mg/Kg
EFFECTS OF OVEREXPOSURE	MAY CAUSE EYE OR SKIN IRRITATION
EMERGENCY AND FIRST AID PROCEDURES	WASH WITH LARGE AMOUNTS OF WATER

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS	OXIDES OF NITROGEN		
HAZARDOUS POLYMERIZATION	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
WASTE DISPOSAL METHOD
INCINERATE ACCORDING TO STATE, FEDERAL AND LOCAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	N.A.	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) O.K.	OTHER
PROTECTIVE GLOVES	N.A.	EYE PROTECTION IF ANY SPATTER, WEAR GLASSES.
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING AVOID SKIN CONTACT USE WITH ADEQUATE VENTILATION
OTHER PRECAUTIONS

GPO 924-180

Form OSHA-20
Rev. May 72

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

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MATERIAL SAFETY DATA SHEET 5478

November 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700
ADDRESS (Number, Street, City, State, and ZIP Code) 250 N. WASHTENAW AVE., CHICAGO, IL 60612	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS THERMOMELT 450°F
CHEMICAL FAMILY	FORMULA STIK AND PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
TRADE SECRET PER HAZARD COMMUNICATION STD. 29C FR 1910.1200		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) GREATER THAN 600°	F.	SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	NONE
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	NEGLIGIBLE		
APPEARANCE AND ODOR GREY SOLID STIK			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
N.A.			
EXTINGUISHING MEDIA CO_2, FOAM, DRY CHEMICAL			
SPECIAL FIRE FIGHTING PROCEDURES NONE			
UNUSUAL FIRE AND EXPLOSION HAZARDS NONE			

(Continued on reverse side)

Thermomelt 450° F

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SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	N.A.
EFFECTS OF OVEREXPOSURE	MAY IRRITATE SKIN OR EYES
EMERGENCY AND FIRST AID PROCEDURES	SKIN: WASH WITH SOAP AND WATER
	EYES: IRRIGATE WITH WATER - CALL PHYSICIAN

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)	N.A.		
HAZARDOUS DECOMPOSITION PRODUCTS	CO, WHEN HEATED TO DECOMPOSITION		
HAZARDOUS POLYMERIZATION	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.
WASTE DISPOSAL METHOD DISPOSE IN ACCORDANCE TO LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	N.A.		
VENTILATION	LOCAL EXHAUST	X	SPECIAL
	MECHANICAL (General)		OTHER
PROTECTIVE GLOVES	GLOVES	EYE PROTECTION	GOGGLES
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
USE WITH ADEQUATE VENTILATION.
OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

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November 1985

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

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SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MARKAL COMPANY	312-826-1700

ADDRESS (Number, Street, City, State, and ZIP Code)
250 N WASHTENAW AVE., CHICAGO, IL 60612

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
	THERMOMELT 500°F
CHEMICAL FAMILY	FORMULA
	STIK AND PELLET

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NOT APPLICABLE		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N.A.	SPECIFIC GRAVITY (H_2O=1)	N.A.
VAPOR PRESSURE (mm Hg.)	N.A.	PERCENT, VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____ =1)	N.A.
SOLUBILITY IN WATER	INS		
APPEARANCE AND ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
N.A.			

EXTINGUISHING MEDIA: CO_2, WATER

SPECIAL FIRE FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

(Continued on reverse side)

Thermomelt 500°F

5480

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: NONE INDICATED

EFFECTS OF OVEREXPOSURE: REPEATED INGESTION MAY CAUSE LIVER & KIDNEY DAMAGE

EMERGENCY AND FIRST AID PROCEDURES: DO NOT INDUCE VOMITING. ADMINISTER ONE TEASPOON ACTIVATED CHARCOAL PER HOUR SUSPENDED IN WATER OR MILK. CALL PHYSICIAN.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	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.

WASTE DISPOSAL METHOD: MAY BE USED AS LANDFILL OR INCINERATE ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*: N.A.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)* YES	OTHER

PROTECTIVE GLOVES

EYE PROTECTION: GOGGLES IF CHANCE OF SPATTER

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: USE WITH ADEQUATE VENTILATION.

OTHER PRECAUTIONS

GPO 934-819

MRTa

MERIT ABRASIVE PRODUCTS, INC.

MATERIAL SAFETY DATA SHEET

SECTION I NAME AND PRODUCT

MANUFACTURER'S NAME: Merit Abrasive Products, Inc.	CONTACT: Tech. Dept.
ADDRESS (CITY, STATE AND ZIP CODE): 201 W. Manville St., Compton, CA 90224	EMERGENCY TELEPHONE NO.: (213) 774-6650
TRADE NAME, COMMON NAME OR SPECIFICATION: GRIND-O-FLEX, MINI GRIND-O-FLEX	APPROVED BY: [illegible] DATE: 6-16-86
CHEMICAL FAMILY OR PRODUCT TYPE: Aluminum Oxide coated cloth, Resin binder flap wheels	

SECTION II COMPOSITION

CHEMICAL NAME	%	COMMON NAME	REG* (Y/N)	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV	CARCINOGEN (Y/N)
Aluminum Oxide	60	Alpha Alumina	Y	1349-28-1	15mg/M3	10mg/M3	N
Al2 03					(Total Dust)		
Cloth & Binder	40						

*Maximums are required by OSHA 29 CPR 1910.1200 Hazard Communication Standard.

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT	N/A	MELTING POINT	N/A	SPECIFIC GRAVITY	N/A
VAPOR PRESSURE	N/A	PERCENT VOLATILE BY VOL	N/A	VAPOR DENSITY	N/A
EVAPORATION RATE	N/A	SOLUBILITY IN WATER	N/A	SOLUBILITY IN ALCOHOL	N/A
SOLUBILITY IN OTHER SOLVENT	N/A	APPEARANCE AND ODOR	Cloth coated with abrasive material		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	N/A	(METHOD USED)	N/A	FLAMMABLE LIMITS	N/A
EXTINGUISHING MEDIA	N/A				
SPECIAL FIRE FIGHTING PROCEDURE	Backing & Resin binder will burn & decompose - use respirating equipment				
EXPLOSION POTENTIAL	N/A				

SECTION V HEALTH, FIRST AID AND MEDICAL DATA

PRIMARY ROUTES OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION
INHALATION During Use	ACUTE – May cause cough, shortness of breath (dust) CHRONIC May affect breathing capacity	Remove to fresh air; apply artificial respiration as needed; obtain 1st or medical assistance as needed.
INGESTION	(Dust) No known adverse effects but injestion is not recommended.	Obtain first aid or medical assistance as needed.
SKIN CONTACT & ABSORPTION	Not absorbed through skin; may cause abrasions	Obtain first aid or medical assistance as needed
EYE	Dust may irritate eyes	Wash with large amounts of water Obtain first aid or med. assist.
OTHER POTENTIAL HEALTH RISKS	During use on some materials, elevated sound levels may affect hearing	Obtain medical assistance

SECTION V: CORROSIVITY AND REACTIVITY DATA

STABILITY UNSTABLE ☐ STABLE ☒ POLYMERIZATION MAY OCCUR ☐ WILL NOT OCCUR ☒

INCOMPATIBILITY (MATERIALS TO AVOID)

N/A

DECOMPOSITION PRODUCTS In use, dust and decomposing resin fumes are generated; in most cases, the material removed from the workpiece will be significantly greater than the coated abrasive particles.

CONDITIONS TO BE AVOIDED

N/A

SECTION VII STORAGE HANDLING AND USE PROCEDURES

NORMAL STORAGE AND HANDLING

Handle with adequate ventilation; OSHA 20 CFR 1910.94 (Ventilation) and OSHA 29 CFR 1910.1000 (Air Contaminantes)

NORMAL USE

Handle with adequate ventialtion; OSHA 29 CFR 1910.94 (Ventilation); OSHA 29 CFR 1910.213 (Sanding Machines)

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS

Normal clean up procedures.

WASTE DISPOSAL METHOD

Standard landfill - consistent with Federal, State and Local regualtions.

SECTION VIII PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)		As needed OSHA 29 CFR 1910.134
VENTILATION	LOCAL	Recommeded
	MECHANICAL (GENERAL)	Recommded
	OTHER	NAIF
PROTECTIVE GLOVES		As desired by user
EYE PROTECTION		Recommended OSHA 29 CFR 1910.133
OTHER EQUIPMENT		Hearing protection; OSHA 29 CFR 1910.215

MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT WITH THIS MATERIAL:

See Section VI, VII, VIII

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Slight odor of formaldehyde of phenolic resin may be released on occasion during storage.

OTHER PRECAUTIONS

N/A

FOR COMPANY USE

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof, however, MERIT ABRASIVE PRODUCTS, INC. 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.

NAIF—NO APPLICABLE INFORMATION FOUND N/A—NOT APPLICABLE

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

MATERIAL SAFETY DATA SHEET 7S018
[redacted]68
[redacted]4ZF33
[redacted]3-00
[redacted] OIL CORPORATION MATERIAL SAFETY DATA BULLETIN
REVISED:08/30/93

I. PRODUCT IDENTIFICATION
MOBIL DTE 24
SUPPLIER: 24-HOUR EMERGENCY (CALL COLLECT):
MOBIL OIL CORP. (609) 737-4411
CHEMICAL NAMES AND SYNONYMS: CHEMTREC:
PET. HYDROCARBONS AND ADDITIVES (800) 424-9300
USE OR DESCRIPTION: PRODUCT AND MSDS INFORMATION:
HYDRAULIC OIL (800) 662-4525

II. TYPICAL CHEMICAL AND PHYSICAL PROPERTIES
APPEARANCE: Amber Liquid ODOR: Mild PH: NA
VISCOSITY AT 40 C, CS: > 29.0
VISCOSITY AT 100 C, CS: 5.3
FLASH POINT F(C): > 395(202) (ASTM D-92)
MELTING POINT F(C): NA
POUR POINT F(C): -10(-23)
BOILING POINT F(C): > 600(316)
VOC: < 3.00(Wt. %); 0.215 lbs/gal
RELATIVE DENSITY, 15/4 C: 0.874
SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE-mm Hg 20C: < 0.1

NA-Not Applicable NE-Not Established D-Decomposes
FOR FURTHER INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE.

III. POTENTIALLY HAZARDOUS INGREDIENTS
None

SEE SECTIONS XII AND XIII FOR REGULATORY AND FURTHER COMPOSITIONAL DATA.

IV. HEALTH HAZARD DATA
--- INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED ---
THRESHOLD LIMIT VALUE: 5.00 MG/M3 Suggested for Oil Mist
EFFECTS OF OVEREXPOSURE: No significant effects expected.

V. EMERGENCY AND FIRST AID PROCEDURES
--- FOR PRIMARY ROUTES OF ENTRY ---
EYE CONTACT:
Flush thoroughly with water. If irritation occurs, call a physician.
SKIN CONTACT:
Wash contact areas with soap and water. High pressure accidental injection through the skin requires immediate medical attention for possible incision, irrigation and/or debridement.
INHALATION: Not expected to be a problem.
INGESTION:
Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 to 2 glasses of [redacted]ter and call a physician, hospital emergency room or [redacted]n control center for assistance. Do not induce [redacted]ng or give anything by mouth to an unconscious [redacted].

VI. FIRE AND EXPLOSION HAZARD DATA
FLASH POINT F(C): > 395(202) (ASTM D-92)
FLAMMABLE LIMITS: LEL: 0.6% UEL: 7.0%
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. For fires in enclosed areas, firefighters must use self-contained breathing apparatus. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None.
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

VII. REACTIVITY DATA
STABILITY (Thermal, Light, etc.): Stable
CONDITIONS TO AVOID: Extreme heat.
INCOMPATIBILITY (Materials to Avoid): Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides, Elemental oxides.
HAZARDOUS POLYMERIZATION: Will not occur.

VIII. 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:
Adsorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and 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:
Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. 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 any government approved 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.

IX. SPECIAL PROTECTION INFORMATION
EYE PROTECTION: Normal industrial eye protection practices [redacted]uld be employed.
[redacted] PROTECTION: No special equipment required. However, good [redacted]al hygiene practices should always be followed.
[redacted]ATORY PROTECTION: No special requirements under ordinary [redacted]ditions of use and with adequate ventilation.
VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.

X. SPECIAL PRECAUTIONS
HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention.

XI. 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): Not applicable --- Harmful concentration of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use or misuse of this product.
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: The acute toxicological results summarized above are based on testing of representative Mobil products.
--- SUBCHRONIC TOXICOLOGY (SUMMARY) ---
Representative Mobil formulations have been tested at the Mobil Environmental and Health Sciences Laboratory by dermal applications to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations, including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.
--- REPRODUCTIVE TOXICOLOGY (SUMMARY) ---
Dermal exposure of pregnant rats to representative formulations did not cause adverse effects in either the mothers or their offspring.
--- CHRONIC TOXICOLOGY (SUMMARY) ---
The 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 the Mobil Modified Ames test. Representative Mobil formulations have not caused skin sensitization in guinea pigs.

XII. REGULATORY INFORMATION
GOVERNMENTAL INVENTORY STATUS: All components comply with TSCA and EINECS/ELINCS.

Transport Information: Please see Section XIV.

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not be hazardous.
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, and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.
U.S. Superfund Amendments and Reauthorization Act (SARA) TITLE III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".
SARA (311/312 -FORMERLY 302) REPORTABLE HAZARD CATEGORIES: NONE

This product contains no chemicals reportable under SARA (313) toxic release program.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (0.10%)	7440-66-6	22
PHOSPHORODITHOIC ACID, O,O-DI	68649-42-3	22
C1-14-ALKYL ESTERS, ZINC SALTS (2:		
1) (ZDDP) (0.67%)		

--- REGULATORY LISTS SEARCHED ---

1=ACGIH ALL	6=IARC 1	11=TSCA 4	17=CA P65	22=NJ 293
2=ACGIH A1	7=IARC 2A	12=TSCA 5a2	18=CA RTK	23=MA RTK
3=ACGIH A2	8=IARC 2B	13=TSCA 5e	19=FL RTK	24=MJ RTK
4=NTP CARC	9=OSHA CARC	14=TSCA 6	20=IL RTK	25=PA RTK
5=NTP SUS	10=OSHA Z	15=TSCA 12b	21=LA RTK	26=RI RTK

CARC = CARCINOGEN; SUS = SUSPECTED CARCINOGEN
NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

XIII. INGREDIENTS

INGREDIENT DESCRIPTION	PERCENT	CAS NUMBER
CONTAINS ONE OR MORE OF THE FOLLOWING	> 95.00	
BASE OILS:		
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC		64742-54-7
DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC		64742-65-0
MAY CONTAIN THE FOLLOWING ADDITIVE COMPONENT:		
PHOSPHORODITHIOIC ACID, MIXED O,O-BIS(ISO-BU AND ISOCTYL AND PENTYL) ESTERS, ZINC SALTS	0.63	68988-46-5

XIV. TRANSPORT AND LABEL INFORMATION
USA DOT: NOT REGULATED BY USA DOT.
IMO: NOT REGULATED BY IMO.
IATA: NOT REGULATED BY IATA.

APPENDIX
PRECAUTIONARY EEC LABEL TEXT:
* - EC labeling not required.
FOR MOBIL USE ONLY: MHC: 1* 1* NA 1* 1*, MPPEC: A, PPEC:, US93-513
APPROVE CCODE:13 08/30/93 REQ: US - MARKETING

****
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 LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

PREPARED BY: MOBIL OIL CORPORATION
ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT, PRINCETON, NJ
FOR FURTHER INFORMATION, CONTACT:
MOBIL OIL CORPORATION, PRODUCT FORMULATION AND QUALITY CONTROL
3225 GALLOWS ROAD, FAIRFAX, VA 22037 (800) 227-0707 X3265

MOBIL OIL CORPORATION MATERIAL SAFETY DATA BULLETIN

REVISED:11/27/90

********** I. PRODUCT IDENTIFICATION **********

MOBILGREASE 28

SUPPLIER:
MOBIL OIL CORP.

CHEMICAL NAMES AND SYNONYMS:
SYN. HYDROCARBONS AND ADDITIVES

USE OR DESCRIPTION:
AVIATION GREASE

HEALTH EMERGENCY TELEPHONE
(609) 737-4411
TRANSPORT EMERGENCY TELEPHONE:
(800) 424-9300 (CHEMTREC)
PRODUCT TECHNICAL INFORMATION:
(800) 662-4525

********** II. TYPICAL CHEMICAL AND PHYSICAL PROPERTIES **********

APPEARANCE: Red Grease ODOR: Mild pH: NA
VISCOSITY AT 100 F, SUS: 144.0 AT 40 C, CS: 28.0
VISCOSITY AT 210 F, SUS: 44.0 AT 100 C, CS: 5.2
FLASH POINT F(C): 450(232) (ESTIMATED (OIL COC))
MELTING POINT F(C): NA POUR POINT F(C): NA
BOILING POINT F(C): > 600(316)
RELATIVE DENSITY, 15/4 C: 0.887 SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE-mm Hg 20C: < .1
Note: Most physical properties for oil component.
NA=Not Applicable NE=Not Established D=Decomposes
FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING OFFICE.

********** III. POTENTIALLY HAZARDOUS INGREDIENTS **********

	WT PCT (APPROX)	EXPOSURE LIMITS MG/M3	PPM	SOURCES (AND NOTES)
PENTAERYTHRITOL (115-77-5)	1	10		A
		10		O-PEL
		10		M
SODIUM NITRITE (7632-00-0)	1	NE	NE	

SEE SECTIONS XII AND XIII FOR REGULATORY AND FURTHER COMPOSITIONAL DATA.

SOURCES: A=ACGIH-TLV, A*=Suggested-TLV, M=Mobil, O=OSHA, S=Supplier
NOTE: Limits shown for guidance only. Follow applicable regulations.

********** IV. HEALTH HAZARD DATA **********
--- INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED ---
EFFECTS OF OVEREXPOSURE: Not expected to be a problem.

********** V. EMERGENCY AND FIRST AID PROCEDURES **********
--- FOR PRIMARY ROUTES OF ENTRY ---
EYE CONTACT: Flush with water.
SKIN CONTACT: Wash contact areas with soap and water. High pressure accidental injection through the skin requires immediate medical attention for possible incision, irrigation and/or debridement.
INHALATION: Not expected to be a problem.
INGESTION: Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

********** VI. FIRE AND EXPLOSION HAZARD DATA **********
FLASH POINT F(C): 450(232) (ESTIMATED (OIL SOC))
FLAMMABLE LIMITS. LEL: .6 UEL: 7.0
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. For fires in enclosed areas, firefighters must use self-contained breathing apparatus. Prevent runoff from fire control or dilution from entering streams or drinking water supply.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None.
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

********** VII. REACTIVITY DATA **********
STABILITY (Thermal, Light, etc.): Stable
CONDITIONS TO AVOID: Extreme heat.
INCOMPATIBILITY (Materials to Avoid): Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

********** VIII. 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.
PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Shovel up and 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: Dispose of waste at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

********** IX. SPECIAL PROTECTION INFORMATION **********
EYE PROTECTION: Generally eye contact is unlikely with this type material. If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.
SKIN PROTECTION: No special equipment required. However, good personal hygiene practices should always be followed.
RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.
VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.

********** X. SPECIAL PRECAUTIONS **********
STORAGE: This product has a limited shelf life.

********** XI. TOXICOLOGICAL DATA **********

---ACUTE TOXICOLOGY---

ORAL TOXICITY (RATS): LD50: > 5 g/kg Slightly toxic (estimated) --- Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): LD50: > 2 g/kg Slightly toxic (estimated) --- Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS): Not applicable ---Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.

EYE IRRITATION (RABBITS): Expected to be non-irritating. ---Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): Expected to be non-irritating. ---Based on testing of similar products and/or the components.

********** XII. REGULATORY INFORMATION **********

GOVERNMENTAL INVENTORY STATUS: All components registered in accordance with TSCA and EINECS.

DOT:

Shipping Name: Not applicable
Hazard Class: Not applicable

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not to be hazardous.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D); does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity, and is not formulated with the contaminants listed in the Toxicity Characteristic (TC) Rule as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

THIS PRODUCT HAS BEEN USDA APPROVED UNDER THE FOLLOWING CATEGORY: H2 - Lubricants With No Food Contact

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (302) REPORTABLE HAZARD CATEGORIES: None

This product contains no chemicals reportable under SARA (313) toxic release program.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
1,3-PROPANEDIOL, 2,2-BIS(HYDROXYMETHYL)-	115-77-5	1, 2, 11, 12, 17

--- KEY TO LIST CITATIONS ---

1 = OSHA Z, 2 = ACGIH, 3 = IARC, 4 = NTP, 5 = NCI,
6 = EPA CARC, 7 = NFPA 49, 8 = NFPA 325M, 9 = DOT HMT, 10 = CA RTK,
11 = IL RTK, 12 = MA RTK, 13 = MN RTK, 14 = NJ RTK, 15 = MI 293,
16 = FL RTK, 17 = PA RTK, 18 = CA P65.

--- NTP, IARC, AND OSHA INCLUDE CARCINOGENIC LISTINGS ---

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

********** XIII. INGREDIENTS **********

INGREDIENT DESCRIPTION	PERCENT	CAS NUMBER
CONTAINS THE FOLLOWING BASE OILS:	> 80.00	
ALKENES, C'10 ALPHA, POLYMD.		68527-08-2
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC		64742-53-6
BENZENAMINE, 4-OCTYL-N-(4-OCTYLPHENYL)-	< 2.00	101-67-7
BENZENEPROPANOIC ACID, 3,5-BIS(1,1-DIMETHYLETHYL)-4-HYDROXY-, OCTADECYL ESTER	< 2.00	2082-79-3
1,3-PROPANEDIOL, 2,2-BIS(HYDROXYMETHYL)-	< 1.42	115-77-5
MONTMORILLONITE	< 10.00	1318-93-0
1-NAPHTHALENEAMINE,N-PHENYL	< 2.00	90-30-2
NITROUS ACID, SODIUM SALT	1.02	7632-00-0
PHOSPHORIC ACID, TRISODIUM SALT	0.61	7601-54-9
ACETIC ACID, CALCIUM SALT	< 3.00	62-54-4

********** APPENDIX **********
FOR MOBIL USE ONLY: (FILL NO: RR38B001) MCN: , MHC: 1* 1* NA 0* 0*,
MPPEC: A, PPEC: A, US90-452 APPROVE 11/27/90

****

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 LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

****

PREPARED BY: MOBIL OIL CORPORATION
ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT, PRINCETON, NJ
FOR FURTHER INFORMATION, CONTACT:
MOBIL OIL CORPORATION, PRODUCT FORMULATION AND QUALITY CONTROL
3225 GALLOWS ROAD, FAIRFAX, VA 22037 (800) 227-0707 X3265

MOBIL OIL CORPORATION MATERIAL SAFETY DATA BULLETIN

REVISED:09/02/94

I. PRODUCT IDENTIFICATION

MOBILITH SHC 100

SUPPLIER:
MOBIL OIL CORP

CHEMICAL NAMES AND SYNONYMS:
SYN. HYDROCARBONS AND ADDITIVES

USE OR DESCRIPTION:
MULTISERVICE GREASE

24-HOUR EMERGENCY (CALL COLLECT):
609-737-4411

CHEMTREC:
800-424-9300 202-483-7616

PRODUCT AND MSDS INFORMATION:
800-662-4525 703-849-3265

II. TYPICAL CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE: Red Grease ODOR: Mild PH: NA
VISCOSITY AT 40 C, CS: 100.0
VISCOSITY AT 100 C, CS: 14.5
FLASH POINT F(C): > 400(204) (ASTM D-93)
MELTING POINT F(C): NE POUR POINT F(C): NA
BOILING POINT F(C): NA VOC: < 1.00(Wt. %); 0.083 lbs/gal
RELATIVE DENSITY, 15/4 C: 0.889 SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE-mm Hg 20C: NE
Note: Most physical properties for oil component.
NA=Not Applicable NE=Not Established D=Decomposes
FOR FURTHER INFORMATION, CONTACT YOUR MARKETING REPRESENTATIVE.

III. POTENTIALLY HAZARDOUS INGREDIENTS

None

See Sections XII and XIII for regulatory and further compositional data.

IV. HEALTH HAZARD DATA

--- INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED ---
EFFECTS OF OVEREXPOSURE: No significant effects expected.

V. EMERGENCY AND FIRST AID PROCEDURES

--- FOR PRIMARY ROUTES OF ENTRY ---
EYE CONTACT: Flush thoroughly with water. If irritation occurs, call a physician.
SKIN CONTACT: Wash contact areas with soap and water. High pressure accidental injection through the skin requires immediate medical attention for possible incision, irrigation and/or debridement.
INHALATION: Not expected to be a problem.
INGESTION: Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

VI. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT F(C): > 400(204) (ASTM D-93)
FLAMMABLE LIMITS. LEL: NA UEL: NA
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.
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

VII. REACTIVITY DATA

STABILITY (Thermal, Light, etc.): Stable
CONDITIONS TO AVOID: Extreme heat.
INCOMPATIBILITY (Materials to Avoid): Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides. Elemental oxides.
HAZARDOUS POLYMERIZATION: Will not occur.

VIII. 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.

ENVIRONMENTAL FATE AND EFFECTS:

Acute LC/EC50 Fish: Juvenile Rainbow Trout: Practically non-toxic --- Based on testing of similar products.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Shovel up and 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: Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. 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 any government approved 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.

IX. SPECIAL PROTECTION INFORMATION

EYE PROTECTION: Generally eye contact is unlikely with this type material. 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.

RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.

VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.

X. SPECIAL PRECAUTIONS

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention.

XI. 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): Not applicable --- Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.

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: The acute toxicological results summarized above are based on testing of representative Mobil products.

--- SUBCHRONIC TOXICOLOGY (SUMMARY) ---

Representative Mobil formulations have been tested at the Mobil Environmental and Health Sciences Laboratory by dermal applications to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations, including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

--- REPRODUCTIVE TOXICOLOGY (SUMMARY) ---

Dermal exposure of pregnant rats to representative formulations did not cause adverse effects in either the mothers or their offspring.

--- SENSITIZATION (SUMMARY) ---

Representative Mobil formulations have not caused skin sensitization in guinea pigs.

--- OTHER TOXICOLOGY DATA---

This product is formulated with a synthetic hydrocarbon as the base stock. The Mobil Environmental and Health Sciences Laboratory has tested representative synthetic base stocks to assess their potential adverse effects on human health. Assessment of human health effects was based on acute oral, dermal, and inhalation toxicity; eye and skin irritation; subchronic dermal toxicity and reproductive studies; guinea pig sensitization; and mutagenicity and chromosomal damage assays. None of these base stocks appears to pose a health hazard to humans under conditions of expected use.

XII. REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS: All components comply with TSCA.

Transport Information: Please see Section XIV.

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not to be hazardous.

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 and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III: This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None

This product contains no chemicals reportable under SARA (313) toxic release program.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
LITHIUM HYDROXIDE MONOHYDRATE (0.15%)	1310-66-3	22
LITHIUM-SOAP THICKENER (8.74%)	7620-77-1	22
HEXANEDIOIC ACID, MONOMETHYL ESTER, LITHIUM SALT (2.64%)	64601-11-2	22
PENTANEDIOIC ACID, MONOMETHYL ESTER, LITHIUM SALT (0.29%)	64601-12-3	22
FATTY ACIDS, C16-22, LITHIUM SALTS (3.05%)	68783-36-8	22

--- REGULATORY LISTS SEARCHED ---

= ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293	
= ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RTK	23 = MN RTK	
= ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK	
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK	
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK	

CARC = CARCINOGEN; SUS = SUSPECTED CARCINOGEN

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

XIII. INGREDIENTS

See container label for ingredient information.

XIV. TRANSPORT AND LABEL INFORMATION

USA DOT: NOT REGULATED BY USA DOT.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

APPENDIX

PRECAUTIONARY EEC LABEL TEXT:

* - EC labeling not required.

FOR MOBIL USE ONLY: MHC: 1* 1* NA 1* 1*, MPPEC: A, PPEC:, US92-521
APPROVE CCODE:13 09/02/94 REQ: US - MARKETING

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 LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

PREPARED BY: MOBIL OIL CORPORATION
ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT, PRINCETON, NJ
FOR FURTHER INFORMATION, CONTACT:
MOBIL OIL CORPORATION, PRODUCT FORMULATION AND QUALITY CONTROL
3225 GALLOWS ROAD, FAIRFAX, VA 22037 (800) 227-0707 X3265

Mobil

641290-00
MATERIAL SAFETY DATA BULLETIN

1. PRODUCT AND COMPANY IDENTIFICATION

APPROVAL DATE: 08/28/94

PRODUCT NAME: MOBILUX EP 0
SUPPLIER: MOBIL OIL CORP.
PRODUCTS AND TECHNOLOGY DEPT.
3225 GALLOWS RD.
FAIRFAX, VA 22037

24 - Hour Emergency (call collect):	609-737-4411	
Product and MSDS Information:	800-662-4525	703-849-3265
CHEMTREC:	800-424-9300	202-483-7616

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS CONSIDERED HAZARDOUS TO HEALTH:

This product is not formulated to contain ingredients which have exposure limits established by regulatory agencies. It is not hazardous to health as defined by the European Union Dangerous Substances/Preparations Directives. See Section 15 for a regulatory analysis of the ingredients.

See Section 8 for exposure limits (if applicable).

3. HAZARDS IDENTIFICATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not to be hazardous.
EFFECTS OF OVEREXPOSURE: No significant effects expected.
EMERGENCY RESPONSE DATA: Brown Grease. DOT ERG No. - NA

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. High pressure accidental injection through the skin requires immediate medical attention for possible incision, irrigation and/or debridement.
INHALATION: Not expected to be a problem.

INGESTION: Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

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. Flash Point C(F): > 204(400) (ASTM D-93). Flammable limits - LEL: NA, UEL: NA.
NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides. Elemental oxides.

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: 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: Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.
ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering storm sewers or drains and contact with soil.
PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention.
STORAGE: Do not store in open or unlabelled containers. Store away from strong oxidizing agents or combustible material.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.
RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.
EYE PROTECTION: Generally eye contact is unlikely with this type material. 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.
EXPOSURE LIMITS: This product does not contain any components which have recognized exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

APPEARANCE: Grease
COLOR: Brown
ODOR: Mild
ODOR THRESHOLD: NA
pH: NA
MELTING POINT C(F): > 316(600)
DROP POINT C(F): NA
FLASH POINT C(F): > 204(400) (ASTM D-93)
FLAMMABILITY: NA
AUTO FLAMMABILITY: NE
EXPLOSIVE PROPERTIES: NA
OXIDIZING PROPERTIES: NA
VAPOR PRESSURE-mmHg 20 C: < 0.1
VAPOR DENSITY: NE
EVAPORATION RATE: NA
RELATIVE DENSITY, 15/4 C: 0.918
SOLUBILITY IN WATER: Negligible
PARTITION COEFFICIENT: > 3.5
VISCOSITY AT 40 C, cSt: 153.0
VISCOSITY AT 100 C, cSt: NE
POUR POINT C(F): NA
FREEZING POINT C(F): NE
VOC: < 1.00 (Wt. %); 0.083 lbs/gal
NOTE: MOST PHYSICAL PROPERTIES FOR OIL COMPONENT.
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.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide. Metal oxides. Elemental oxides.
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): Not applicable --- Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.
EYE IRRITATION (RABBITS): Practically non-irritating. (Draize score: greater than 6 but 15 or less).
SKIN IRRITATION (RABBITS): Practically non-irritating. (Primary Irritation Index: greater than 0.5 but less than 3).
OTHER ACUTE TOXICITY DATA: The acute toxicological results summarized above are based on testing of representative Mobil products.

--- SUBCHRONIC TOXICOLOGY (SUMMARY) ---
Representative Mobil formulations have been tested at the Mobil Environmental and Health Sciences Laboratory by dermal applications to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations, including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

--- REPRODUCTIVE TOXICOLOGY (SUMMARY) ---
Dermal exposure of pregnant rats to representative formulations did not cause adverse effects in either the mothers or their offspring.
--- CHRONIC TOXICOLOGY (SUMMARY) ---
The 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 the Mobil Modified Ames Test.

--- SENSITIZATION (SUMMARY) ---
Representative Mobil formulations have not caused skin sensitization guinea pigs.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

Acute LC/EC50 Fish: Juvenile Rainbow Trout: Practically non-toxic --- Based on testing of similar products.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. 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 any government approved 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 and is not formulated with contaminants as determined 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.

15. REGULATORY INFORMATION

Governmental Inventory Status: All components comply with TSCA.

EU Classification and Labeling: EU labeling not required.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

This product contains the following SARA (313) Toxic Release

Chemicals:

CHEMICAL NAME	CAS NUMBER	CONC.
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP)	68649-42-3	1.51%
RESIN ACIDS AND ROSIN ACIDS POLYMD., ZINC SALTS	70248-43-0	1.01%

The following product ingredients are cited on the lists below:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (0.23%)	7440-66-6	22
LITHIUM-SOAP THICKENER (3.14%)	7620-77-1	22
CHLORINE (ELEMENTAL ANALYSIS) (0.63%)	7782-50-5	22
CHLORO ALKANES (1.43%)	61788-76-9	21, 22
PHOSPHORODITHOIC ACID, O,O-DI C1-14-ALKYL ESTERS, ZINC SALTS (2:1) (ZDDP) (1.51%)	68649-42-3	18, 20, 21, 22, 24, 25
FATTY ACIDS, C16-22, LITHIUM SALTS (0.80%)	68783-36-8	22
RESIN ACIDS AND ROSIN ACIDS POLYMD., ZINC SALTS (1.01%)	70248-43-0	18, 20, 21, 22, 24, 25

--- REGULATORY LISTS SEARCHED ---

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RIK	23 = MN RIK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RIK	24 = NJ RIK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RIK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RIK	26 = RI RIK

Code key: CARC = Carcinogen; SUS = Suspected Carcinogen

16. OTHER INFORMATION

CHEMICAL NAMES AND SYNONYMS: PET. HYDROCARBONS AND ADDITIVES

USE: EXTREME PRESSURE GREASE

NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

See container label for ingredient information.

For Mobil Use Only: MHC: I* 1* NA I* I*, MPPEC: A, REQ: US -

MARKETING

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 LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

Prepared by: Mobil Oil Corporation
Environmental Health and Safety Department, Princeton, NJ

RECEIVED
FEB 2 2 1993

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)*
MONROE HEAVY DUTY

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

*ND-Not Determined

Manufacturer's Name
MONROE FLUID TECHNOLOGY

Emergency Telephone Number
716-392-3434

Address *(Number, Street, City, State, and ZIP Code)*
36 Draffin Rd.
P.O. Box 810
Hilton, N.Y. 14468

Telephone Number for Information
716-392-3434

Date Prepared
4-27-92

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)*
Sodium Petroleum Sulfonate	5mg/m^3	ND		
Petroleum oil	5mg/m^3	ND		
Chlorinated Paraffin	ND	ND		
Sulfurized Fatty Acid	ND	ND		
Fatty oil	5mg/m^3	ND		
Triethanolamine	ND	ND		
Nonylphenoxypoly(Ethylenoxy)Ethanol	ND	ND		

Section III — Physical/Chemical Characteristics

Boiling Point	250°F	Specific Gravity (H_2O = 1)	0.97
Vapor Pressure (mm Hg.)	ND	Melting Point	Not Applicable-liquid
Vapor Density (AIR = 1)	ND	Evaporation Rate (Butyl Acetate = 1)	ND

Solubility in Water
Emulsifies at 5%

Appearance and Odor
Brown liquid-petroleum odor

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
340°F COC	ND	ND	ND

Extinguishing Media
Water, foam or carbon dioxide

Special Fire Fighting Procedures
Treat as oil fire. Firefighters should wear self-contained NIOSH/MSHA approved breathing apparatus

Unusual Fire and Explosion Hazards
Cool fire exposed containers with water. Combustion may produce oxides of C, H, S, HC and HCL

Section V — Reactivity Data

Stability			Conditions to Avoid
	Unstable		None known
	Stable	X	

Incompatibility (*Materials to Avoid*)
Strong oxides

Hazardous Decomposition or Byproducts
Combustion may produce oxides of C, N, S, HC and HCL

Hazardous Polymerization			Conditions to Avoid
	May Occur		None known
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? no Skin? x Ingestion? no

Health Hazards (*Acute and Chronic*)
Acute - none known

Chronic - repeated contact with concentration may produce mild skin irritation

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure
None known

Medical Conditions
Generally Aggravated by Exposure None known

Emergency and First Aid Procedures
Skin - wash with soap and water. Eyes- Flush with large amounts of water. Ingestion - Consult physician

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Dike area. Only personnel equipped with proper protection should be permitted in area. Recover with adsorbents and place in a DOT container for disposal.

Waste Disposal Method
Spent coolant must be disposed of in a waste management facility. Dispose of in accordance with local, state and federal regulations

Precautions to Be Taken in Handling and Storing
Store indoors away from food or feed.

Other Precautions
DO NOT add sodium nitrite to coolant or dilutions of coolant.

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)
Approved mask for removal of oil mist if present in air above .5mg/m^3

Ventilation		
	Local Exhaust: Not required	Special: None
	Mechanical (*General*): Not required	Other: None

Protective Gloves: Oil resistant
Eye Protection: Goggles

Other Protective Clothing or Equipment
Apron

Work/Hygienic Practices
Wash contaminated clothes/shoes before reuse. Wash hands before eating smoking or using lavatory.

* U.S.G.P.O.: 1986-491-529/45775

GE Apparatus Services

Tucson Service Center
General Electric Company
1401 E Valencia Road, Tucson, AZ 85706-6098
602 889-3346 Fx: 602 889-3341

February 11, 1993

Monroe Fluid Technology Inc.
P.O. Box 810-TR
Hilton, NY 14468
800-828-6351
716-392-3434
FAX 392-2691

Attn: MSDS Department

Dear Sir/Madam:

Our records indicate the following material is either manufactured or distributed by you. We are unable to locate a material safety data sheet for this material. Please provide a current MSDS as soon as possible.

Monroe H.D. 091988

Thank you for your prompt attention to this matter.

Sincerely,

Denise Gasbarri-Smith
Customer Service Specialist

MATERIAL SAFETY DATA SHEET

NOVAGARD SILICONES
2720 E. 79th STREET
CLEVELAND, OH 44104
PHONE: 800-626-6527

ISSUED: 6/7/94

RECEIVED
APR 2 4 1995

SECTION I - PRODUCT INFORMATION

Product Name: G-322L
Product Type: Silicone Grease

SECTION II - COMPOSITION

Ingredients	CAS No.	% Range
Methylalkyl Polysiloxane	68607-71-6	65 - 90
Lithium Stearate	4485-12-5	15 - 35
Zinc Chromate	13530-65-9	1 - 5

SECTION III - CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure : Negligible
Vapor Density : NA
Solubility in Water : < 1%
Specific Gravity : 0.93
Boiling Point : NA
Volatile Organic Compound %: Not Tested
pH : Unknown
Appearance : Yellow to Purple, paste
Odor : Odorless

SECTION IV - FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point : > 204 C (400 F) Method: COC
Estimated HMIS Code : 100B
  Health Hazard : 1
  Flammability Hazard : 0
  Reactivity Hazard : 0
  Personal Protection : See Section XI
Explosive Limits : Unknown
  (% by Volume in Air) Lower: Undetermined
  (% by Volume in Air) Upper: Undetermined
Recommended
  Extinguishing Agents : Use Carbon Dioxide or dry chemical on small fires. Use foam and water spray for large fires.

Hazardous Products Formed
  by Fire or Thermal Decomp : Carbon dioxide, carbon monoxide, silicon dioxide, Zinc and Chromium metal fumes
Unusual Fire or
  Explosion Hazards : None Known

SECTION V - SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case
  of spill or leak : Use absorbent material to collect and contain material for disposal.

Recommended Methods of
  Disposal : Dispose of in accordance with all applicable Federal, State and Local Regulations.

SECTION VI - STORAGE AND HANDLING PROCEDURES

Storage : Store in temperatures below 100 deg F.
Handling: Keep container closed when not in use.

SECTION VII - SHIPPING REGULATIONS

Provided By Electrical Insulation Suppliers Inc.

Type of Class DOT and IATA: Non-hazardous

SECTION VIII - REACTIVITY DATA

Stability : Stable
Hazardous Polymerization : Will not occur
Hazardous Decomposition
Products (non-thermal): None
Incompatibilities : Strong acids or bases, strong oxidizing materials

SECTION IX - EMERGENCY TREATMENT PROCEDURES

Ingestion : If ingested, do not induce vomiting. Get prompt medical attention.
Skin Contact: Contact with skin is not expected to cause irritation. Wash contacted areas with soap and water.
Eye Contact : Contact with the eyes may cause temporary irritation. Flush eyes with copious amounts of water for a minimum of 15 minutes. If chronic irritation develops, contact a physician.

SECTION X - HAZARD IDENTIFICATION

Existing Conditions Aggravated by Exposure: Respiratory ailments
Liver and Kidney damage
This product contains a component that is tumorogenic.

Exposure Limits Ingredients	ACGIH (TLV)	OSHA (TLV)	OTHER
Zinc Chromate	.05 MG/M3 TWA	None found	
Lithium Stearate	10 MG/M3 TWA	10 MG/M3	

Zinc Chromate: There is sufficient evidence for the carcinogenicity of chromium and certain chromium compounds both in humans and experimental animals (ref. IARC 1982). Zinc Chromate produces sarcomas at the site of their subcutaneous intramuscular and/or intrapleural administration in rats. (IARC, 1980).

SECTION XI - PERSONAL PROTECTION

Eyes : Safety glasses or goggles
Skin : Gloves
Ventilation: None should be needed
Special : None known

SECTION XII - PREPARATION INFORMATION

Prepared by : Jason E. Barnes
Company : NOVAGARD SILICONES, 2710 E. 79th STREET, CLEVELAND, OH 44104
Revision Date: 6/7/94 Revision No.: Original Issue

Provided By Electrical Insulation Suppliers Inc.

MUTUAL INDUSTRIES, INC.
MATERIAL SAFETY DATA SHEET

PRODUCT: FIBERGLASS Tape

MANUFACTURER: Mutual Industries
707 West Grange Street
Philadelphia, Pennsylvania 19120

Telephone: 215-927-6000 Fax: 215-927-3388

DATE: 06/12/94
GENERAL DESCRIPTION: glass oxide CAS #65997-17-3

INGREDIENTS
Glass Oxide, CAS #65997-17-3 >99% PEL 15 MG/M3 TLV 5 MG/M3 respirable

Possible skin irritant. Packaging can burn if external souce of fuel is avilable, forming oxides of carbon and nitrogen.

HEALTH HAZARD DATA

Efects of exposure: If in eyes,or on the skin, may cause mild irritation if inhaled may cause upper respiratory tract irritation.

Emergency and first aid procedures: If in eyes, flush with water while lifting upper and lower eyelids. If irritation persists, get medical attention.

FIRE AND EXPLOSION DATA
Flash Point: none
Extinguishing Media: use appropriate extingushing media for primary source of fire Product is not combustible.

Special fire fighting and explosion hazards: none

PHYSICAL DATA FOR GLASS
Boiling point: N/A
Specific Gravity: 2.54
Softening Point: >13000 F
Melting Point: N/A
/apor Density: N/A
Evaporation Rate: N/A
Solubility in Water: N/A
Odor, Appearance: white odorless

REACTIVITY DATA

Stability: stable
Incompatibility: strong bases and acids (oxidizing mineral,
(Materials to Avoid) especially oxalic and hydrofluoric acid)
Hazardous Decomposition: glass tape-- none
small amounts of oxides of carbon and nitrogen
may be evolved if exposed to fire.

SPILL AND DISPOSAL PROCEDURES
An inert, solid waste, Dispose of in a landfill in accordance with local, State and Federal regulations.

PERSONAL PROTECTION
In some circumstances, it may be advisable to wear gloves and long sleeved loose fitting clothing and eye protections.

The information contained herein is believed to be accurate, however, it is provided for the customer consideration, investigation and verification, Mutual Industries, Inc. hereby disclaims any and all warranties, express or implied, regarding the accuracy and completeness of such information, and makes no representations with respect thereto.

Provided By Electrical Insulation Suppliers Inc.

ATIONAL SANITARY SUPPLY CO.
217 S. Figueroa Street
s Angeles, California 90061
ergency No. 1-800-535-5053 (INFOTRAC)
all nearest Sales Office for MSDS Information

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF PRODUCT

Product Name: BIG BREAK INDUSTRIAL CLEANER DEGREASER

Date Issued: 11/07/91
Supercedes: 07/26/91
National Item#: 2115XX

SECTION 2. INGREDIENTS

INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMITS IN AIR OSHA PEL	ACGIH TLV	OTHER
DIPROPYLENE GLYCOL	34590-94-8	2.00	100 ppm	100 ppm	
SODIUM METASILICATE	1344-09-8	< 7	NOT	ESTABLISHED	
POTASSIUM PYROPHOSPHATE	7320-34-5	< 7	NOT	ESTABLISHED	
SYNTHETIC DETERGENTS	1310-73-2	< 6	NOT	ESTABLISHED	

N/A = Not Applicable; N/D = Not Determined

SECTION 3. PHYSICAL DATA

Boiling Point (F): <212
Vapor Pressure (mm Hg.): <17
Vapor Density (Air=1): ND
Solubility in Water: SOLUBLE
Appearance and Odor:

Specific Gravity (Water=1): 1.08
Percent Volatile (By Volume): 86
Evaporation Rate (Water =1): 1
pH Range: 12.8

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): NON-FLAMMABLE
Flammable Limits: LEL= N/A UEL= N/A
Extinguishing Media: CO2, DRY CHEMICAL, FOAM, WATER FOG
pecial Fire Fighting Procedures: NORMAL FIRE FIGHTING PROCEDURES MAY BE USED. COOL AND USE CAUTION WHEN APPROACHING OR HANDLING FIRE-EXPOSED CONTAINERS.
usual Fire & Explosion Hazards: CONTAINERS MAY BURST IN HEAT.

SECTION 5. REACTIVITY DATA

Stability: STABLE
Incompatibility - Materials to Avoid: THIS PRODUCT IS ALKALI IN NATURE AND IS NOT COMPATIBLE WITH STRONG ACIDS. DO NOT ADD OXIDIZING AGENTS (BLEACH) TO THIS PRODUCT.
Hazardous Polymerization: WILL NOT OCCUR
Conditions to Avoid: NONE KNOWN TO NSS
Hazardous Decomposition Products: WHEN EXPOSED TO FIRE, PRODUCES NORMAL PRODUCTS OF COMBUSTION.

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill Response: FOR SMALL SPILLS. DILUTE WITH WATER AND PICK UP WITH MOP AND PAIL OR WET PICK UP VACUUM. FOR LARGE SPILLS, DIKE AREA TO CONTAIN SPILL. CLEAN UP USING ABSORBENT MATERIAL. PLACE ALL CONTAMINATED MATERIAL IN A CLOSED CONTAINER FOR DISPOSAL.
Product Disposal: WASTE FOR DILUTED PRODUCT MAY BE FLUSHED TO SEWER. UNDILUTED PRODUCT RECOVERED FROM SPILLS MAY BE SENT TO A LICENSED DISPOSAL FACILITY TO BE DISPOSED OF IN ACCORDANCE WITH FEDERAL/STATE REGULATIONS AND LOCAL ORDINANCES.
Container Disposal: TRIPLE RINSE EMPTY CONTAINER THOROUGHLY WITH WATER AND DISCARD IN REGULAR TRASH COLLECTION IF ALLOWED BY LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 7. HEALTH HAZARD DATA

Primary Routes of Entry: EYES, SKIN
Symptoms of Overexposure:
Eye Contact: EYE IRRITANT. IF NOT PROMPTLY TREATED, EYE DAMAGE MAY RESULT.
Skin Contact: SKIN IRRITANT. IRRITATION CAN OCCUR FROM CONTACT WITH CONCENTRATED PRODUCT OR FROM PROLONGED CONTACT WITH DILUTED PRODUCT. REPEATED OR PROLONGED EXPOSURE TO DILUTED PRODUCT MAY LEAD TO DERMATITIS.
Inhalation: NO HEALTH EFFECTS ARE KNOWN TO OCCUR FROM INHALATION OF THIS PRODUCT UNDER NORMAL USE IN A WELL VENTILATED AREA. HIGH AIRBORNE CONCENTRATIONS OF MISTS OR SPRAYS OF THIS PRODUCT MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT.
Ingestion: REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER AND GET MEDICAL ADVICE. VOMITING SHOULD BE INDUCED ONLY ON RECOMMENDATION OF MEDICAL PERSONNEL.

SECTION 8. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: IMMEDIATELY FLUSH THE EYE WITH LARGE QUANTITIES OF RUNNING WATER FOR A MINIMUM OF 15 MINUTES. HOLD THE EYELIDS APART DURING THE IRRIGATION TO ENSURE FLUSHING OF THE ENTIRE SURFACE OF THE EYE LID WITH WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Skin Contact: FLUSH THE EFFECTED AREA WITH LARGE QUANTITIES OF RUNNING WATER WHILE REMOVING CONTAMINATED CLOTHES AND SHOES. WASH CLOTHING BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Inhalation: REMOVE FROM CONTAMINATED AREA. IF SYMPTOMS OF RESPIRATORY DISCOMFORT PERSISTS, GET MEDICAL ATTENTION.
Ingestion: REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER AND GET MEDICAL ADVICE. VOMITING SHOULD BE INDUCED ONLY ON RECOMMENDATION OF MEDICAL PERSONNEL.

S ION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Ventilation: ROOM VENTILATION IS ADEQUATE.
Protection Gloves: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Eye Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Other Protective Clothing/Equipment: WHERE GROSS EYE OR SKIN CONTACT MAY OCCUR, USE APPROPRIATE PROTECTIVE EQUIPMENT.

SECTION 10. ADDITIONAL INFORMATION AND PRECAUTIONS

SARA TITLE III H&P RATINGS: Acute - YES Chronic - NO Fire - NO
Press. Release - NO Reactive - NO

NFPA RATINGS: HEALTH -3 FIRE -0 REACTIVITY -0 SPECIFIC -0

Handling and Storage Precautions: STORE IN A COOL DRY PLACE. REPLACE CAP AFTER USE. KEEP OUT OF REACH OF CHILDREN.

SECTION 11. REGULATORY CLASSIFICATIONS

NON-REGULATED

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

NATIONAL SANITARY SUPPLY CO.
13217 S. Figueroa Street
Los Angeles, California 90061

Manufacturer:
THE DIAL CORPORATION
111 WEST CLARENDON AVE.
PHOENIX, AZ 85077
Emergency Tel. No. 602/253-3334
Telephone No. 602-991-3000

SECTION 1. IDENTIFICATION OF PRODUCT*

Product Name: BORAXO HEAVY DUTY HAND SOAP

Date Issued: 05/02/89
Supercedes: 11/15/85
National Item # 1241XX

SECTION 2. INGREDIENTS CAS NUMBER PERCENT EXPOSURE LIMITS IN AIR OSHA PEL ACGIH TLV OTHER

FINISH PRODUCTS:
HAZARDOUS COMPONENTS:

OSHA (PEL)-N/A ACGIH (TLV)-NA

CHEMICAL / COMMON NAME		PEL/TLV - SOURCE
SODIUM TETRABORATE DECAHYDRATE/BORAX	1303-96-4	OSHA 8-hr TWA Pel, 103mg/m3 ACGIH TLV-TWA, 5 mg/m

*VALUES WERE SET TO PROTECT WORKERS FROM ACUTE IRRIATANT EFFECTS ON SKIN AND MUCOUS MEMBRANES OF THE EYES, NOSE, AND OTHER SITES.

SECTION 3. PHYSICAL DATA

Boiling Point (F): ND
Vapor Pressure (mm Hg.): ND
Vapor Density (Air=1): ND
Solubility in Water: APPROX. 5% AT 20C
Appearance and Odor: WHITE, GRANULAR POWDER, SLIGHTLY PERFUMED.

Specific Gravity(Water=1): 0.898
Volatile By Weight (%): ND
Evaporation Rate (*=1): ND
*Butyl Acetate

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): NONE
Flammable Limits: NONE LEL= UEL=
Extinguishing Media: NOT REQUIRED. PRODUCT IS INHERENT FIRE RETARDANT.

Special Fire Fighting Procedures: NONE

Unusual Fire & Explosion Hazards: NONE

SECTION 5. REACTIVITY DATA

Stability: STABLE

Chemical Incompatibility - : NONE

Hazardous Polymerization: WILL NOT OCCUR

Conditions to Avoid: NONE

Hazardous Decomposition Products: NONE

SECTION 6. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Eye Protection - NONE NECESSARY UNLESS DIRECT EYE CONTACT WITH THE PRODUCT IS EXPECTED OR LUNLESS HIGH DUST LEVELS OF THE PRODUCT ARE PRODUCED. IN SUCH SITUATIONS, WEAR GLASSES OR GOGGLES AS APPROPRIATE.
Skin Protection - ONE NECESSARY LUNLESS PROLONGED OR EXTENSIVE EXPOSURE TO THE PRODUCT IS EXPECTED OR UNLESS SKIN IS DAMAGED OR DISEASED. IN SUCH SITUATIONS, WEAR BORAX IMPERMEABLE GLOVES, GRAMENTS, OR SHOES AS APPROPRIATE.
Respiratory Protection - NONE NECESSARY EXCEPT IN AREAS WHERE AIRBORN DUST CONCENTRATIONS OF SODIUM BORAX EXCEED ESTABLISHED WORKPLACE LIMITS. IN SUCH SITUATIONS, WEAR BORAX IMPERMEABLE GLOVES, GARMENTS OR SHOES AS APPROPRIATE.

Handling: RETAIN PACKAGE INTEGRITY.
Storage: DRY INDOOR STORAGE.
Normal Clean Up: SWEEP OR VACUM. RINSE AREA WITH WATER.
Waste Disposal: SANITARY SEWER OR SOLID WASTE. NOT A HAZARDOUS WASTE. </SPILL

SECTION 7. HEALTH HAZARD DATA

Route Of Entry: Inhalation - UNLIKELY UNDER ORMAL USE CONDITIONS
Skin - LIKELY
Ingestion - UNLIKELY UNDER NORMAL USE CONDITIONS
Eye - UNLIKELY UNDER NORMAL USE CONDITIONS

Health Hazards (Acute and Chronic):

Acute:

Inhalation - RESPIRATORY TRACT IRRITATION HAS BEEN REPORTED AMONG INDIVIDUALS EXPOSED TO HIGH DUST LEVELS OF SODIUM TETRABORATES.

Ingestion - THE ACUTE ORAL LD50 FOR THE PRODUCT IN RATS IS GREATER THAN 6.81g/kg BODY WEIGHT. THIS VALUE IS CONSISTENT WITH THE ACUTE ORAL TOXICITY IN RATS OF THE PRODUCT'S PREDOMINANT INGREDIENTS, BORAX AND SOAP. SEE PARAGRAPH BELOW FOR ADDITIONAL INFORMATION ON BORATE TOXICITY FOLLOWING EXPOSURE BY THIS AND OTHER ROUTES, WHICH ARE CONSIDERED RELEVANT FOR PREDICTING BORATE TOXICITY BY THIS ROUTE.

Skin - ALTHOUGH THE PRIMARY SKIN IRRITATION INDEX OF THE PRODUCT IN RABBITS IS 0, NO EFFECT (16 CFR 1500.41), PROLONGED CONTACT WITH AQUEOUS SOLUTIONS OF IT WOULD BE EXPECTED TO BE IRRITATING TO RABBIT, AND PROBABLY HUMAN, SKIN BECAUSE UNDER SIMILAR CONDITIONS SODIUM TETRABORATE AND SOAP ARE IRRITATING TO RABBIT SKIN. ALSO, OCCUPATIONAL EXPERIENCE WITH SODIUM TETRABORATES, SUGGEST PROLONGED SKIN CONTACT WITH THE DRY PRODUCT, WHICH CONTAINS A HIGH CONCENTRATION OF BORAX, WOULD BE IRRITATING OR DRYING TO THE SKIN.
THE ACUTE DERMAL LD50 FOR THE PRODUCT IN RABBITS IS GREATE THAN 2.0 g/kg BODY WEIGHT (16 CFR 1500.40). SEE PARAGAPH BELOW FOR ADDITIONAL INFORMATION ON BORATE TOXICITY FOLLOWING EXPOSURE BY THIS AND OTHER ROUTES, WHICH ARE CONSIDERED RELEVANT FOR PREDICTING BORATE TOXICITY BY THIS ROUTE.

Eyes - THE PRODUCT PRODUCES REVERSIBLE CONJUNCTIVITIS WHEN INSTILLED IN THE EYES OF RABBITS (16 CFR 1500.40). THIS EFFECT IS CONSISTENT WITH THE OCULAR EFFECTS OF SODIUM TETRABORATES AND SOAP.

Chronic: ND FOR PRODUCT.

BORATE SYSTEMIC TOXICITY. ACUTE AND CHRONIC EXPOSURE TO SODIUM BORATES OR BORIC ACID, WHICH IS CHEMICALLY AND TOXICOLOGICALLY SIMILAR TO SODIUM BORATES, PRODUCE GASTROINTESTINAL, CENTRAL NERVOUS SYSTEM, SKIN, RENAL AND HEPATIC TOXICITY, AND DEATH IN HUMANS. CHRONIC EXPOSURE TO THESE COMPOUNDS PRODUCE GROWTH SUPPRESSIONM TESTICULAR DEGENERATION, INFERTILITY, DEATH AND, POSSIBLY RED BLOOD CELL TOXICITY IN ANIMALS.

MOST BOATE POISONINGS AMONG HUMANS HAVE FOLLOWED INGESTION, INSTILLATION INTO A BODY CAVITY, OR APPLICATION TO DAMAGED OR DISEASED SKIN. MANY OF THE REPORTED CASES INVOLVED INFATS, WHO MAY BE A SENSITIVE POPULATION TO BORATE TOXICITY. ALSO, RECENT PURLISHED LITERATURE ON BORIC ACID INGESTIONS INDICATE THE TOXIC POTENCY OF THESE COMPOUNDS MAY BE DRAMATICALLY LESS THAN INDICATED IN SOME OF THE OLDER PRIMARY LITERATURE OR RECENT SECONDARY SOURCES

Carcinogenicity*:	NTP	IARC Monographs	OSHA Regulated
	NL	NO	NO

*THE PRODUCT HAS NOT BEEN TESTED FOR THIS EFFECT.
Effects of Overexpossure:
Inhalation - DRYNESS OF MOUTH, NOSE, AND THROAT, NOSE AND THORAT IRRITATION, NOSEBLEEDS, DRY COUGH, CHEST TIGHTNESS, SHORTNESS OF BREATH, AND DYSPNEA HAVE BEEN REPORTED AMONG WORKERS ECPOSED TO HIGH DUST LEVELS OF SODIUM TETRABORATES.
Ingestion - NAUSEA, ABDOMINAL PAIN, VOMITING, DIARRHEA, HEADACHE, LETHARGY, LIGHTHEADEDNESS, DELIRIUM, CONVULSIONS, COMA, DIMINISHED URINE OUTPUT, ALOPECIA, AND AN ERYTHEMATOUS DESQUAMATING RASH HAVE BEEN REPORTED AMONG INDIVIDUALS POISONED BY SODIUM TETRABORATES OR BORIC ACID.
Skin _ IRRITATION AND CHAPPING.
Eyes = TEMPORARY BURNING, STINGING, OR IRRITATION.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE

SECTION 8. FIRST AID & MEDICAL EMERGENCY PROCEDURES

Eye: FLUSH EYES WITH TEPID TER, OCCASIONALLY LITING LIDS, UNTIL ALL VISIBLE MATERIAL HAS BEEN REMOVED. IF ANYMORE THAN TRANSITORY IRRITATION OR DISCOMFORT OCCUR, CALL A PHYSICIAN, PREFERABLY AN OPHTHALMOLOGIST.
Skin: RINSE ALL MATERIAL FROM THE SKIN.
Inhalation: REMOVE TO FRESH AIR.
Ingestion: REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER AND GET MEDICAL ADVICE. VOMITING SHOULD BE INDUCED ONLY ON RECOMMENDATION OF MEDICAL PERSONNEL.

SECTION 9. CONTROL MEASURES - OCCUPATIONAL

Respiratory Protection: (SPECIFY TYPE): WEAR APPROPRIATE NIOSH - APPROVED DUST RESPIRATOR IN AREAS WHERE AIRBORNE DUST CONCENTRATIOS OF BORAX EXCEED ESTABLISHED WORKPLACE LIMITS.
Ventilation: AS NECESSARY TO PREVENT AIRBORNE CONCENTRATIOS OF BORAX FROOM EXCEEDING APPLICABLE WORKPLACE LIMITS.
Protection Gloves: NONE NECESSSARY UNLESS PROLONGED EXPOSURE TO THE PRODUCT IS EXPECTED OR UNLESS SKIN IS DMAGED OR DISEASED. IN SUCH SITUATIONS, WEAR BORAX IMPERMEABLE GLOVES.
Eye Protection: NONE NECESSARY UNLESS DIRECT EYE CONTACT WITH THE PRODUCT IS EXPECTED OR UNLESS HIGH DUST LEVELS OF THE PRODUCT ARE PRODUCED. IN SUCH SITUATIONS, WEAR GLASSES OR GOGGLES AS APPROPRIATE.
Other Protective Clothing/Equipment: NONE NECESSARY UNLESS PROLONGED OR EXTENSIVE SKIN CONTACT IS EXPECTED OR UNLESS SKIN IS DAMAGED OR DISEASED. IN SUCH SITUATIONS, WEAR APPROPRIATE BORAX IMPERMEABLE GRAMENTS OR SHOES.
WORK/HYGIENIC PRACTICES: DO NOT EAT OR DRINK IN WORK AREA.
REFERENCES:
American Conference of Governmental Industrial Hygienists. (1988). THRESHOLD LIMIT VALUES AND BIOLOGICAL EXPOSURE INDICES FOR 1988-1989. AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, CINCINNATI, HO.
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(continued on next page)

FIFTH ED. AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTIAL HYGIOENISTS, INC., CINCINNATI, HO.
Cosmetic Ingredient Review. (1983). FINAL REPORT ON THE SAFETY ASSESSMENT OF SODIUM BORATE AND BORIC ACID. .AM. COLL. TOXICOL. 2 (7), 87-125.
Litovitz, T. Klein-hSchwartz, W. Oderda, G., and Schmitz, B. (1988). CLINICAL MANIFESTATIONS OF TOXICITY IN A WERIES OF 784 BORIC ACID INGESTIONS. AM. J. EMERG. MED. 6 (3), 290-212.
Pfeiffer, C. C. and Jenney, E. H. (1950). THE PHARMACOLOGY OF BORIC ACID AND VORON COMPOUNDS. BULL. NAT. FORM. COMM. 18, 57-80.
Stokinger, H. E. (1981). THE HALOGENS AND THE NONMETALS BORON AND SILICON. IN: PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY. 3RD ED., (G. D. CLAYTON AND F. E. CLAYTON EDS.) VOL. IIB. CHAP. 40, PP. 2984-2987. JOHN WILEY AND SONS, INC., NEW YORK.
United States Occupational Safety and Health Administation. (1989). AIR CONTAMINANTS. BORATES, TETRA, SODIUM SALTS (ANHYDROUS, PENTAHYDRATE, AND DECAHYDRATE). FED. REG. 54 (12), 2451-2452.

SECTION 10. ENVIROMENTAL IMPACT

Applicable Regulations: 16 CFR 500
DOT/EPA Hazard Class: NONE SHIPPING NANE: SEE PRODUCT NAME
EPA - SARA TITLE III SECTION 313: TOXIC CHEMICAL -NO
Note: N/A=NOT APPLICABLE ND=NOT DETERMINED NL=NOT LISTED
NIF=NO INFORMATION FOUND NE=NONE ESTABLISHED
SARA TITLE III H&P RATINGS: Acute, YES; Chronic, NO; Fire, NO
Press. Release, NO; Reactive, NO;
NFPA RATINGS: HEALTH -1 FIRE -0 REACTIVITY -0 SPECIFIC -0

THE INFORMATION CONTAINED HEREIN IS PROVIDED IN GOOD FAITH AND IS BELIEVED TO BE CORRECT AS OF THE DATE HEREOF. HOWEVER, THE DIAL CORPORATION MAKES NO REPRESENTATION AS TO THE COMPREHENSIVENESS OR ACCURACY OF THE INFORMATION. IT IS EXPECTED THAT INDIVIDUALS RECEIVING THE INFORMATION WILL EXERCISE THEIR INFEPENDENT JUDGMENT IN DETERMINING ITS APPROPRIATENESS FOR A PARTICULAR PURPOSE. ACCORDINGLY, THE DIAL CORPORATION WILL NOT BE RESPONSIBLE FOR DAMAGES OF ANY KIND RESULTING FORM THE USE OF OR RELIANCE UPON SUCH INFORMATION. NO REPRESETATIONS, OR WARRANTIES, EITHER EXPRESSED OR IMPLIED OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PRUPOSE OR OF ANY OTHER ATURE ARE MADE HEREUNDER WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR TO THE PRODUCT TO WHICH THE INFORMATION REFERS.
DATE PREPARED: 05/02/89
CHANGE: NEW ISSUE

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National Sanitary Supply Co.
P.O. Box 61126
Los Angeles, Ca 90061
(213) 770-1970

LORIN G. HEWITT

2/21/97 318463
1265 HERNANDEZ, ED

COD GENERAL ELECTRIC
1401 E. VALENCIA
TUCSON AZ 85706

Dear Customer,

Enclosed are the Material Safety Data Sheets (MSDSs) for products that your company recently purchased from National Sanitary Supply as required by the federal OSHA Hazard Communication Final Standard 29 CFR 1910. 1200.

National Sanitary is providing its customers with MSDSs to comply fully with the provisions of OSHA Standard and, by so doing, is attempting to help reduce in number and severity the incidence of chemical source injuries and illnessess in the workplace. It is hoped that by increasing the awareness of all who handle "hazardous" materials, the risk of injury will thereby be reduced. Please make these MSDSs readily available to all employees handling the chemicals.

Additionally, under the Standard, all chemical products are to have labels which are in English, legible and prominently displayed on the container. Please refuse any shipment of products in which the labels have become either disattached or illegible.

This letter and accompanying MSDS (s) were generated by our computer system which has been programmed to automatically print and mail MSDSs upon a customer's initial order of a "hazardous" product and when any updates occur in MSDSs already provided.

If you still have questions regarding the Standard or the interpretation of information on the MSDS (s) provided, please contact your appropriate sales representative.

Sincerely,

Maria F. Frias
Executive Administration

[redacted] SANITARY SUPPLY CO.
1524[redacted] S. Figueroa Street
Los Angeles, California 90061
Emergency No. 1-800-535-5053 (INFOTRAC)
Call Nearest Sales Office for MSDS Information

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF PRODUCT

Product Name: [redacted]R

Date Issued: 03/24/93
Supercedes: NEW
National Item#: 2633XX

SECTION 2. INGREDIENTS

INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMITS IN AIR OSHA PEL	ACGIH TLV	OTHER
D-LIMONENE	5989-27-5	3-4	N/D	N/D	

*THESE MATERIALS ARE SUBJECT TO REPORTING REQUIREMENTS UNDER SARA TITLE III, SECTION 313 AND 40 CFR PART 372.

N/A = Not Applicable; N/D = Not Determined

SECTION 3. PHYSICAL DATA

Boiling Point (F): 212
Vapor Pressure (mm Hg.): <25
Vapor Density (Air=1): ND
Solubility in Water: SOLUBLE
Specific Gravity (Water=1): 1.0
Percent Volatile (By Volume): < 92
Evaporation Rate (Water =1): 1
pH Range: 9-10
Appearance and Odor: LIGHT STRAW COLORED SOLUTION/ORANGE-CITRUS FRAGRANCE.

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): NONE
Flammable Limits: LEL= ND UEL= ND
Extinguishing Media: CO2, DRY CHEMICAL, FOAM, WATER FOG
Auto Ignition Temp.: N/E
Special Fire Fighting Procedures: NORMAL FIGHTING PROCEDURES MAY BE USED. COOL AND USE CAUTION WHEN APPROACHING OR HANDLING FIRE EXPOSED CONTAINERS.

Unusual Fire & Explosion Hazards: CONTAINERS MAY BURST IN HEAT TO ELEVATED TEMPERATURES.

SECTION 5. REACTIVITY DATA

Stability: STABLE
Material to Avoid: STRONG MINERAL ACIDS, OXIDIXZING AGENTS (IE., BLEACH).

Hazardous Polymerization: WILL NOT OCCUR

Conditions to Avoid: HIGH HEAT STORAGE CONDITIONS. NONE OTHER KNOWN TO NSS.

Hazardous Decomposition Products: WHEN EXPOSED TO FIRE, PRODUCES NORMAL PRODUCTS OF COMBUSTION (IE.,CO,CO2, STEAM, CARBON, AND OTHER CARBON BASED COMBUSTION PRODUCTS).

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Special Spill Response Procedures: NO SPECIAL INSTRUCTIONS.
Small Spills: DILUTE WITH WATER AND PICK UP WITH MOP AND PAIL OR WET PICK-UP VACUUM.
Large Spills: DIKE AREA TO CONTAIN SPILL. SCOOP UP FREE-STANDING LIQUID. ABSORB REMAINER WITH ORGANIC SOLVENT ABSORBENT. PLACE ALL CONTAMINATED MATERIAL IN AN APPROVED, SEALED CONTAINER FOR DISPOSAL.
Disposal: DISPOSE OF ALL WASTES IN ACCORDANCE WITH FEDERAL/STATE REGULATIONS AND LOCAL ORDINANCES.
Contain. Disp. TRIPLE-RINSE. RECYCLE/RETURN EMPTY CONTAINERS TO SUPPLIER/ VENDOR OR DISCARD AS PERMITTED FEDERAL/STATE REGULATIONS AND LOCAL ORDINANCES.

Product Name: BUSY BEE SPRAY CLEANER
Date Issued: 03/24/93
National Item# 2633XX

SECTION 7. HEALTH HAZARD DATA

Primary Route(s) of Entry: EYES, SKIN
Overexposure Symptoms:
Eye Contact: EYE IRRITANT. MAY CAUSE REDNESS, TEARING AND BLURRED VISION.
Skin Contact: SKIN IRRITANT WITH PROLONGED CONTACT. MAY CAUSE ITCHING AND REDNESS. DEFATTING OF THE SKIN LEADING TO SKIN CRACKING, IRRITATION AND POSSIBLY DERMATITIS.
Inhalation: MISTS MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT.
Ingestion: MAY CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.
Inhalation: MISTS MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT.
Acute Health Hazards: EYE/RESPIRATORY IRRITATION; SKIN DE-FATTENING.
Chronic Health Hazards: NONE KNOWN TO NSS.

SECTION 8. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: IMMEDIATELY FLUSH THE EYE WITH LARGE QUANTITIES OF FRESH, RUNNING WATER FOR A MINIMUM OF 15 MINUTES. HOLD THE EYELIDS APART DURING THE IRRIGATION TO ENSURE FLUSHING OF THE ENTIRE SURFACE OF THE EYE LID WITH WATER. SEEK MEDICAL ATTENTION IF IRRITATION/BURNING EXISTS.
Skin Contact: FLUSH THE EFFECTED AREA WITH RUNNING WATER. WASH WITH SOAP AND WARM WATER. WASH CLOTHING BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Inhalation: MOVE PERSON TO FRESH AIR. IF SYMPTOMS OF RESPRIATORY DISCOMFORT PERSIST, GET MEDICAL ATTENTION.
Ingestion: DO NOT INDUCE VOMITING. REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER. VOMITING SHOULD BE INDUCED ONLY OR RECOMMENDATION OF MEDICAL PERSONNEL.

SECTION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL CONDITIONS.

Ventilation: Outdors: N/A WHEN USED OUTDOORS.
Indoors: GENERAL MECHANICAL VENTILATION SHOULD BE ADEQUATE.
Protection Gloves: NOT ESSENTIAL UNDER NORMAL USE CONDITIONS. SUPERVISORY DISCRETION ADVISED.
Eye Protection: SAFETY GLASSES, CHEMICAL GOGGLES ARE RECOMMENDED TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION, OR INJURY WHEN USING CONCENTRATE.
Other Measures: APPROPRIATE PROTECTIVE EQUIPMENT WHEN GROSS EYE/SKIN CONTACT MAY OCCUR.
Hygienic Practices: WASH HANDS WITH SOAP AND WARM WATER AFTER USE.

SECTION 10. ADDITIONAL PRECAUTIONS

Handling and Storage Precautions: STORE IN COOL DRY PLACE. FOLLOW LABEL DIRECTIONS. KEEP OUT OF REACH OF CHILDREN. REPLACE CAP AFTER USE.

SARA TITLE III H&P RATINGS: Acute, YES; Chronic, NO; Fire, NO; Press. Release, NO; Specific, NO;

Othe Regulatory Ratings: CERCLA: NO NTP: NO ACGIH: NO
SUB Z: NO IARC: NO CALIF. PROP. 65: N/A

HMIS RATINGS: HEALTH -1 FIRE -0 REACTIVITY -0 PROTECTION -A
NFPA RATINGS: HEALTH -1 FIRE -0 REACTIVITY -0 SPECIFIC -
Additional Precautions: NONE

SECTION 11. REGULATORY/DOT CLASSIFICATIONS (OPTIONAL)

HM-181 Proper Shipping Name (DOT)
HM-181 Description (DOT)
UN Number:
Other:

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

NATIONAL SANITARY SUPPLY CO.
3217 S. Figueroa Street
Los Angeles, California 90061
Emergency No. 1-800-535-5053 (INFOTRAC)
Call nearest Sales Office for MSDS Information

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF PRODUCT*

Product Name: D-FOAM SUDS DEPRESSANT -30

Date Issued: 10/28/91
Supercedes: 09/21/89
National Item#: 2764XX

SECTION 2. INGREDIENTS

INGREDIENTS	CAS NUMBER	PERCENT	EXPOSURE LIMITS IN AIR OSHA PEL	ACGIH TLV	OTHER
POLYDIMETHYLSILOXANE	63148-62-9	9%			
OCTAMETHYLTETRASILOXANE	556-67-2	1%			TLV 5 PPM
WATER		>90.00			

N/A = Not Applicable; N/D = Not Determined

SECTION 3. PHYSICAL DATA

Boiling Point (F): <212
Specific Gravity (Water=1): 1.0
Vapor Pressure (mm Hg.): <17
Percent Volatile (By Volume): 86
Vapor Density (Air=1): N/D
Evaporation Rate (Water =1): 1
Solubility in Water: SOLUBLE
pH Range: 6.0
Appearance and Odor: OPAQUE WHITE LIQUID/SWEET SCENT

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): NON-FLAMMABLE
Flammable Limits: LEL= N/A UEL= N/A
Extinguishing Media: CO2, DRY CHEMICAL, FOAM, WATER FOG

Special Fire Fighting Procedures: NORMAL FIRE FIGHTING PROCEDURES MAY BE USED. COOL AND USE CAUTION WHEN APPROACHING OR HANDLING FIRE-EXPOSED CONTAINERS.

Unusual Fire & Explosion Hazards: CONTAINERS MAY BURST IN HEAT.

SECTION 5. REACTIVITY DATA

Stability: STABLE

Incompatibility - Materials to Avoid: NONE KNOWN TO NSS

Hazardous Polymerization: WILL NOT OCCUR

Conditions to Avoid: NONE KNOWN TO NSS

Hazardous Decomposition Products: NONE KNOWN TO NSS

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill Response: PICK UP WITH WET VACUUM OR MOP AND PAIL. CLEAN UP SPILLS THOROUGHLY AS RESIDUE IS SLIPPERY.

Product Disposal: FLUSH TO SEWER.

Container Disposal: TRIPLE RINSE EMPTY CONTAINER THOROUGHLY WITH WATER AND DISCARD IN REGULAR TRASH COLLECTION IF ALLOWED BY LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 7. HEALTH HAZARD DATA

Symptoms of Overexposure:
Eye Contact: EYE IRRITANT.
Skin Contact: PROLONGED OR REPEATED CONTACT MAY CAUSE DRYNESS AND IRRITATION.
Inhalation: NON HAZARDOUS
Ingestion: LOW TOXICITY
THE INGREDIENTS LISTED IN SECTION 2 ARE NOT LISTED ON THE OSHA, NTP OR IARC MONOGRAPH CARCINOGEN LISTS.

Primary Route(s) of Entry: SKIN

SECTION 8. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: IMMEDIATELY FLUSH THE EYE WITH LARGE QUANTITIES OF RUNNING WATER FOR A MINIMUM OF 15 MINUTES. HOLD THE EYELIDS APART DURING THE IRRIGATION TO ENSURE FLUSHING OF THE ENTIRE SURFACE OF THE EYE LID WITH WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Skin Contact: FLUSH THE EFFECTED AREA WITH LARGE QUANTITIES OF RUNNING WATER WHILE REMOVING CONTAMINATED CLOTHES AND SHOES. WASH CLOTHING BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Inhalation: N/A
Ingestion: REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER AND GET MEDICAL ADVICE. VOMITING SHOULD BE INDUCED ONLY ON RECOMMENDATION OF MEDICAL PERSONNEL

SECTION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Ventilation: ROOM VENTILATION IS ADEQUATE.
Protection Gloves: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Eye Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Other Protective Clothing/Equipment: N/A
Handling and Storage Precautions: STORE IN A COOL, DRY PLACE. REPLACE CAP AFTER USE. KEEP OUT OF REACH OF CHILDREN.

SECTION 10. ADDITIONAL INFORMATION AND PRECAUTIONS

NON-REGULATED

SARA TITLE III H&P RATING: Acute: YES, Chronic: NO, Fire: NO, Press. Release: NO Reactive: NO

NFPA RATINGS: HEALTH -0 FIRE -0 REACTIVITY -0 SPECIFIC -0

HMIS RATINGS: HEALTH -0 FLAMMABILITY -0 REACTIVITY -0

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

NATIONAL SANITARY SUPPLY CO.
13217 S. Figueroa Street
Los Angeles, California 90061
Emergency No. 1-800-535-5053 (INFOTRAC)
Call nearest Sales Office for MSDS Information

SECTION 1. IDENTIFICATION OF PRODUCT

Product Name: NSS CONCENTRATE CLEANER

Date Issued: 08/20/91
Supercedes: 03/01/91
National Item#: 2105XX

SECTION 2. INGREDIENTS

INGREDIENTS	CAS NO.	% WT	EXPOSURE LIMITS IN AIR OSHA PEL	ACGIH TLV	OTHER
TRISODIUM PHOSPHATE	7601-54-9	2-4%	NE	NE	
SYNTHETIC DETERGENT	27176-87-0	1-3	NE	NE	
2-BUTOXYETHANOL	111-76-2	9-13	NE	NE	

N/A = Not Applicable; N/D = Not Determined

*THESE MATERIALS ARE SUBJECT TO THE REPORTING REQUIREMENTS UNDER SARA TITLE III, SECTION 313 AND 40 CFR PART 372.

SECTION 3. PHYSICAL DATA

Boiling Point (F): <212
Vapor Pressure (mm Hg.): <17
Vapor Density (Air=1): ND
Solubility in Water: SOLUBLE
Appearance and Odor: CLEAR RED/SWEET SCENT

Specific Gravity (Water=1): 1.07
Percent Volatile (By Volume): 88
Evaporation Rate (Water =1): 1
pH Range: 13-13.5

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): NON-FLAMMABLE
Flammable Limits: LEL= N/A UEL= N/A
Extinguishing Media: CO2, DRY CHEMICAL, FOAM, WATER FOG
Special Fire Fighting Procedures: NORMAL FIRE FIGHTING PROCEDURES MAY BE USED. COOL AND USE CAUTION WHEN APPROACHING OR HANDLING FIRE-EXPOSED CONTAINERS.
Unusual Fire & Explosion Hazards: CONTAINERS MAY BURST IN HEAT.

SECTION 5. REACTIVITY DATA

Stability: STABLE
Incompatibility - Materials to Avoid: THIS PRODUCT IS ALKALI IN NATURE AND IS NOT COMPATIBLE WITH STRONG ACIDS. DO NOT ADD OXIDIZING AGENTS (BLEACH) TO THIS PRODUCT.
Hazardous Polymerization: WILL NOT OCCUR
Conditions to Avoid: NONE KNOWN TO NSS
Hazardous Decomposition Products: WHEN EXPOSED TO FIRE, PRODUCES NORMAL PRODUCTS OF COMBUSTION.

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill Response: FOR SMALL SPILLS. DILUTE WITH WATER AND PICK UP WITH MOP AND PAIL OR WET PICK UP VACUUM. FOR LARGE SPILLS, DIKE AREA TO CONTAIN SPILL. CLEAN UP USING ABSORBENT MATERIAL. PLACE ALL CONTAMINATEDB MATERIAL IN A CLOSED CONTAINER FOR DISPOSAL.
Product Disposal: WASTE FOR DILUTED PRODUCT MAY BE FLUSHED TO SEWER. UNDILUTED PRODUCT RECOVERED FROM SPILLS MAY BE SENT TO A LICENSED DISPOSAL FACILITY TO BE DISPOSED OF IN ACCORDANCE WITH FEDERAL/STATE REGULATIONS AND LOCAL ORDINANCES.
Container Disposal: TRIPLE RINSE EMPTY CONTAINER THOROUGHLY WITH WATER AND DISCARD IN REGULAR TRASH COLLECTION IF ALLOWED BY LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 7. HEALTH HAZARD DATA

Symptoms of Overexposure:

Eye Contact: EYE IRRITANT. IF NOT PROMPTLY TREATED, EYE DAMAGE MAY RESULT.

Skin Contact: SKIN IRRITANT. IRRITATION CAN OCCUR FROM CONTACT WITH CONCENTRATED PRODUCT OR FROM PROLONGED CONTACT WITH DILUTED PRODUCT. REPEATED OR PROLONGED EXPOSURE TO DILUTED PRODUCT MAY LEAD TO DERMATITIS.

Inhalation: NO HEALTH EFFECTS ARE KNOWN TO OCCUR FROM INHALATION OF THIS PRODUCT UNDER NORMAL USE IN A WELL VENTILATED AREA. HIGH AIRBORNE CONCENTRATIONS OF MISTS OR SPRAYS OF THIS PRODUCT MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT.

Ingestion: MAY CAUSE STOMACH PAIN CRAMPS, VOMITING AND NAUSEA.

THE 2 BUTOXY ETHANOL, DIPROPYLENE GLYCOL, AND SODIUM SILICATE LISTED IN SECTION 2 ARE NOT LISTED ON THE OSHA, NTP OR IARC MONGRAPH CARCINOGEN LISTS.
Primary Route(s) of Entry: SKIN,

SECTION 8. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: IMMEDIATELY FLUSH THE EYE WITH LARGE QUANTITIES OF RUNNING WATER FOR A MINIMUM OF 15 MINUTES. HOLD THE EYELIDS APART DURING THE IRRIGATION TO ENSURE FLUSHING OF THE ENTIRE SURFACE OF THE EYE LID WITH WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Skin Contact: FLUSH THE EFFECTED AREA WITH LARGE QUANTITIES OF RUNNING WATER WHILE REMOVING CONTAMINATED CLOTHES AND SHOES. WASH CLOTHING BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Inhalation: REMOVE FROM CONTAMINATED AREA. IF SYMPTOMS OF RESPIRATORY DISCOMFORT PERSISTS, GET MEDICAL ATTENTION.
Ingestion: REQUIRES IMMEDIATE MEDICAL MANAGEMENT. DRINK MILK OR WATER AND GET MEDICAL ADVICE. VOMITING SHOULD BE INDUCED ONLY ON RECOMMENDATION OF MEDICAL PERSONNEL.

SECTION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Ventilation: ROOM VENTILATION IS ADEQUATE.
Protection Gloves: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Eye Protection: NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
Other Protective Clothing/Equipment: WHERE EYE OR SKIN CONTACT MAY OCCUR, USE APPROPRIATE PROTECTIVE EQUIPMENT.

SECTION 10. ADDITIONAL INFORMATION AND PRECAUTIONS

Handling and Storage Precautions: STORE IN A COOL DRY PLACE. REPLACE CAP AFTER USE. KEEP OUT OF REACH OF CHILDREN.
SARA TITLE III H&P RATINGS: Acute: YES, Chronic: NO Fire: NO
Press. Release: NO, Reactive: NO
NFPA RATING: HEALTH -2 FIRE -0 REACTIVITY -0 SPECIFIC -0

SECTION 11. REGULATORY CLASSIFICATIONS

NON-REGULATED

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

National Sanitary Supply Co.
P.O. Box 61126
Los Angeles, Ca 90061
(213) 770-1970

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COD GENERAL ELECTRIC
1401 E. VALENCIA
TUCSON AZ 85706

Dear Customer,

Enclosed are the Material Safety Data Sheets (MSDSs) for products that your company recently purchased from National Sanitary Supply as required by the federal OSHA Hazard Communication Final Standard 29 CFR 1910. 1200.

National Sanitary is providing its customers with MSDSs to comply fully with the provisions of OSHA Standard and, by so doing, is attempting to help reduce in number and severity the incidence of chemical source injuries and illnessess in the workplace. It is hoped that by increasing the awareness of all who handle "hazardous" materials, the risk of injury will thereby be reduced. Please make these MSDSs readily available to all employees handling the chemicals.

Additionally, under the Standard, all chemical products are to have labels which are in English, legible and prominently displayed on the container. Please refuse any shipment of products in which the labels have become either disattached or illegible.

This letter and accompanying MSDS (s) were generated by our computer system which has been programmed to automatically print and mail MSDSs upon a customer's initial order of a "hazardous" product and when any updates occur in MSDSs already provided.

If you still have questions regarding the Standard or the interpretation of information on the MSDS (s) provided, please contact your appropriate sales representative.

Sincerely,

Maria F. Frias
Executive Administration

NATIONAL SANITARY SUPPLY CO.
13217 S. Figueroa Street
Los Angeles, California 90061

MANUFACTURER:
SANI-FRESH INTERNATIONAL INC
4702 GOLDFIELD DRIVE
SAN ANTONIO, TX 78218
MEDICAL EMERGENCY 1-800-228-5635 EXT. 140
CHEM-TEL 1-800-255-3924
INFORMATION 1-210-661-5374

SECTION 1. IDENTIFICATION OF PRODUCT

Product Name: SANI-TUFF SUPER DUTY CLEANSER W/GRIT
Product Code: 91748 (38lb.)
Product Code: 91757 (18lb.)

Date Issued: 01/30/95
Supercedes: 06/27/89
National Item#: 1082XX

SECTION 2. INGREDIENTS

INGREDIENTS	OSHA PEL	ACGIH TLV	%	CAS #
COCOAMPHODIACETATE	NE	NE	<10	68650-39-5
LINOLEAMIDE DEA	NE	NE	<10	56863-02-6
D-LIMONENE (DIPENTENE)	NE	NE	<10	5989-27-5
NONOXYNOL-9	NE	NE	<10	9016-45-9
POLYETHYLENE	NE	NE	<10	9002-88-4
NON-HAZARDOUS INGREDIENTS	NA	NA	BAL.	

UNIDENTIFIED INGREDIENTS ARE NOT CONSIDERED HAZARDUS UNDER THE FEDERAL HAZARD COMMUNICATION STANDARD (29 CFR-1910.1200).
N/A = Not Applicable; N/D = Not Determined

SECTION 3. PHYSICAL DATA

Boiling Point (F): 200-220
Vapor Pressure (mm Hg.): NE
Vapor Density (Air=1): (air + 1): NE
Evaporation Rate (Bu.Ac.=1): <1
Solubility in Water: APPRECIALBLE
Appearance and Odor: GREEN VISCOUS LIQUID WITH CITRUS ODOR

Specific Gravity (H2O=1): 0.974
PH: 7.5 - 8.5
Percent Volatile by Volume (Minus Water): <10
Reactivity in Water: NONE

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point: NONE Method Used: C.O.C. - ASTM-D-92 & PMCC ASTM-D-93
Flammable Limits: LEL= N/A UEL= N/A

Extinguishing Media: USE MEDIA SUITABLE FOR SURROUNDING MATERIALS.

Special Fire Fighting Procedures: NO SPECIAL PROCEDURES REQUIRED.

Unusual Fire & Explosion Hazards: NONE KNOWN

Product Name: SANI-TUFF SUPER DUTY CLEANSER W/GRIT
National Item#: 1082
Date Issued: 01/30/95

SECTION 5. REACTIVITY DATA

Stability: NORMAL STABLE
Incompatibility -
Material to Avoid: NONE KNOWN

Hazardous Polymerization:

Hazardous Decomposition Products: NONE KNOWN

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions to Be Taken In Handling and Storage:
RECOMMEND STORAGE BETWEEN 40 F (5C) AND 100 F (37C).
Other Precautions: NONE
Steps to Be Taken In Case Material is Released or Spilled:
CLEAN UP WITH ABSORBENT MATERIAL.
Waste Disposal Methods (Consult Federal, State & Local Regulations:
DISPOSE IN ACCORDANCE WITH FEDERAL, STATE & LOCAL REGULATIONS.

SECTION 7. HEALTH HAZARD DATA

Signs & Symptoms of Overexposure: PROLONGED INHALATION OF MIST MAY CAUSE MILD RESPIRATORY IRRITATION. PROLONGED CONTACT MAY CAUSE MILK SKIN IRRITATION IN SENSITIVE INDIVIDUALS.
Medical Conditions Generally Aggravated by Exposure: NONE KNOWN

SECTION 8. EMERGENCY FIRST AID

Emergency First Aid:
Inhalation: MOVE VICTIM TO FRESH AIR. GET MEDICAL HELP IF IRRITATION PERSISTS.
Skin: WASH AFFECTED AREA WITH LARGE AMOUNTS OF WATER. GET MEDICAL HELP IF IRRITATION PERSISTS.
Eyes: IMMEDIATELY FLUSH EYES WITH LARGE AMOUNT OF WATER FOR AT LEAST 15 MINUTES WHILE HOLDING THE EYE LIDS OPEN. GET PROMPT MEDICAL ATTENTION.
Ingestion: CONTACT LOCAL POISON CONTROL CENTER OR PHYSICIAN IMMEDIATELY.

Routes of Entry:
Eyes: MAY OCCUR
Skin: MAY OCCUR
Inhalation: HIGHLY UNUSUAL
Ingestion: MAY OCCUR BUT UNLIKELY
Chemical Listed as Carcinogen or Potential Carcinogen:
National Toxicology Program: THIS PRODUCT DOES NOT CONTAIN ANY CARCINOGENS
I.A.R.C.: (AT 0.1% OR GREATER) AS DEFINED BY IARC, NTP, OR OSHA.
OSHA : OSHA

Product Name: SANI-TUFF SUPER DUTY CLEANSER W/GRIT
National Item#: 1082
Date Issued: 01/30/95

SECTION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NOT NORMALLY REQUIRED
Ventilation: NOT NORMALLY REQUIRED
Local Exhaust: ADEQUATE
Mechanical: ADEQATE
Protection Gloves: NOT NORMALLY NEEDED
Eye Protection: IF POTENTIAL FOR EYE CONTACT EXISTS, WEAR CHEMICAL GLASSES
Clothing or Equipment: NONE NORMALLY REQUIRED
Work/Hygienic Practices: CLEAN-UP ALL SPILLS IMMEDIATELY. PRACTICE GOOD PERSONAL HYGIENE.

HMIS RATINGS: HEALTH -0 FIRE -0 REACTIVITY -0
PERSONAL PROTECTION: A-(SAFETY GLASSES)

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

.102 ø .012 binding wire

National-Standard

MATERIAL SAFETY DATA SHEET

169

Revision Date: January 1986

I. MATERIAL IDENTITY

Manufacturer's Name & Address:
NATIONAL-STANDARD COMPANY, 1618 Terminal Road, Niles, Michigan 49120

Emergency Phone No.
(616) 683-8100

Chemical Name & Synonyms:
Armature Banding Wire (Tinned)

Product Name/Trade Name:
Tin-Copper-Plated Stainless Steel Wire

Recommended Use:
Ingredients and % Weight Vary According to Order Specification

II. GENERIC INGREDIENTS

		CAS#	% Wt.	Permissible Exposure Limits	Units
Base Metal:	Iron	7439-89-6	64-80	As Iron Oxide Fume	10 mg/M³
Alloys:	Manganese	7439-96-5	2.0 Max	As Manganese	5 mg/M³
	Carbon	7440-44-0	0.12 Max	None Listed	-
	Chromium	7740-47-3	17-19.0	As Soluble Chromic - Chromous Salts	.5 mg/M³
				- Chrome & Insoluble Salts	1 mg/M³
	Nickel	7740-02-0	10-13.0	As Nickel	1 mg/M³
	Silicon	7440-21-3	1.0 Max	None Listed	-
Plating:	Tin	7440-31-5	1.0 Max	As Tin	2 mg/M³
	Copper	7440-50-8	2.0 Max	As Copper	.2 mg/M³

Coatings: *Optional-Light surface coatings (less than 1% total product weight) of Petroleum Oil, Wax or Soap.*

NOTE: Use gloves when handling to prevent skin irritation.

III. PHYSICAL DATA

1. BOILING POINT - NA
2. VAPOR PRESSURE - NA
3. VAPOR DENSITY - NA
4. SOLUBILITY IN WATER - NA
5. SPECIFIC GRAVITY - 7
6. % VOLATILE BY VOLUME - NA
7. EVAPORATION RATE - NA
8. AUTO IGNITION TEMP. - NA
9. APPEARANCE & ODOR - grey-black & odorless
10. PHYSICAL STATE - SOLID
11. pH - NA

IV. EMERGENCY MEDICAL PROCEDURE

1. FIRST AID:

In case of excessive exposure, remove to fresh air, administer oxygen, and seek physician's assistance.

2. NOTES TO PHYSICIAN:

V. PERSONAL PROTECTION ITEMS

Specify Types & Kinds:

1. Respiratory Protection — NIOSH approved dust/mist/fume respirator if OSHA PEL is exceeded
2. Protective Clothing
3. Gloves — Depending on use, consult local, state and federal codes for appropriate selection.
4. Eye Protection
5. Ventilation Requirements
6. Other - As Per Welding Requirements

VI. HEALTH HAZARD DATA

NOTE

Steel products in the natural state do not present an inhalation, ingestion, or contact hazard. However, operations such as burning, welding, sawing, brazing, and grinding may result in the following effects if exposures exceed permissible limits as listed in Section II.

(X) Major Exposure Hazard - [X] Inhalation [ ] Skin Contact [ ] Skin Absorption [ ] Eye Contact [ ] Ingestion

Effects of Overexposure:

ACUTE:	Iron (Iron-Oxide)	- Irritation of eyes, nose, throat, metallic taste in mouth, or metal fume fever.
	Manganese	- Irritation of eyes, nose, throat, metallic taste in mouth, or metal fume fever.
	Chromium	- Irritation of eyes, nose and lungs; dermatitis.
	Nickel	- Irritation of eyes, nose and lungs; dermatitis.
	Tin	- Mild irritant to skin and mucous membranes.
	Copper	- Irritation of eyes, nose, throat, metallic taste in mouth, metal fume fever.
CHRONIC:	Iron (Iron-Oxide)	- Pulmonary effects, siderosis.
	Manganese	- Bronchitis, pneumonitis, lack of coordination.
	Chromium	- Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induces human cancer.
	Nickel	- Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induces human cancer.
	Tin	- Inorganic tin dust/fumes can cause benign pneumoconiusis of the lungs (stannosis).
	Copper	- Pulmonary effects.

VII. FIRE & EXPLOSION DATA

1. Flash Point - NA
2. Lower Explosive Limit - NA
3. Upper Explosive Limit - NA
4. Extinguishing Media - NA
5. Special Fighting Precautions - NA

VIII. REACTIVITY DATA

1. Stable - Yes
2. Incompatibility - None
3. Products of Decomposition:

   A) Metal Fume: Iron-Oxide
   B) Manganese, Chromium, Nickel

IX. SPILL/LEAK PROCEDURE

1. Clean-up - NA
2. Waste Disposal - NA

X. SPECIAL PRECAUTIONS

1. Handling Storage - NA
2. Welding & Cutting - Adequate ventilation and/or approved respiratory protection should be provided if PEL is extended.
3. Other Precautions - N

Form 1018

5502

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Ship breaking (29 CFR 1915, 1916, 1917)

SECTION 1

MANUFACTURER'S NAME: John P. Nissen Jr., Co.
ADDRESS: 2544 Fairhill Ave. Glenside, Pa. 19038
CHEMICAL NAME & SYNONYMS: N/A
CHEMICAL FAMILY: Paint

EMERGENCY TELEPHONE NUMBER: (215) 884-8213
OFFICE TELEPHONE NUMBER: (215) 886-2025
TRADE NAME & SYNONYMS: White Nissen Solid Paint Marker
FORMULA: N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES & SOLVENTS	CAS #	%	TLV
PIGMENTS:			
Titanium dioxide	1317-80-2	24	
SOLVENTS:			
* Ethylene Glycol Monobutyl Ether	111-76-2	37.5	50ppm
VEHICLES:			
DiButyl Phthalate	84-74-2	38.5	
Cellulose Acetate Butylate	9004-36-8		
Ketone Resin	25086-25-3		

SECTION III - PHYSICAL DATA

BOILING POINT (F):	* 336-343	**SPECIFIC GRAVITY (H2O=1) @77F**		1.20
VAPOR PRESSEURE (MM Hg):	* 0.6	**PERCENT VOLATILE BY VOLUME (%)**		42
VAPOR DENSITY (AIR = 1):	* 4.1	**EVAPORATION RATE (N.BU.ACET.=1)**	*	0.06
SOLUBILITY IN WATER:	Negligible			
APPEARANCE AND ODOR:	White solid with slight aromatic solvent odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

	FLAMMABLE LIMITS*	LEL	UEL
FLASH POINT (METHOD USED) *T.C.C. 142 F		1.1%	11.0%

EXTINGUISHING MEDIA: DRY CHEMICAL, FOAM OR CARBON DIOXIDE
SPECIAL FIRE FIGHTING PROCEDURES: NONE
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: (*) 50 ppm 8 Hr. time weighted permissable exposure.
EFFECTS OF OVEREXPOSURE: Not likely to occur. Inhalation: Temporary dizziness, headache and possibly nausea. Symptoms disappear when exposure ceases.
EMERGENCY AND FIRST AID PROCEDURES: Remove patient to fresh air.

SECTION VI - REACTIVITY DATA

STABILITY: UNSTABLE ___ STABLE X CONDITIONS TO AVOID
INCOMPATIBILITY (MATERIALS TO AVOID) None
HAZARDOUS DECOMPOSITION PRODUCTS: Burning may release CO and CO2
HAZARDOUS POLYMERIZATION: MAY OCCUR ___ MAY NOT OCCUR X CONDITIONS TO AVOID

(*) Ethylene Glycol Monobutyl Ether

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Pick up or wipe up material (same as other paints or protective coatings).
WASTE DISPOSAL METHOD: Normal disposal methods in accordance with local state and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): None in normal working conditions.
VENTILATION: LOCAL EXHAUST - NONE MECHANINCAL(general) - NONE SPECIAL - NONE OTHER - NONE
PROTECTIVE GLOVES: NONE EYE PROTECTION - NONE OTHER PROTECTIVE EQUIPMENT - NONE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep away from heat sparks and open flames.
OTHER PRECAUTIONS: None

MATERIAL SAFETY DATA SHEET 5501

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: John P. Nissen Jr., Co.	EMERGENCY TELEPHONE NO.: (215) 884-8213
ADDRESS: 2944 Fairhill Ave Glenside, PA 19038	(Off. Tele (215) 886-2025
CHEMICAL NAME & SYNONYMS: N/A	TRADE NAME AND SYNONYMS: YELLOW Nissen Solid Paint Marker
CHEMICAL FAMILY: Paint	FORMULA: N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	CAS #	%	TLV
PIGMENTS		22	
Titanium Dioxide	1317-80-2		—
Yellow Pig. CI Pig. 83	5567-15-7		—
SOLVENTS:			
* Ethylene Glycol Monobutyl Ether	111-76-2	39.5	50ppm
VEHICLES		38.5	
DiButyl Phthalate	84-74-2		—
Cellulose Acetate Butylate	9004-36-8		—
Ketone Resin	25086-25-3		

SECTION III - PHYSICAL DATA

BOILING POINT(°F.)	336-343	SPECIFIC GRAVITY(H_2O=1) @77°F	1.15
VAPOR PRESSURE (MM Hg)	0.6	PERCENT VOLATILE BY VOLUME(%)	42
VAPOR DENSITY(AIR=1)	4.1	EVAPORATION RATE (N. BU.ACET.=1)	0.06
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND ODOR: Yellow solid with slight aromatic solvent odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT(METHOD USED) T.C.C. 142°F	FLAMMABLE LIMITS	LEL 1.1%	UEL 11.0%

EXTINGUISHING MEDIA: Dry chemical, foam or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

(CONTINUED ON REVERSE SIDE)

Form OSHA-20
Rev. May 72

PREPARED 10/3/84

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (*) 50ppmn 8 Hr. time weighted permissable exposure.

EFFECTS OF OVEREXPOSURE Not likely to occur. Inhalation: Temporary zziness, headache and possibly nausea. Symptons disappear when exposure cease

EMERGENCY AND FIRST AID PROCEDURES Remove patient to fresh air.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY(materials to avoid) None

HAZARDOUS DECOMPOSITION PRODUCTS Burning may Release CO and CO_2

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	MAY NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Pick up or wipe-up material(same as other paints or protective coatings.)

WASTE DISPOSAL METHOD

Normal disposal methods in accordance with local state and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION(specify type) None in normal working conditions

VENTILATION	LOCAL EXHAUST	----	SPECIAL	----
	MECHANICAL(general)	----	OTHER	----

PROTECTIVE GLOVES ----	EYE PROTECTION ----

OTHER PROTECTIVE EQUIPMENT None

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep away from heat sparks and open flames

OTHER PRECAUTIONS None

PREPARED: 10/3/84

(*) Ethylene Glycol MonoButyl Ether.

DATE PRINTED: 3/24/1995 PAGE 1
MSDS NO. SAWHEELOOO OUTBOUND
Diamond or Cubic Boron Nitride Grinding Wheels

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

MANUFACTURER
Norton Company, 1 New Bond St.
Worcester, MA, 01615
(508) 795-5000

REVISION DATE
3/24/1995

MSDS PRINT FORMAT
NORTONUSA

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
Silver(*)	80.000- 85.000	7440-22-4
Cobalt(*)	55.000- 60.000	7440-48-4
Copper(*)	80.000- 85.000	7440-50-8
Tin	20.000- 25.000	7440-31-5
Graphite Powder	15.000- 20.000	7782-42-5
Silicon carbide	65.000- 73.000	409-21-2
Aluminum oxide	75.000- 81.000	1344-28-1
Nickel(*)	75.000- 82.000	7440-02-0
Phosphorus - yellow	1.000	7723-14-0
Manganese(*)	3.000	7439-96-5
Molybdenum	1.000	7439-98-7
silicon	5.000	7440-21-3
@Crystalline Silica, Quartz	1.000	14808-60-7
Tungsten Carbide	70.000- 75.000	12070-12-1

OTHER
(*) This substance is regulated under section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and the Canadian National Pollution Reduction Initiative (RPRI).
(@) Actual grinding tests with wheels known to contain crystalline Silica did not produce any detectable amount of respirable free Crystalline Silica.
The grinding wheel may be comprised of only some of the above.

SECTION 3. HAZARDS IDENTIFICATION

INHALATION ACUTE EXPOSURE EFFECTS
Dust my be slightly irritating to eyes and respiratory tract at high concentrations.

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
obtain medical assistance.

SECTION 5. FIRE FIGHTING MEASURES

SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

FIRE FIGHTING PROCEDURES
NIA

HAZARDOUS PRODUCTS/COMBUSTION
None

SECTION 6. ACCIDENTAL RELEASE MEASURES

CLEAN-UP
Follow normal clean up procedures

SECTION 7. HANDLING AND STORAGE

HANDLING
Always HANDLE AND STORE wheels in a CAREFUL manner.
Always VISUALLY INSPECT all wheels before mounting.
Always CHECK MACHINE SPEED against the established maximum safe operating speed MARKED ON THE WHEEL.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION PROTECTION
Handle with adequate ventilation. see OSHA 29 CFR 1910.94 (ventilation) and 29 CFR 1910.1000 (Air contaminants).

RESPIRATORY PROTECTION
Respirators are required when airborne contaminant levels exceed the TLV(s).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

EYE PROTECTION
Always WEAR SAFETY GLASSES or some type of eye protection when grinding.

OTHER PROTECTION
Use of this product may create elevated sound levels. Nearing protection should be worn where required.(see OSHA 29CFR1910.134 and other applicable regulations)

EXPOSURE LIMITS/REGULATORY INFORMATION

SUBSTANCE DESCRIPTION	REG. AGCY	PEL	TLV	STEL
Silver(*)				
	OSHA	0.0100	0.0000	0.0000
	ACGIH	0.0000	0.1000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Cobalt(*)				
	OSHA	0.1000	0.0000	0.0000
	ACGIH	0.0000	0.0500	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Copper(*)				
	OSHA	1.0000	0.0000	0.0000
	ACGIH	0.0000	1.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Tin				
	OSHA	2.0000	0.0000	0.0000
	ACGIH	0.0000	2.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Graphite Powder	OSHA	10.0000	0.0000	0.0000
	ACGIH	0.0000	2.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

Silicon Carbide				
	OSHA	10.0000	0.0000	0.0000
	ACGIH	0.0000	10.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Aluminum oxide				
	OSHA	10.0000	0.0000	0.0000
	ACGIH	0.0000	10.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Nickel(*)				
	OSHA	1.0000	0.0000	0.0000
	ACGIH	0.0000	1.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Phosphorus - yellow				
	OSHA	0.1000	0.0000	0.0000
	ACGIH	0.0000	0.1000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Manganese(*)				
	OSHA	1.0000	0.0000	0.0000
	ACGIH	0.0000	1.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Molybdenum				
	OSHA	10.0000	0.0000	0.0000
	ACGIH	0.0000	10.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Silicon				
	OSHA	10.0000	0.0000	0.0000
	ACGIH	0.0000	10.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000

@Crystalline Silica, Quartz

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

	OSHA	0.1000	0.0000	0.0000
	ACGIH	0.0000	0.1000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000
Tungsten Carbide				
	OSHA	0.0000	0.0000	0.0000
	ACGIH	0.0000	0.0000	0.0000
	NIOSH	0.0000	0.0000	0.0000
	MOL	0.0000	0.0000	0.0000

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS
CEIL Ceiling Exposure Limit
PEL Permissible Exposure Limit
STEL Short Term Exposure Limit
TLV Threshold Limit Value
TWAEV Time weighted ave. exp. value

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR
Solid article, Odorless

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES

DECOMPOSITION
In use, dusts are generated. In most cases, the airborne material removed from the workplace will be significantly greater than the grinding wheel components. Coolants may produce other decomposition products.

SECTION 11. TOXICOLOGICAL INFORMATION

INHALATION CHRONIC EXPOSURE EFFECTS
Chronic: May affect breathing capacity.

SECTION 12. ECOLOGICAL INFORMATION

CHEMICAL FATE
vitrified products do not appreciably decay.
Resin bonded materials demonstrate similar degradation rates as Phenolic plastics.
Metal bonded products do not appreciably decay.

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.

SECTION 15. OTHER INFORMATION

SECTION 15. OTHER INFORMATION (CONTINUED)

CARCINOGENICITY
Nickel - EPA-A, IARC-2B, NTP-2, NIOSH-X, MAK-A1; Cobalt - IARC-28, MAK-A2; Crystalline Silica(Quartz) - IARC-2A, NIOSH-X, NTP-2

CA PROP 65
This product contains chemicals, Crystalline Silica, Nickel and Cobalt, known to the State of California to cause cancer and/or birth defects or other reproductive harm.

TSCA
Section 8(b) - Inventory Status

Alt components of this product are registered under the regulations of the Toxic Substance Control Act.

MATERIAL SAFETY DATA SHEET (MSDS)

Please retain for your records.

MATERIAL SAFETY DATA SHEET 7S885
2D749-2D780
2D782-2D789
2D916-2D943
[redacted]ON 48142-48190

NFPA HAZARD RATING
Health Rating: 1
Flammability Rating: 0
Reactivity Rating: 0

SECTION I - NAME AND PRODUCT
MANUFACTURER'S NAME: NORTON COMPANY
ADDRESS: 1 NEW BOND STREET, WORCESTER, MA 01615-0008
TRADE NAME: COMMON NAME OR SPECIFICATION:
RESINOID BONDED GRINDING WHEELS
CHEMICAL FAMILY OR PRODUCT TYPE: ANY GRADE
CONTACT: RONALD L. KARBOWSKI
EMERGENCY TELEPHONE NO.: 508-795-2255
APPROVED BY:
DATE: 2/11/92

SECTION II - COMPOSITION PER 29CFR 1910.1200 (G) (4)

CHEMICAL NAME/COMMON NAME (CAS #)	MAX %	REG * (Y/N)	OSHA PEL	ACGIH TLV	CARCINOGEN* (Y/N)
Alpha-Alumina/Alundum, Seeded Gel (1344-28-1)	90	Y	10mg/m3 (Total Dust)	10mg/m3 (Total Dust)	N
Silicon Carbide/Crystolon (409-21-2)	90	Y	10mg/m3 (Total Dust)	10mg/m3 (Total Dust)	N
Zirconia Alumina/NZ,ZF,ZS (**NAIF)	90	Y	5mg/m3 (as Zirconium)	5mg/m3 (as Zirconium)	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	3	Y	2.5mg/m3	2.5mg/m3	N
Calcium Oxide/Lime (1305-78-8)	3	Y	5mg/m3	2mg/m3	N
Glass, Fibrous or Dust/ Fiberglass (**NAIF)	10	Y	**NAIF	10mg/m3	N
(1)Silicon Dioxide/ Crystalline Silica (14808-60-7)	<1	Y	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.
1-Actual grinding tests with wheels known to contain Crystalline Silica did not product any detectable amount of respirable free Silica.

SECTION III - PHYSICAL AND CHEMICAL DATA
BOILING POINT: **NAIF
VAPOR PRESSURE: **NAIF
EVAPORATION RATE: **NAIF
MELTING POINT: **NAIF
PERCENT VOLATILE BY VOL: **NAIF
SOLUBILITY IN WATER: Slight
SPECIFIC GRAVITY: 2-4
[redacted]G DENSITY: **NAIF
[redacted]UBILITY IN ALCOHOL: **NAIF
[redacted]UBILITY IN OTHER SOLVENT: **NAIF
[redacted]EARANCE 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: STABLE
POLYMERIZATION: WILL NOT OCCUR
INCOMPATIBILITY (MATERIALS TO AVOID):
DECOMPOSITION PRODUCTS:
In use, dust and decomposing odors are generated. In most cases, the 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

SECTION VI - HEALTH, FIRST AID AND MEDICAL DATA
PRIMARY ROUTE(S) OF ENTRY:
INHALATION (During Grinding):
ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:
ACUTE: POSSIBLE COUGH
CHRONIC: MAY AFFECT BREATHING CAPACITY.
FIRST AID AND MEDICAL INFORMATION:
REMOVE TO FRESH AIR. ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ASSISTANCE.
INGESTION (During Grinding):
ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:
NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.
FIRST AID AND MEDICAL INFORMATION:
OBTAIN MEDICAL ASSISTANCE.
SKIN (During Grinding) CONTACT & ABSORPTION:
ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:
SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.
FIRST AID AND MEDICAL INFORMATION:
WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.
EYE (During Grinding):
ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:
DUST MAY IRRITATE EYES.
FIRST AID AND MEDICAL INFORMATION:
WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.
OTHER POTENTIAL HEALTH RISKS (During Grinding):
ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE:
GRINDING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING AND MAY AGGRAVATE PREEXISTING RESPIRATORY CONDITIONS.
FIRST AID AND MEDICAL INFORMATION:
OBTAIN MEDICAL ASSISTANCE. THERE IS LIMITED INFORMATION THAT CRYSTALLINE SILICA IS A CARCINOGEN.

SECTION VII - STORAGE, HANDLING AND USE PROCEDURES
NORMAL STORAGE AND HANDLING:
SEE ANSI STANDARD B7.1.
[redacted]AL USE:
HANDLE WITH ADEQUATE VENTILATION. SEE OSHA 29CFR 1910.94 (VENTILATION) AND 29CFR1910.1000 (AIR CONTAMINANTS)
[redacted] TO BE TAKEN IN CASE OF LEAKS OR SPILLS:
NORMAL CLEANUP PROCEDURES.

WASTE DISPOSAL METHODS:
STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS. PRODUCTS WITH LISTED FLUORIDES MAY HAVE SLIGHTLY SOLUBLE FLUORIDE SHARE.

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: RECOMMENDED
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: ***N/A
FLAMMABLE LIMITS:
LEL: N/A
UEL: ***N/A
EXTINGUISHING MEDIA: USE WATER
SPECIAL FIRE FIGHTING PROCEDURES: NONE
EXPLOSION POTENTIAL: **NAIF

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.

**NAIF = NO APPLICABLE INFORMATION FOUND ***N/A = NOT APPLICABLE

MATERIAL SAFETY DATA SHEET (MSDS)
Please retain for your records.

"G" Rating
Health Reactivity
"34-6A451 MATERIAL SAFETY DATA SHEET Rating Rating
[redacted]RD RATING
[redacted]use rate consistent with NFPA code

SECTION I NAME AND PRODUCT -2SF9I-

MANUFACTURERS NAME
Norton Company
ADDRESS (STREET, CITY, STATE AND ZIP CODE)
Highland Ave., Littleton, N.H. 03561
TRADE NAME, COMMON NAME OR SPECIFICATION
Sharpening Stones
CHEMICAL FAMILY OR PRODUCT NAME

CONTACT
P.H. Cullen
EMERGENCY (TELEPHONE NO.)
603-444-3947
APPROVED BY P.H. Cullen
DATE 2/17/68

SECTION II COMPOSITION

CHEMICAL NAME (Y/N)	OSHA CARCIN #	COMMON NAME EXPOSURE LIMIT	REG.* TLV	CAS (Y/N)	PERMISSIVE	ACGIH	OGEN*
Alpha Alumna (Total dust standard)		Alundum	Y	1344-28-1	15mg/m3	10mg/m3	N
Silicon Carbide		Crystolon	Y	408-21-2	15mg/m3	10mg/m3	N

(Sharpening Stones are articles not regulated by the OSHA Hazard communication standard 2GCFR1910-1200)

(This information is provided as a customer service).

*Materials are regulated by OSHA CFR 1910.1200, Hazard Communication Standard, and/or the Massachusetts General Law Chapter 111F, Right To Know Regulations

SECTION III PHYSICAL AND CHEMICAL DATA

BOILING POINT NAIF MELTING POINT NAIF SPECIFIC GRAVITY 3-5
VAPOR PRESSURE NAIF PERCENT VOLATILE BY VOL NAIF VAPOR DENSITY NAIF
EVAPORATION RATE NAIF SOLUBILITY IN WATER SLIGHT SOLUBILITY IN ALCOHOL NAIF
SOLUBILITY IN OTHER SOLVENT
NAIF
APPEARANCE AND ODOR
SOLID FORMED ARTICLE

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT NAIF (METHOD USED) N/A FLAMMABLE LIMITS LEL
N/A UEL N/A
EXTINGUISHING MEDIA NOT A COMBUSTIBLE ARTICLE
SPECIAL FIRE FIGHTING PROCEDURES NONE
EXPLOSION POTENTIAL ARTICLE DOES NOT HAVE EXPLOSIVE PROPERTIES

SECTION V HEALTH, FIRST AID AND MEDICAL DATA

PRIMARY ROUTE(S) OF ENTRY	ACUTE AND CHRONIC HEALTH EFFECTS AND EFFECTS OF OVEREXPOSURE	FIRST AID AND MEDICAL INFORMATION
INHALATION	Sharpening stones under normal use are articles which do not release or otherwise result in exposure	NAIF
[redacted]STION	to a hazardous chemical	
[redacted]estion not recommended		NAIF
SKIN CONTACT & ABSORPTION	Sharpening stone may in some applications physically scratch skin.	Wash affected area with soap and water. If needed obtain medical assistance
EYE	As a solid formed article no known affects.	NAIF
OTHER POTENTIAL HEALTH RISKS NAIF		NAIF

SECTION VI CORROSIVITY AND REACTIVITY DATA

STABILITY UNSTABLE STABLE X POLYMERIZATION MAY OCCUR WILL NOT OCCUR

INCOMPATIBILITY (MATERIALS TO AVOID)
Avoid acids of all type with PH <= 4.0

DECOMPOSITION PRODUCTS During normal use airborne dust generation should be difficult to detect. The user should be aware of the health and safety characteristics of the material being worked on and other agents used to enhance stick performanc

CONDITIONS TO BE AVOIDED
NAIF

SECTION VII STORAGE, HANDLING AND USE PROCEDURES

NORMAL STORAGE AND HANDLING

Store to prevent physical abuse, see Section VI

NORMAL USE

See Section VI

STEPS TO BE TAKEN IN CASE OF LEAKS OR SPILLS

N/A

WASTE DISPOSAL METHOD
Standard landfill methods consistent with applicable Federal, State, and Local laws.

SECTION VIII PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)		Under Normal Use N/A
VENTILATION	LOCAL	Under Normal Use N/A
MECHANICAL (GENERAL)	Under Normal Use N/A	
OTHER	NAIF	
[redacted]CTIVE GLOVES		As desired by user
[redacted]ROTECTION		Recommended
[redacted]R EQUIPMENT		NAIF

MEASURES TO BE TAKEN DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT THAT HAS BEEN IN CONTACT WITH THIS MATERIAL

See Section VI, VII, and VIII

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
None
OTHER PRECAUTIONS
NAIF

FOR COMPANY USE

*NAIF=NO APPLICABLE INFORMATION FOUND ***N/A=NOT APPLICABLE Form 4961
Rev. 5/84

33983/GENERAL ELECTRIC SERVICE /NVFPHENOL

MATERIAL SAFETY DATA SHEET — U.S. DEPARTMENT OF LABOR

MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. STANDARD MUST BE CONSULTED FOR SPECIFIC REQUIREMENTS

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
(NON-MANDATORY FORM)
FORM APPROVED
OMB NO. 1218-0072

IDENTITY (AS USED ON LABEL AND LIST)
PHENOLITE SHEET, TUBE & ROD

NOTE: BLANK SPACES ARE NOT PERMITTED. IF ANY ITEM IS NOT APPLICABLE/NO INFORMATION IS AVAILABLE, THE SPACE MUST BE MARKED TO INDICATE THAT

SECTION: I

MANUFACTURER'S NAME
NVF COMPANY
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE)
LAFAYETTE & MULBERRY STS.
YORKLYN, PA 19348

EMERGENCY TELEPHONE NUMBER
(215) 444-2800
TELEPHONE NUMBER FOR INFORMATION
(215) 444-2800
DATE PREPARED
MAY 20, 1986
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)
FULLY CURED SOLID COMPOSITE OF A PHENOL-FORMALDEHYDE RESINS AND CELLULOSE REINFORCEMENTS.				

- THIS PRODUCT IS NOT CLASSIFIED AS HAZARDOUS -

NVF COMPANY CONSIDERS THESE PRODUCTS TO BE "ARTICLES" AS SOLD UNDER THE OSHA HAZARD COMMUNICATIONS STANDARD, 29 CFR 1910.1200 "ARTICLES" ARE DEFINED ESSENTIALLY AS MANUFACTURED ITEMS WHICH ARE FORMED INTO A SPECIFIC SHAPE OR DESIGN FOR A PARTICULAR END-USE FUNCTION AND WHICH WILL NOT RELEASE OR OTHERWISE RESULT IN EXPOSURE TO A HAZARDOUS CHEMICAL UNDER NORMAL CONDITIONS OF USE.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT	N.A.	SPECIFIC GRAVITY (H2O =1)	1.30
VAPOR PRESSURE (MM HG)	N.A.	MELTING POINT	N.A.
VAPOR DENSITY (AIR =1)	N.A.	EVAPORATION RATE (BUTYL ACETATE =1)	N.A.

APPEARANCE AND ODOR YELLOW-BROWN COLORED SOLID-SLIGHT ODOR OF PHENOL-FORMALDHYDE RESIN

SECTION IV—FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
	N.A.	—	—

EXTINGUISHING MEDIA
WATER, FOAM, CO2

SPECIAL FIRE FIGHTING PROCEDURES
NONE

UNUSUAL FIRE AND EXPLOSION HAZARD DATA
DUST FROM DRY FABRICATION OPERATIONS MAY BE EXPLOSIVE IF MIXED WITH AIR IN CRITICAL PROPORTIONS AND IN THE PRESENCE OF A SOURCE OF IGNITION. THIS HAZARD IS SIMILAR TO THAT OF ANY ORGANIC SOLID INCLUDING SAWDUST. MAINTAIN NORMAL GOOD HOUSEKEEPING PRACTICES TO CONTROL DUST.

SECTION V—REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE (X)	N.A.

INCOMPATIBILITY (MATERIALS TO AVOID) N.A.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: NONE

HAZARDOUS POLYMERIZATION:	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR (X)	

SECTION VI—HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: INHALATION? N.A. SKIN? N.A. INGESTION? NO

HEALTH HAZARDS (ACUTE AND CHRONIC) N.A.

CARCINOGENICITY N.A. NTP? N.A. IARC MONOGRAPHS? N.A. OSHA REGULALED? NO

SIGNS AND SYMPTOMS OF EXPOSURE: N.A.

EDICAL CONDITIONS
ENERALLY AGGRAVATED BY EXPOSURE; N.A.

MERGENCY AND FIRST AID PROCEDURES; N.A.

SECTION VII—PRECAUTIONS FOR SAFE HANDLING AND USE

TE TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
N.A.

ASLE DISPOSAL METHOD
NORMAL SOLID TRASH REMOVAL

RECAUTIONS TO BE TAKEN IN HANDLING AND STORING
NO SPECIFIC PRECAUTION -

THER PRECAUTIONS; NONE

SECTLON VIII—CONTROL MEASURES

ESPIRATORY PROTECTION (SPECIFY TYPE) IF DUST FROM DRY FABRICATION OPERATIONS IS NOT PROPERLY EXHAUSTED, A NIOSH APPROVED RESPIRATOR FOR NUISANCE DUST SHOULD BE WORN.

ENTILATION: YES - LOCAL EXHAUST PREFERABLE SPECIAL: NONE

MECHANICAL (GENERAL) ACCEPTABLE

OTHER N.A.

ROTECTIVE GLOVES: NONE REQUIRED

EYE PROTECTION : SAFETY GLASSES/GOGGLES

THER PROTECTIVE CLOTHING OR EQUIPMENT
NONE REQUIRED.

ORK/HYGIENIC PRACTICES
GOOD HOUSEKEEPING TO AVOID FABRICATION DUST.

33983/GENERAL ELECTRIC SERVICE /GE034137C

MATERIAL SAFETY DATA SHEET

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The P.D. George Company, 5200 N. Second Street, St. Louis, Missouri 63147
Telephone: (314) 621-5700 Emergency Telephone: (800) 535-5053

SECTION I, IDENTIFICAITON OF PRODUCT

CUSTOMER NAME: The P.D. George Company
PRODUCT NAME: STERLING U-958 RED THERMOPOXY
PRODUCT CODE: 34-137
LAST REV. DATE: 05/08/95

SECTION II, -- HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMER	% WGHT	VP (mmHg)	VD	PPM	MG/M3
IRON OXIDE		< 7	NA	NA	OSHA ND	15.00
	1332372				ACGIH ND	10.00
EPOXY RESIN		< 67	ND	ND	OSHA ND	ND
	25068386				ACGIH ND	ND
EPOXY DILUENT		< 12	ND	ND	OSHA ND	ND
	3101608				ACGIH ND	ND

HMIS 2:H 1:F O:R
PERSONAL PROTECTION:

SECTION III, PHYSICAL DATA

BOILING POINT: No data
EVVAPORATION RATE (BUTYL ETHER=1): <1
WEIGHT PER GALLON (25 C): 11.630 LS/GAL
VAPOR DENSITY (AIR=1): >1
VOLATILE BY WEIGHT: O.O%
VOLATILE BY VOLUME: O.O%
SPECIFIC GRAVITY: 1.40
VOC: For compliance with VOC regulations, the VOC content must be calculated on an "as applied' basis. The volatile weight and volatile by volume data on the MSDS should not e used to determine compliance with OC regulations.

SECTION IV, FIRE AND EXPLOSION HAZARD DATA

FLAMMAILITY CLASSIFICATION
OSHA: Comustile liquid class IIIB
FLASH POINT: 480F
LOWER EPLOSIVE LIMIT (LEL): NO DATA
UPPER EPLOSIVE LIMIT (UEL): NO DATA
ETINGUISHING MEDIA:
Carbon dioide, dry chemical, foam, and vaporizing liquid type etinguishing agents have all been found suitable for use on flammable liquid fires of miderate size. Warer spray (fog) is particularly effective on fires in flammale liquids and volatile solids having flash points above 100 F.; but with liquids having flash points above 212 F., frothing may occur.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
A straight stream of water will spread fire. A vapor accumulation will flash and/or explode if ignited. Containers may burst explosively if overheated in fire. Cool containers with water spray or fog. Empty containers may also present a fier and/or explsoion hazard due to residual vapors.
SPECIAL FIRE-FIGHTING PROCEDURES:
Remove all ignition sources. Keep personnel not involved with emergency activities away and upwind of fire. Water spray may be ineffective and may cause fire to spread. If water is used, fog nozzles are preferable. Water may be used to cool closed containers in order to prevent pressure build-up which may result in an explosion. Use self contained reathing apparatus and protective clothing.

SECTION V, HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: Inhalation: Y Skin Contact: Y
Ingestion: N
EXPOSURE LIMIT: Refer to Section II for complete PEL/TLV data.
ACUTE EFFECTS OF OVEREPOSURE:
INHALATION: Causes nose and throat irritation.
SKIN CONTACT: May cause allergic skin reaction
EYE CONTACT: Vapors may be irritating. Direct contact of product with eye may cause moderate irritation with corneal injury.
SKIN ASORPTION: No data available.
INGESTION: Effects of ingestion are unknown.
CHRONIC EFFECTS OF OVEREXPOSURE:
Repeated eposure may cause injury to the respiratory tract.
CARCIOGENICITY: IARC: N NTP: N OSHA: N
MEDICAL CONDITIONS GENERALLY AGGRAVATED Y OVEREPOSURE:
No information available.
ADDITIONAL TOICITY INFORMATION: No additional information available.
EMERGENCY AND FIRST AID PROCEDURES
INHALATION:

If affected by inhalation of vapor or spray mist, remove to fresh air.

EYE CONTACT:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician.

SKIN CONTACT:
In case of contact, immediately flush skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing ans shoes. Wash and thoroughly clean contaminated clothing and shoes before reuse. Coonsult a physician.

INGESTION:
If swallowed, consult a physician. Never give anything by mouth to an unconscious person.

SECTION VI, REACTIVITY DATA

STABILITY: Stale
CONDITIONS TO AVOID: Open flame, sparks, or high temperature.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition and burning may produce carbon dioxide and carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VII, SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all ifnition sources. Provide adequate ventilation. Avoid reathing vapors. Shut off source of spill if it can be done safely. Use non-sparking tools. Asor with inert, absorbant material and dispose of in accordance with applicale regulations.
WASTE DISPOSAL METHOD:
Dispose of in accordance with applicable Federal, State, and local regulations. Under the Resource Conservation and Recovery Act (RCRA) regulations, it is the responsiility of the product user to determine, at the time of disposal, whether a material should be classified as a hazardous waste. Consult your attorney or appropriate regulatory affairs officer for information on proper disposal.

SECTION VIII, SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear an appropriate, prperly-fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates that vapor/mist levels are below applicable limits. Follow repirator manufacturer's directions for respirator use.
VENTILATION:
Use with adequate ventilation. Provide general dilution or local ehaust ventilation in volume and pattern to keep the air contaminant concentration below the applicable exposure limit (OSHA PEL) of the combined components listed in Section II and below the LEL listed in Section IV. All application areas should be ventilated in accordance with applicable OSHA regulations. (29 CFR 1910.94)
PROTECTIVE GLOVES: Impervious gloves required.
EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.
OTHER SUGGESTED PROTECTIVEV EQUIPMENT:
Eyewash, safety shower, impervious lothing and boots. Selection of specific personal protection equipment will depend on the product user's operation.
HYGIENIC PRATICES: Wash thoroughly after handling.

SECTION IX, SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
Do not store above 120 F.
Keep closure tight and container upright to prevent leakage.
Store drum out of sunlight and away from heat, sparks, or flame.
Store only in well-ventilated areas
Drums or pails should be grounded when being emptied.
Never use pressure to empty. Drum is not a pressure vessel.
Do not puncture, drag, or slide container.

ATTENTION: Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks, and flames. Do not cut, puncture, or weld on or near this container. Follow label warnings until container is thoroughly cleaned or destroyed.
OTHER PRECAUTIONS:
Do not get in eyes.
Avoid skin contact.
Prevent repeated or prolonged reathing vapor or spray mist.
Avoid contact with or breating of vapors during curing process.

SECTION X, REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:
All components of this product are listed on the TSCA Sectio 8(b) Inventory.

SARA SECTION 312 HAZARD CATEGORIES:

N- Fire Hazard	N-Pressure Hazard
N- Reactivity Hazard	Y-Acute Health Hazard

Y-Chronic Health Hazard

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SARA SECTION 313 STATUS

Component/Category Name	CAS Number	Weight %

CALIFORNIA PROPOSITION 65 STATUS

Component	CAS Number	Weight %	Carcinogen	Reproductive
PHENYL GLYCIDYL ETHER	122601	TRACE	Y	N

MASSACHUSETTS RIGHT TO KNOW

Component	CAS Number	Weight %
DIGLYCIDYL ETHER	2238075	TRACE

DISCLAIMER
This information is furnished without warranty, representation, inducement or license of any kind, except that it is accurate to the best of Sterling Group's knowledge, or obtained from sources believed by Sterling Group to be accurate and Sterling Group does not assume any legal responsibility for use or reliance upon same.

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MATERIAL SAFETY DATA SHEET

SECTION I, IDENTIFICATION OF PRODUCT

CUSTOMER NAME: THE PD GEORGE COMPANY
PRODUCT NAME: STERLING C-12 THERMOPOXY
PRODUCT CODE: 49-162
LAST REV. DATE: 02/16/93

SECTION II, HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	% WEIGHT	(MMHG)	VD		PPM	MG/m3
PROPOXYLATED		21.60	ND	>1	OSHA	ND	ND
	26950630				ACGIH	ND	ND
TRIETHYLENETETRAMINE		2.4	ND	ND	OSHA	ND	ND
	112243				ACGIH	ND	ND
DIETHYLENE TRIAMINE		14.00	0.00	ND	OSHA	1.000	4.000
	111400				ACGIH	1.000	4.000
BISPHENOL A		7.20	ND	ND	OSHA	ND	ND
	80057				ACGIH	ND	ND

HMIS 3:H 1:F 1:R
PERSONAL PROTECTION:

SECTION III -- PHYSICAL DATA

BOILING POINT: 330 F
EVAPORATION RATE (BUTYL ETHER=): <1
WEIGHT PER GALLON (25 C): 8.554 lbs/gl
VAPOP DENSITY (AIR=1): >1
VOLATILE BY WEIGHT: 0.0%
VOLATILE BY VOLUME: 0.0%
SPECIFIC GRAVITY: 1.03
VOC: For compliance with VOC regulations, the VOC content myst be calculated on an "as applied" basis. The volatile by weight and volatile by volume data on the MSDS should not be used to determine compliance with VOC regulations.

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA
FLAMMAILITY CLASSIFICATION: OSHA: COMBUSTIBLE LIQUID CLASS IIIB
FLASH POINT: 201F
FLAMMABLE LIMITS IN AIR BY VOLUME- LOWER: 1.0% UPPER: no data

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, foam, and caporizing liquid type extinguishing agents have all been found suitale for use on flammale liquid fires of moderate size. Water spray (fog) is particularly effective on fires in flammale liquids and volatile solids having flash points above 212 F, frothing may occur.
UNUSUAL FIRE AND EXPLSION HAZARDS:
A straight stream of water will spread fire. A vapor accumulation will flash and/or exlode if ignited. Containers may urst explosively if overheated in fire. Cool containers with water spray or fog. Empty containers may also present a fire and/or explosion hazard due to residual vapors.
SPECIAL FIRE FIGHTING PROCEDURES:
Remove all ignition sources. Keep personnel not involved with emergency activities away and upwind of fire. Water spray may be ineffective and may cause fire to spread. If water is used, fog nozzles are preferable. Water may be used to cool closed containers in order to prevent pressure build-up which may result in an explosion. Use selfcontained breathing apparatus and protective clothing.

SECTION V, HEALTH HAZARD DATA

PRIMARY ROUTE(S) OF ENTRY: Inhalation y Skin contact: Y
Ingestion: N
EXPOSURE LIMIT: Refer to Section II for complete PEL/TLV data.
ACUTE EFFECTS OF OVEREXPOSURE:
INHALATION: May cause allergic respiratory reaction.
SKIN CONTACT: Causes skin burns.
EYE CONTACT: Causes eye burns.
SKIN ABSORPTION: May e harmful if absored through skin.
INGESTION: Eposure can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract.
CHROIC EFFECTS OF OVEREPOSURE:
Repeated ecessive exposures to this product may cause central nervous system, liver, and kidney effects ana repiratory or eye irritation.
CARCINOGENICITY: IARC: N NTP: N OSHA: N
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY OVEREXPOSURE: Skin contact may aggravate an existing dermatitis.
ADDITIONAL TOXICITY INFORMATION: No additional informatin available.
EMERGENCY AND FIRST AID PROCEDURES:
INHALATION:
If affected by inhalation of vvapor or spray mist, remove to fresh air.
EYE CONTACT:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician.
SKIN CONTACT:
In case of contact, immediately flush skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash and thoroughly clean contaminated clothing and shoes before reuse. Consult a physician.
INGESTION:
If swallowed, consult a physician. Never give anything by mouth to an unconscious person.

SECTION V -- REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: Open flame, sparks, or high temperature.
INCOMPATIILITY (MATERIALS TO AVOID): Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition and burning may produce carbon dioxide and carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VII, SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Remove all ignition sources. Provide adequate ventilation. Avoid breathing vapors. Shut off source of spill if it can be done safely. Use non-sparking tools. Absorb with inert, absorbant material and dispose of in accordance with applicable regulations.
WASTE DISPOSAL METHOD:
Dispose of in accordance with applicable Federal, State, and local regulations. Under the Resource Conservation and Recovery Act (RCRA) regulations, it is the responsiility of the product user to determine, at the time of disposal, whether a material should be classified as a hazardous waste. Consult your attorney or appropriate regulatory affairs officer for information on proper disposal.

SECTION VIII, SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
Wear an appropriate, properly-fitted respirator (NIOSH/MSHA approved) during and after application unless air monitoring demonstrates that vapor/mist levels are below applicable limits. Follow respirator manufacturer's directions for respirator use.
VENTILATION:
Use with adequate ventilation. Provide general dilution or local exhaust ventilation in volume and pattern to keep the air contaminant concentration elow the applicable eposure limit (OSHA PEL) of the comined components listed in Section II and below the LEL listed in Section IV. All appliacation areas should be ventilated in accordance with applicable OSHA regulations. (29 CFR 1910.94)
PROTECTIVE GLOVES: Impervious gloves required.
EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.
OTHER SUGGESTED PROTECTIVE EQUIPMENT:
Eyewash, safety shower, impervious clothing and boots selection of specific personal protective equipment will depend on the product user's operation.
HYGIENIC PRACTICES: Wash thoroughly after handling.

SECTION IX, SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
Do not store above 120 F
Keep closure tight and container upright to prevent leakage.
Store drum out of sunlight and away from heat, sparks, or flame.
Store only in well-ventilated areas.
Drums or pails should be grounded when eing emptied.
Never use pressure to empty. Drum is not a pressure vessel.

Do not puncture, drag, or slide container.

ATTENTION: Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks, and flames. Do not cut, puncture, or weld on or near this container. Follow label warnings until container is thoroughly cleaned or destroyed.

OTHER PRECAUTIONS:

Do not get in eyes.
Avoid skin contact.
Prevent repeated or prolonged breathing of vapor or spray mist.
Avoid contact with or breathing of vapors during curing process.

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SECTION X, REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCCA) STATUS:

All components of this product are lsited on the TSCA Section 8(b) Inventory.

SARA SECTION 312 HAZARD CATEGORIES:

N-Fire Hazard N-Pressure Hazard
N-Reactivity Hazard Y-Acute Health Hazard
Y-Chronic Health Hazard

SARA SECTION 313 STATUS

Component/Category Name	CAS Number	Weight %
BISPHENOL A	80057	7.20

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME	Parks Corporation	**CHEMICAL NAME & SYNONYMS**	Petroleum Solvent
STREET ADDRESS	One West Street	**CHEMICAL FAMILY**	Aliphatic Petroleum Hydrocarbon
CITY, STATE & ZIP	Fall River, MA 02720		
EMERGENCY TELEPHONE	(508) 679-5938	**TRADE NAME**	**PARKS VM&P NAPHTHA**
		SIZES/CODES	5-Gallon #2712 Gallon #2713 Quart #2715
		FORMULAS	Complex mixture of Petroleum Hydrocarbons
		REVISED	11/27/96

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES & SOLVENTS

SOLVENTS	**CAS #**	**%**	**TLV**
VM&P (Special Naphthaolite 66/3)	64742-89-8	100	No Exposure Limits Established

PIGMENTS: N.A.

CATALYST: N.A.

VEHICLE: N.A.

ADDITIVES & OTHERS: N.A.

WARNING: Use of this product will expose you to Benzene which is known to cause cancer and to Toluol which is known to cause birth defects or other reproductive harm.

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	118 - 139°C	**SPECIFIC GRAVITY (H_2O = 1)**	0.76
IBP DRY PT. (244-282°F)		**15.6°/15.6°C**	
VAPOR PRESSURE (mmHg) @ 25°C	45	**PERCENT VOLATILE**	100
VAPOR DENSITY (AIR = 1)	Heavier	**BY VOLUME (%)**	
SOLUBILITY IN WATER	Negligible	**EVAPORATION RATE**	Less than 1
APPEARANCE	Water White Liquid	**(ETHER = 1)**	
ODOR	Mild, Pleasant Hydrocarbon Odor	**V.O.C.**	749 g/l

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): TAG cc 7°C (45°F).

FLAMMABLE LIMITS

LEL: 1.0%

UEL: 6.0%

EXTINGUISHING MEDIA: Foam, dry chemical, CO_2, water fog or spray.

SPECIAL FIRE FIGHTING PROCEDURES: Use air-supplied breathing equipment for enclosed areas. Cool exposed containers with water spray. Avoid breathing vapor or fumes.

UNUSUAL FIRE AND EXPLOSION HAZARDS DATA: Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, other flames and ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near containers (even empty) because product (even just residue) can ignite explosively. Auto-Ignition Temp 450°F.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: See Section II.

EFFECTS OF OVEREXPOSURE

EYE CONTACT: Exposure can cause mild eye irritation. Symptoms may include stinging, tearing, redness.

SKIN CONTACT: Exposure may cause mild skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking and skin burns. Skin absorption is possible, but harmful effects are not expected from this route of exposure under normal conditions of handling and use.

INGESTION (SWALLOWING): Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can enter the lungs during swallowing or vomiting and cause lung inflammation and/or damage.

INHALATION: Exposure to vapor or mist is possible. short term inhalation toxicity is low. Breathing small amounts during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are more typically seen at air concentrations exceeding the recommended exposure limits.

SYMPTOMS OF EXPOSURE: Signs and symptoms of exposure to this material through breathing, swallowing and/or passage of the material through the skin may include gastrointestinal irritation (nausea, vomiting, diarrhea), irritation (nose, throat, respiratory tract), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and death.

TARGET ORGAN EFFECTS: No data.

DEVELOPMENTAL INFORMATION: No data.

CANCER INFORMATION: Based on the available information, this material cannot be classified with regard to carcinogenicity. This material is not listed as a carcinogen by IARC, NTP or OSHA.

OTHER HEALTH EFFECTS: No data.

PRIMARY ROUTES OF ENTRY: Inhalation, skin contact, eye contact.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart. Seek immediate medical attention.

SKIN CONTACT: Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

INGESTION (SWALLOWING): Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth. Place individual on the left side with the head down. Contact a physician, medical facility or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

INHALATION: If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet. Seek immediate medical attention.

NOTE TO PHYSICIANS: Pre-existing disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin.

SECTION VI - REACTIVITY DATA

STABILITY: Stable.

CONDITIONS TO AVOID: Keep away from heat, sparks, open flame and all other sources of ignition.

SECTION VI - REACTIVITY DATA (CONT'D)

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidants like Liquid Chlorine, Concentrated Oxygen, Sodium or Calcium Hypochlorite.

HAZARDOUS DECOMPOSITION PRODUCTS: Fumes, smoke and Carbon Monoxide, in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: N.A.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

SMALL SPILL: Absorb liquid on vermiculite, floor absorbent or other absorbent material and transfer to hood.

LARGE SPILL: Eliminate all ignition sources (flares, flames, including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until cleanup has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

WASTE DISPOSAL METHOD: Assure conformity with applicable disposal regulations. Dispose absorbed material at an approved disposal site or facility.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFIC TYPE): Use hydrocarbon vapor canister of supplied air respiratory protection in confined or enclosed spaces if needed.

VENTILATION

LOCAL EXHAUST: Recommended.

MECHANICAL (GENERAL): Use explosion-proof equipment.

SPECIAL: Use only with adequate ventilation.

OTHER: NO SMOKING or open lights.

PROTECTIVE GLOVES: Use chemical-resistant gloves.

EYE PROTECTION: Splash goggles or face shield.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other clothing if needed to avoid repeated or prolonged skin contact.

SECTION IX - STORAGE AND SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: 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. All 5 gallon pails and larger metal containers, including tank cars and tank trucks should be grounded and/or bonded when material is transferred. Emergency eyewash fountains and safety showers should be available in the immediate vicinity of potential exposure. Hydrocarbon solvents are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering or pumping at high flow rates. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids.

SECTION IX - STORAGE AND SPECIAL PRECAUTIONS (CONT'D)

WARNING: Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "auto-ignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

OTHER PRECAUTIONS: Avoid breathing vapors. Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Remove contaminated shoes and dry before reuse. Wash with soap and water after contact.

OTHER REGULATORY INFORMATION: The State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop 65) develops a list of chemicals that require specific warnings relating to cancer and/or reproductive toxicity. This product contains the following chemicals subject to the reporting requirements of the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop 65).

CHEMICAL	CAS #	QUANTITY
Toluene*	108-88-3	90 PPM (approx.)
Benzene*	71-43-2	200 PPM (approx.)

The warning on the product states:

WARNING: USE OF THIS PRODUCT WILL EXPOSE YOU TO BENZENE WHICH IS KNOWN TO CAUSE CANCER AND TO TOLUENE WHICH IS KNOWN TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

***Not included in Section II as this chemical is less than .1% of the formula.**

SECTION X - TOXICOLOGICAL INFORMATION

No data.

SECTION XI - ECOLOGICAL INFORMATION

No data.

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.

PARKS

Parks Corporation
One West Street
Fall River, MA 02720
508-679-5938
1-800-225-8543
Fax: 508-674-8404

CARVER Tripp

FAX TRANSMISSION SHEET

TO: Claudia

FAX NO: 520-889-3341

DATE: October 29, 1997

FROM: _____

DOCUMENT TRANSMITTED: MSDS - Vim & P

TOTAL NUMBER OF PAGES IN THIS TRANSMISSION (INCLUDING COVER SHEET)

5

ADDITIONAL COMMENTS: _____

THANK YOU.

_____
(NAME OF SENDER)

NOTE**PEARL ABRASIVE CO./PEARLMAN CORP. IS A DISTRIBUTOR OF PRODUCTS MANUFACTURED BY OTHERS WHICH MAY CONTAIN SOME OF THE FOLLOWING COMPONENTS. WE SUPPLY THIS INFORMATION IN COMPLIANCE WITH OSHA REGULATION 29CFR 1910.1200

PEARL ABRASIVE CO. MATERIAL SAFETY DATA SHEET

SECTION - 1 NAME AND PRODUCT

IMPORTED BY

PEARLMAN CORPORATION
6210 S. GARFIELD AVE.
MARCH 1, 1986 COMMERCE, CA. 90040

NAME & PRODUCT
CONTACT
GORDON PEARLMAN
(213) 773-1625

COMMON NAME/SPECIFICATIONS

RESINOID BONDED ALUMINUM OXIDE OR SILICON CARBIDE ABRASIVE CUTTING/GRINDING WHEELS AND COATED PAPER/CLOTH

SECTION 2 - COMPOSITION

CHEMICAL NAME	COMMON NAME	CAS #	OSHA PERMISSIVE EXPOSURE LIMIT	ACGIH TLV
SILENE (TOTAL DUST)	N/A	63231-67-4	1.5 mg/m3	5 mg/m3
SULFUR		7704-34-9	NAIF	
IRON DISULFIDE	PYRITES	12068-85-8	NAIF	
CALCIUM OXIDE	LIME	1305-78-8	5mg/m3	2mg/m3
ZINC OXIDE (AS FUME)	N/A	1314-13-2	5mg/m3	5mg/m3
IRON OXIDE (AS FUME)	N/A	1309-37-1	10mg/m3	5mg/m3
CARBON BLACK	N/A	133-86-4	3.5mg/m3	3.5mg/m3
DIBUTYL PHTHALATE	N/A	84-74-2	5mg/m3	5mg/m3
METHYL TUADS	N/A	137-26-8	NAIF	5mg/m3
GLASS, FIBROUS OR DUST	FIBERGLASS	NAIF		10mg/m3
BARIUM SULFATE	BARYTES	7727-43-7	.5mg/m3	.5mg/m3
TIN		7440-31-5	2mg/m3	2mg/m3
IRON DISULPHIDE	PYRITES	12068-85-8	NAIF	NIAF

THE CHEMICALS LISTED ABOVE MAY BE PART OF THE BOND SYSTEM...

THE GRINDING/ CUTTING WHEEL MAY BE COMPRISED OF ONE OR MORE OF THE FOLLOWING ABRASIVES:

ALPHA ALUMINA	ALUNDUM	1344-28-1	10mg/m3 (TOTAL DUST)	10mg/m3
TITANIUM OXIDE	TITANIA	1363-67-7	10mg/m3	10mg/m3
IMPURITIES (SiO_2 + Fe_2O_3 + CaO + MgO)				
SILICON CARBIDE	CRYSTOLON	409-21-1	10mg/m3	10mg/m3
ZIRCONIUM OXIDE	ZIRCONIA	NAIF	5mg/m3	5mg/m3

BOILING POINT:	NAIF	MELTING POINT:	NAIF	SPECIFIC GRAVITY:	2-4
VAPOR PRESSURE:	NAIF	% VOLATILE BY VOL:	NAIF	VAPOR DENSITY:	NAIF
EVAPORATION RATE:	NAIF	SOLUBILITY IN WATER:	SLIGHT...	IN ALCOHOL:	NAIF

APPREARANCE AND ODOR: SOLID PRODUCT, MAY GIVE OFF ODOR IN USE.

STORAGE AND HANDLING: STORE IN COOL,DRY PLACE,TAKE REASONABLE CARE NOT TO CRACK,CHIP,BREAK,OR BEND. SEE ANSI STANDARD B7.1.

ABRASIVE WHEELS SHOULD BE USED WITH GUARDS, EYE PROTECTION, PROPER PROTECTIVE CLOTHING, AND ADEQUATE VENTILATION. SEE OSHA 20CFR 1910.94 (VENTILATION) AND 29CFR1910.1000 (AIR CONTAMINATES).

HEALTH, FIRST AID, AND MEDICAL DATA

PRIMARY ROUTE(S) OF ENTRY	ACUTE & CHRONIC HEALTH & OVEREXPOSURE EFFECTS	FIRST AID & MEDICAL INFORMATION
INHALATION (DURING GRINDING):	ACUTE: COUGHING, SHORTNESS OF BREATH CHRONIC: AFFECT BREATHING CAPACITY	REMOVE TO FRESH AIR ARTIFICIAL RESPIRATION AS NEEDED
INGESTION:	NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED	OBTAIN MEDICAL ASSISTANCE
SKIN CONTACT & ABSORPTION: (DURING GRINDING)	SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST	WASH AFFECTED AREAS W/SOAP & WATER. OBTAIN MEDICAL ASSISTANCE.
EYE (DURING GRINDING):	DUSTS MAY IRRITATE EYES	WASH W/LARGE AMOUNTS OF WATER. GET FIRST AID & MEDICAL ASSISTANCE
OTHER POTENTIAL HEALTH RISKS:	GRINDING OR CUTTING MAY CREATE ELEVATED SOUND LEVELS WHICH MAY AFFECT HEARING.	OBTAIN MEDICAL ASSISTANCE

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 AND 29CFR 1910.100 VENTILATION AND AIR CONTAMINATES.

IN CASE OF SPILL OR LEAKS: NORMAL CLEANUP PROCEDURES

WASTE DISPOSAL METHOD: STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS.

FIRE AND EXPLOSION HAZARD DATA

THERE IS NO FIRE OR EXPLOSION HAZARD CONNECTED WITH THIS PRODOCT LINE.

SPECIAL PRECAUTIONS

USE SAFETY GUARDS, EYE PROTECTION, HEARING PROTECTION, FLAME RETARDENT CLOTHING AND BREATHING MASK. OPERATE IN WELL VENTILATED AREAS.

INSPECT THE WHELL BEFORE USING... LOOK FOR ABNORMALITIES, DAMAGED, OR MISUSED, WHEEL. WHEELS MUST BE KEPT DRY. DO NOT EXCEED MAXIMUM R.P.M. INSPECT THE EQUIPMENT THAT THE ABRASIVE PRODUCT IS USED WITH. MAKE SURE ALL THE GUARDS ARE IN PLACE. DON'T TAKE CHANCES WITH DAMAGED, IMPROPERLY STORED, OR MISUSED WHEELS.

PERMATEX

MATERIAL SAFETY DATA SHEET (MSDS)
Please retain for your records.

MATERIAL SAFETY DATA SHEET 2SF41
5A239
PART TWO- 2A265

ATEX INDUSTRIAL CORPORATION
2/94
NEWINGTON, CONNECTICUT 06111
TELEPHONE: (203) 278-1280

Form-A-Gasket(R) #2 Sealant
80010 - 5A239

I. PRODUCT IDENTIFICATION

Product Name:	Form-A-Gasket(R) #2 Sealant
Item No.:	80010 - 5A239
Part No.:	2B
Product Type:	Sealant
Formula No.:	Does not apply

II. COMPOSITION

Ingredients	CAS No.	%
Clay	1332-58-7	50-55
Rosin	8050-09-7	15-20
Vegetable oil	68439-93-0	15-20
ISOPROPYL ALCOHOL	67-63-0	10-15
Soybean derivative	8002-43-5	1-3

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	33 mm at 68½F
Vapor Density:	2.07
Solubility in Water:	Partial
Specific Gravity:	1.5 at 77½F
Boiling Point:	180½F
Volatile Organic Compound (EPA Method 24)	14.2%; 213 grams per liter
Evaporation Rate (Ether = 1)	7.7
pH:	Does not apply
Appearance:	Black Paste
Odor:	Alcoholic

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	69½F Method: Tag Closed Cup
Estimated NFPA Code:	
Health Hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0
Specific Hazard:	Does not apply
Estimated HMIS Code:	
Health Hazard:	2
Flammability Hazard:	2
Reactivity Hazard:	0
Personal Protection:	See Section X.
Explosive Limits:	
(% by volume in air)Lower	2%
(% by volume in air)Upper	12%
Recommended Extinguishing Agents:	Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp	Irritating organic vapors
Unusual Fire or Explosion Hazards:	None
Compressed Gases:	None
Pressure at Room Temp.:	Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Remove sources of ignition. Maintain adequate ventilation. Scrape up as much as possible and store in a closed container until disposal. Residues may be cleaned with isopropyl alcohol.
Recommended Methods of disposal:	Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store away from heat and flame.
Handling:	Avoid prolonged breathing of vapors. Keep away from eyes. Avoid prolonged skin contact.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)	
Domestic Ground Transport	
Proper Shipping Name:	Unrestricted
Hazard Class or Division:	Unrestricted
Identification Number:	None
Marine Pollutant:	None
IATA	
Proper Shipping Name:	Unrestricted
Class or Division:	Unrestricted
UN or ID Number:	None

VIII. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products (non-thermal):	None
Incompatibility:	Strong oxidizers.

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion:	Induce vomiting. Obtain medical attention.
Inhalation:	Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact:	Wash with soap and water.
Eye Contact:	Flush at least 15 minutes with water. Obtain medical attention.

X. PERSONAL PROTECTION

Eyes:	Safety glasses or goggles.
Skin:	Rubber or plastic gloves.
Ventilation:	Must be adequate to avoid exceeding TLV.

XI. HEALTH HAZARD DATA

Toxicity:	Moderately toxic by ingestion. Eye irritant.
Primary Routes of Entry:	Inhalation, ingestion, contact.
Signs and Symptoms of Exposure:	Vapor above TLV is irritating to eyes, nose and throat and can cause headache, dizziness, nausea.
Existing Conditions Aggravated by Exposure:	Skin, eye, and respiratory disorders.

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
Clay	2 mg/m3 dust	10 mg/m3 dust 5 mg/m3 respir.	None
Vegetable oil	10 mg/m3 mist	15mg/m3mistdust 5mg/m3mist resp	None
ISOPROPYL ALCOHOL	400 ppm TWA 983 mg/m3	400 ppm TWA 980 mg/m3	None

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)
ISOPROPYL ALCOHOL	500 ppm 1230 mg/m3	500 ppm 1225 mg/m3

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Clay	BLD DEV	NO	NO	NO
Rosin	ACS ALG LUN	NO	NO	NO
Vegetable oil	No Data	NO	NO	NO
ISOPROPYL ALCOHOL	GAS IRR MER PNS REP VAS	NO	N/A	NO
Soybean derivative	No Data	NO	NO	NO

Abbreviations

N/A Not Applicable	ACS ACGIH sensitizer
ALG Allergen	BLD Blood
DEV Developmental	GAS Gastrointestinal
IRR Irritant	LUN Lung
MER Nervous System	PNS Peripheral nervous system
REP Reproductive	VAS Vascular

XII. PREPARATION INFORMATION

Prepared By:	Stephen Repetto
Title:	Research Chemist, Environmental Health & Safety
Company:	Loctite Corp., 705 N. Mt. Rd, Newington CT 06111
(24hr.) Phone:	(203) 278-1280
Revision Date:	January 04, 1994 Revision: 0029

Form-A-Gasket(R) #2 Sealant
80011 - 2A265

I. PRODUCT IDENTIFICATION

Product Name:	Form-A-Gasket(R) #2 Sealant
Item No.:	80011 - 2A265
Part No.:	2C
Product Type:	Sealant
Formula No.:	Does not apply

II. COMPOSITION

Ingredients	CAS No.	%
Clay	1332-58-7	50-55
Rosin	8050-09-7	15-20
Vegetable oil	68439-93-0	15-20
ISOPROPYL ALCOHOL	67-63-0	10-15
Soybean derivative	8002-43-5	1-3

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure:	33 mm at 68½F
Vapor Density:	2.07
Solubility in Water:	Partial
Specific Gravity:	1.5 at 77½F
Boiling Point:	180½F
Volatile Organic Compound (EPA Method 24)	14.2%; 213 grams per liter
Evaporation Rate (Ether = 1)	7.7
pH:	Does not apply
Appearance:	Black Paste
Odor:	Alcoholic

IV. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point:	69½F Method: Tag Closed Cup
Estimated NFPA Code:	
Health Hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0
Specific Hazard:	Does not apply
Estimated HMIS Code:	
Health Hazard:	2
Flammability Hazard:	2
Reactivity Hazard:	0
Personal Protection:	See Section X.
Explosive Limits:	
(% by volume in air)Lower	2%
(% by volume in air)Upper	12%
Recommended Extinguishing Agents:	Carbon dioxide, foam, dry chemical
Hazardous Products Formed by Fire or Thermal Decomp	Irritating organic vapors

Unusual Fire or Explosion Hazards:	None
Compressed Gases:	None
Pressure at Room Temp.:	Does not apply

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak:	Remove sources of ignition. Maintain adequate ventilation. Scrape up as much as possible and store in a closed container until disposal. Residues may be cleaned with isopropyl alcohol.
Recommended methods of disposal:	Incinerate following EPA and local regulations.

VI. STORAGE AND HANDLING PROCEDURES

Storage:	Store away from heat and flame.
Handling:	Avoid prolonged breathing of vapors. Keep away from eyes. Avoid prolonged skin contact.

VII. SHIPPING REGULATIONS

DOT (49 CFR 172)	
Domestic Ground Transport	
Proper Shipping Name:	Unrestricted
Hazard Class or Division:	Unrestricted
Identification Number:	None
Marine Pollutant:	None
IATA	
Proper Shipping Name:	Unrestricted
Class or Division:	Unrestricted
UN or ID Number:	None

VIII. REACTIVITY DATA

Stability:	Stable
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products (non-thermal):	None
Incompatibility:	Strong oxidizers.

IX. EMERGENCY TREATMENT PROCEDURES

Ingestion:	Induce vomiting. Obtain medical attention.
Inhalation:	Remove to fresh air. If symptoms persist, obtain medical attention.
Skin Contact:	Wash with soap and water.
Eye Contact:	Flush at least 15 minutes with water. Obtain medical attention.

X. PERSONAL PROTECTION

Eyes:	Safety glasses or goggles.
Skin:	Rubber or plastic gloves.
Ventilation:	Must be adequate to avoid exceeding TLV.

XI. HEALTH HAZARD DATA

Toxicity:	Moderately toxic by ingestion. Eye irritant.
Primary Routes of Entry:	Inhalation, ingestion, contact.
Signs and Symptoms of Exposure:	Vapor above TLV is irritating to eyes, nose and throat and can cause headache, dizziness, nausea.
Medical Conditions Aggravated by Exposure:	Skin, eye, and respiratory disorders.

Exposure Limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
Clay	2 mg/m3 dust	10 mg/m3 dust 5 mg/m3 respir.	None
Vegetable oil	10 mg/m3 mist	15mg/m3mistdust 5mg/m3mist resp	None
ISOPROPYL ALCOHOL	400 ppm TWA 983 mg/m3	400 ppm TWA 980 mg/m3	None

Exposure Limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)
ISOPROPYL ALCOHOL	500 ppm 1230 mg/m3	500 ppm 1225 mg/m3

Ingredients for which no Exposure Limits have been established are not listed above.

Ingredients	Literature Referenced Target Organ and Other Health Effects	Carcinogen NTP	IARC	OSHA
Clay	BLO DEV	NO	NO	NO
Rosin	ACS ALG LUN	NO	NO	NO
Vegetable oil	No Data	NO	NO	NO
ISOPROPYL ALCOHOL	GAS IRR NER PNS REP VAS	NO	N/A	NO
Soybean derivative	No Data	NO	NO	NO

Abbreviations

N/A Not Applicable	ACS ACGIH sensitizer
ALG Allergen	BLO Blood
DEV Developmental	GAS Gastrointestinal
IRR Irritant	LUN Lung
NER Nervous System	PNS Peripheral nervous system
REP Reproductive	VAS Vascular

XII. PREPARATION INFORMATION

Prepared By:	Stephen Repetto
Title:	Research Chemist, Environmental Health & Safety
Company:	Loctite Corp., 705 N. Mt. Rd, Newington CT 06111
(24hr.) Phone:	(203) 278-1280
Revision Date:	January 04, 1994 Revision: 0029

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

SECTION I-PRODUCT IDENTIFICATION

IDENTITY(As used on Label and List):D-6530 Marine Enamel Deep Tint base

NPCA/HMIS
H-2
F-2
R-0
P-B

MANUFACTURER'S NAME: Pioneer Paint of Arizona
ADDRESS: 3755 E 43rd Place
Tucson, AZ 85713
EMERGENCY TELEPHONE NUMBER: 602-571-1800
TELEPHONE NUMBER FOR INFORMATION: 602-571-1800
DATE PREPARED: Harry A McHenry
SIGNATURE OF PREPARER(optional): 8-16-89

SECTION II- HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS NO.	ACGIH TLV	% WEIGHT	% LEL	VAPOR PRESSURE mm/Hg @ F
Mineral Spirits	8052413	100ppm	41.6	1.0	5.0 @ 77
Titanium dioxide	13463677	10mg/m3	12.0	N/A	N/A
V&P Naphtha	8030306	300ppm	6.4	1.0	2.0 @ 68

When tinted, this base may consist of up to 8 fl. oz. of universal machine colorant which contain *ethylene glycol. On average, this tinted base would contain an additional amount of 2.4% by weight of *ethyene clycol.

NA= Not applicable NE= Not established

SECTION III-PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT:254-410F
WEIGHT PER GALLON: 8.32 Lbs.
VAPOR PRESSURE(mmHg): See section 2
SOLUBILITY IN WATER: None
VAPOR DENSITY(AIR=1): Heavier than air
REACTIVITY IN WATER: None
APPEARANCE AND ODOR: White liquid, mild odor.
MELTING POINT: Unknown

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 104F Method Used: T.C.C.
FLAMMABLE LIMITS IN AIR % BY VOLUME: LEL:1.0
AUTO-IGNITION TEMPERATURE: 490F
EXTINGUISHING MEDIA: NFPA Class B (Carbon dioxide, dry chemical, foam)
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters and others exposed to vapors or products of combustion should wear self contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors may form an explosive mixture in air. Closed containers may rupture when exposed to extreme heat. Water may be unsuitable as an extinguishing agent but helpful in keeping adjacent containers

cool.

*Hazardous ingredients marked with an asterisk are subject to the reporting requirements of SARA Title III, Section 313, and of 40 CFR 372.

SECTION V-REACTIVITY DATA

STABILITY IS, UNSTABLE:[ ]
STABLE:[X]
CONDITIONS TO AVOID: Excessive heat, sparks or open flames.
INCOMPATIBILITY(materials to avoid):Avoid contact with strong oxidizing agents.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Incomplete combustion can yield carbon monoxide and toxic vapors.
HAZARDOUS POLYMERIZATION, MAY OCCUR:[ ]
WILL NOT OCCUR:[X]
CONDITIONS TO AVOID: N/A

SECTION VI-HEALTH HAZARDS

1. Acute: 2. Chronic:
Overexposure to solvent vapors may result in gastrointestinal disturbances, blood changes and irritation of the eyes and upper respiratory tract. Narcotic effects and dizziness will occur at high concentrations.
SIGNS AND SYMPTOMS OF EXPOSURE:
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Asthma and other respiratory disorders (bronchitis, emphysema, hyper-activity) skin allergies, eczema. Note: Reports have associated repeated and prolonged over-exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling may be harmful or fatal. Some persons are uniquely sensitive to the odor of solvents. Frequently persons with allergies or respiratory problems find these aggravated by exposure to solvents. Such persons should avoid areas where solvents are used until the vapors have dissipated.
CARCINOGENICITY, NTP?: No IARC Monographs?: No OSHA Regulated?: No.
ROUTES OF ENTRY:
INHALATION: Remove from exposure, call physician. Treat symptomatically.
EYES: Flush with copious amounts of water for 15 minutes. Consult physician.
SKIN: Remove contaminated clothing, wash skin with soap and water.
INGESTION: Do not induce vomiting. Call physician immediately.

SECTION VII-PRECAUTIONS FOR SAFE HANDLING AND USE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid prolonged or repeated inhalation of heated vapors or spray mists. Keep away from heat or open flame.
OTHER PRECAUTIONS: Avoid skin contact. Ground equipment to reduce electrical sparking hazard.
WASTE DISPOSAL METHOD: Evacuate non-essential personnel. Remove all sources of ignition. Dike or impound spilled material. Cover with absorbent material. Use non sparking equipment to collect for disposal.
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED (Consult federal, state, and local regulations.): Waste must be dispensed of in accordance with Federal, state and local environmental control regulations.

SECTION VIII-CONTROL MEASURES

RESPIRATORY PROTECTION(Specify Type):If exposure exceeds TLV, use appropriate NIOSH approved respirator.
VENTILATION: Required.
LOCAL EXHAUST: Explosion proof
MECHANICAL(General): Ventilate to keep contaminant level below TLV limit.
PROTECTIVE GLOVES: Butyl or neoprene - Chemical resistant
EYE PROTECTION: Face shield, protective goggles.
OTHER PROTECTIVE CLOTHING OR DEVICES:Eyewash facility, safety shower.
WORK/HYGIENIC PRACTICES: Avoid breathing vapor. Avoid contact with eyes, skin, clothing. Avoid heat and flame. Remove contaminated clothing and launder before reuse. At work break and before meals use waterless handcleaner and thoroughly wash with soap and water. Clean skin thoroughly after contact.

NE = Not established NA = Not applicable.

677-5053

3

70-063

Material Safety Data Sheet

G.E. Paint Thinner #1500

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.

SECTION 1

Manufacturer's Name: Pioneer Paint and Varnish Company

Address: 438 W. Congress

Emergency Telephone No.: 602-622-4736

City, State, and ZIP: Tucson, Az 85701

Other Information Calls: 602-622-4736

Signature of Person Responsible for Preparation (Optional)

Date Prepared: 12-22-86

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Toluene		100 ppm			108-88-
Xylene		100 ppm			1330-20-
V. M. & P. Naptha (# 250) (Petroleum Naptha)		225 ppm			

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point (range) 230° - 312° F.

Specific Gravity (H,O=1) .85

Vapor Pressure (mm Hg) 25 - 54 mm HG

Vapor Density (Air = 1) 3.2-4.0

Solubility in Water negligible(less than 0.1

Reactivity in Water Non-reactive with water; May react with strong oxidizers.

Appearance and Odor Colorless(Clear-water-White) Strong aromatic hydrocarbon odor.

Melting Point N.A.

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point 45° F. C. Method Used T.C.C.

Flammable Limits in Air % by Volume LEL Lower 1 %

UEL Upper 6 %

Auto-Ignition Temperature Greater than 900°F

Extinguisher Media CO_2, dry chemical, foam, water spray

Special Fire Fighting Procedures Use self contained breathing apparatus.

Unusual Fire and Explosion Hazards Donot use pressure to empty drum or explosion may occur.

SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable ☐ Conditions to Avoid
Stable ☐

Incompatability (Materials to Avoid): May react with strong oxidizers.

Hazardous Decomposition Products: ~~Normal Combustion: Fumes, smoke, Carbon Dioxide, Water vapor.~~ Incomplete Combustion: Carbon Monoxide, Aldehydes.

Hazardous Polymerization: May Occur ☐ Will Not Occur ☐ Conditions to Avoid

SECTION 6 – HEALTH HAZARDS

1. Acute 2. Chronic

Signs and Symptoms of Exposure: Skin may crack and dry or cause defatting, central nervous system depression. prolonged or repeated contact may skin irritation.

Medical Conditions Generally Aggravated by Exposure:

Chemical Listed as Carcinogen or Potential Carcinogen: unknown
National Toxicology Program: Yes ☐ No ☐
I.A.R.C. Monographs: Yes ☐ No ☐
OSHA: Yes ☐ No ☐

Emergency and First Aid Procedures: see below

ROUTES OF ENTRY

1. Inhalation: remove to fresh air. Call doctor immediately.
2. Eyes: Wash eyes with water, if irritation persists, call a physician.
3. Skin: Wash thoroughly with soap and water. Launder contaminated clothing.
4. Ingestion: DO NOT induce vomiting. Call a physician immediately.

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Use only in well ventilated area. Donot store near heat, sparks, open flames. Keep container closed. Do not use pressure to empty drum or explosion may occur.

Other Precautions: Eliminate all sources of ignition.

Steps to be Taken in Case Material is Released or Spilled: Maximize recovery, dispose of in accordance with federal, state and local regulations.

Waste Disposal Methods (Consult federal, state, and local regulations):

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): Organic vapor cartridge

Ventilation	Local Exhaust	Mechanical (General)	Special	Other
yes				

Protective Gloves: yes
Eye Protection: Chemical safety glasses
Other Protective Clothing or Equipment: protective clothing and rubber gloves are recommended.
Work/Hygienic Practices: Eyebath and safety shower

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

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.

SECTION I-PRODUCT IDENTIFICATION

IDENTITY(As used on Label and List):88-102 Water Reducible Alkyd Enamel

NPCA/HMIS
H-2
F-0
R-0
P-H

MANUFACTURER'S NAME: Pioneer Paint of Arizona
ADDRESS: 3755 E 43rd Place
Tucson, AZ 85713
EMERGENCY TELEPHONE NUMBER: 602-571-1800
TELEPHONE NUMBER FOR INFORMATION: 602-571-1800
DATE PREPARED: Harry A McHenry
SIGNATURE OF PREPARER(optional): 11-2-90

SECTION II- HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS NO.	ACGIH TLV	% WEIGHT	% LEL	VAPOR PRESSURE mm/Hg @ F
Ammonia	7664417	25ppm	0.4	1.1	3.2 @ 68
*Sec. Butanol	78922	100ppm	7.0	1.7	12.0 @ 68
*Butoxyethanol	111762	25ppm	6.2	1.1	0.6 @ 68

NA= Not applicable NE= Not established

SECTION III-PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT:100-399F
WEIGHT PER GALLON: 9.95
VAPOR PRESSURE(mmHg): Approx 17.5 mm HG @ 68F
SOLUBILITY IN WATER: Dilutable
VAPOR DENSITY(AIR=1): Lighter than air
REACTIVITY IN WATER: Unknown
APPEARANCE AND ODOR: White liquid, Alcohol odor.
MELTING POINT: Unknown

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Aqueous System Method Used: N/A
FLAMMABLE LIMITS IN AIR % BY VOLUME: LEL Lower: N/A UEL Upper: N/A
AUTO-IGNITION TEMPERATURE: N/A
EXTINGUISHING MEDIA: Foam, CO2, Dry chemical, and water fog.
SPECIAL FIRE FIGHTING PROCEDURES: Wet product will not support flame. May spatter if temperature exceeds boiling point.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers may rupture when exposed to extreme heat.
*Hazardous ingredients marked with an asterisk are subject to the reporting requirements of SARA Title III, Section 313, and of 40 CFR 372.

SECTION V-REACTIVITY DATA

ABILITY IS, UNSTABLE:[ ]
STABLE:[X]
CONDITIONS TO AVOID: Excessive heat, sparks or open flames.
INCOMPATIBILITY(materials to avoid):Avoid contact with strong oxidizing agents.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Incomplete combustion can yield carbon monoxide and toxic vapors.
HAZARDOUS POLYMERIZATION, MAY OCCUR:[ ]
WILL NOT OCCUR:[X]
CONDITIONS TO AVOID: N/A

SECTION VI-HEALTH HAZARDS

1. Acute: 2. Chronic:
Overexposure to solvent vapors may result in gastrointestinal disturbances, blood changes and irritation of the eyes and upper respiratory tract. Narcotic effects and dizziness will occur at high concentrations.
SIGNS AND SYMPTOMS OF EXPOSURE:
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Asthma and other respiratory disorders (bronchitis, emphysema, hyper-activity) skin allergies, eczema. Note: Reports have associated repeated and prolonged over-exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling may be harmful or fatal. Some persons are uniquely sensitive to the odor of solvents. Frequently persons with allergies or respiratory problems find these aggravated by exposure to solvents. ch persons should avoid areas where solvents are used until the vapors have ssipated.
RCINOGENICITY, NTP?: No IARC Monographs?: No OSHA Regulated?: No.
ROUTES OF ENTRY:
INHALATION: Remove from exposure, call physician. Treat symptomatically.
EYES: Flush with copious amounts of water for 15 minutes. Consult physician.
SKIN: Remove contaminated clothing, wash skin with soap and water.
INGESTION: Do not induce vomiting. Call physician immediately.

SECTION VII-PRECAUTIONS FOR SAFE HANDLING AND USE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid prolonged or repeated inhalation of heated vapors or spray mists. Keep away from heat or open flame.
OTHER PRECAUTIONS: Avoid skin contact. Ground equipment to reduce electrical sparking hazard.
WASTE DISPOSAL METHOD: Evacuate non-essential personnel. Remove all sources of ignition. Dike or impound spilled material. Cover with absorbent material. Use non sparking equipment to collect for disposal.
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED (Consult federal, state, and local regulations.): Waste must be dispensed of in accordance with Federal, state and local environmental control regulations.

SECTION VIII-CONTROL MEASURES

RESPIRATORY PROTECTION(Specify Type):If exposure exceeds TLV, use appropriate NIOSH approved respirator.
VENTILATION: Required.
LOCAL EXHAUST: Explosion proof
MECHANICAL(General): Ventilate to keep contaminant level below TLV limit.
PROTECTIVE GLOVES: Butyl or neoprene - Chemical resistant
EYE PROTECTION: Face shield, protective goggles.
OTHER PROTECTIVE CLOTHING OR DEVICES:Eyewash facility, safety shower.
WORK/HYGIENIC PRACTICES: Avoid breathing vapor. Avoid contact with eyes, skin, clothing. Avoid heat and flame. Remove contaminated clothing and launder before reuse. At work break and before meals use waterless handcleaner and thoroughly wash with soap and water. Clean skin thoroughly after contact.

NE = Not established NA = Not applicable.

MATERIAL SAFETY DATA SHEET (MSDS)
Please retain for your records.

POTTERS INDUSTRIES INC.
an affiliate of the PQ Corporation

[redacted]ision Impact Media

Essentially similar to OMB #1218-0072
2W765-66
2W580
6ZCI3-14

MATERIAL SAFETY DATA SHEET Index #: 1200-3

Identity: Ballotini Impact Beads

CAS #: 65997-17-3

Synonyms: Soda-Lime Glass
Chemical Family: Glass, Oxide

SECTION I Manufacturers Name: Emergency Telephone Number:
Potters Industries Inc. 1-(201) 299-2900
-2SC09A-
Address: Telephone Number for Information:
600 Industrial Road 1-(201) 299-2900
P.O. Box 6626
Carlstadt, NJ 07072 Date Prepared:
July 9,1990

Supercedes (date):
January 24,1989

Prepared by:
F.G. Widman

Title:
Manager, Analytical Testing and
Service

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components
Specific Chemical Identity:

Common Name	OSHA, PEL	ACGIH, TLV	Other Limits
Recommended Nuisance Dust depends on particle size	15 mg/m3	10 mg/m3	Amount of dust
Nuisance Dust Respirable Fraction	5 mg/m3	5 mg/m3	

Non Hazardous Components

Common Chemical Name (CAS #)	%
Glass, Oxide (CAS 65997-17-3)	100.0%

[redacted]ntains no free silica -- all components are amorphous/
[redacted]crystalline)

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A Solubility in Water: Insoluble
Softening Point:
730C
Vapor Pressure: N/A Appearance and Odor: Odorless white
powder Evaporation
Rate
Vapor Density: N/A Specific Gravity: 2.46-2.49 g/cc
(Butyl Acetate = 1):
N/A

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): N/A Extinguishing Media:
Nonflammable
Flammable Limits: LEL: N/A UEL: N/A Special Fire Fighting
Procedures: None

Unusual Fire and Explosion Hazards: None

SECTION V REACTIVITY DATA

Stability: Unstable Stable X
Conditions to Avoid: Material is stable
Incompatibility (Materials to Avoid): Hydrofluoric Acid
Hazardous Decomposition or Byproducts: None Known
Hazardous Polymerization: May Occur; Will Not Occur X
Conditions to Avoid: None Known

SECTION VI HEALTH HAZARD DATA

Routes of Entry: Inhalation X Skin Ingestion
Health Hazard (Acute and Chronic):
Dust in excess of recommended exposure limits may result in
irritation to the respiratory tract.
Carcinogenicity: NTP NOT LISTED IARC Monographs NOT LISTED
OSHA Regulation NOT LISTED
Signs and Symptoms of Exposure:
Eye and respiratory irritation may result it recommended exposure
limits are exceeded.
Medical Conditions Generally Aggravated by Exposure:
Chronic lung conditions may be aggravated by exposure to high
concentrations of dust.
Emergency and First Aid Procedures:
Remove to fresh air.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Be Taken in Case Material Is Released or Spilled:
[redacted] up and discard. Avoid excessive dusting.
[redacted] Disposal Method:
[redacted]e disposed of in approved landfill in accordance with
federal, state and local regulations.

Precautions to Be Taken in Handling and Storing:
Spillage may result in slippery conditions. When transferring
material, care should be taken to avoid dusting.
Other Precautions:
None

This material is not a SARA Title III reportable substance.

SECTION VIII CONTROL MEASURES

Respiratory Protection (Specific Type):
NIOSH approved dust mask recommended if exposure limits are
exceeded.

Ventilation:
Local Exhaust X Special Mechanical (General)
Other

Protective Gloves:
None

Eye Protection:
NIOSH approved safety glasses or goggles

Other Protective Clothing or Equipment:
None

Work/Hygienic Practices:
Use standard good manufacturing practices when handling
material.

TYPICAL CHEMICAL COMPOSITION

SiO2.....CAS	7631-86-9	(Amorphous)
NA2O.....CAS	1313-59-3	
CAO.....CAS	1305-78-8	
MgO.....CAS	1309-48-4	
Al2O3.....CAS	1344-28-1	
FeO/Fe2O3.....CAS	1309-37-1	
K2O.....CAS	12136-45-7	

Abbreviation Codes: N/A--Not Applicable g/cc--grams per cubic centimeter
mg/m3--milligrams per cubic meter

This information is furnished without warranty, representation, inducement or license of any kind, except that it is accurate to the best of Potters Industries Inc. knowledge, or obtained from sources believed by Potters to be accurate, and Potters does not assume any legal responsibility for use or reliance upon same. Customers are encouraged to conduct their own tests. Before using any product, read its label.

086071 001 1191

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

Tooling

IDENTITY (As Used on Label and List)
HIGH SPEED STEEL DRILL BIT

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
PRECISION TWIST DRILL CO.

Emergency Telephone Number
(815) 459-2040

230

Address (Number, Street, City, State, and ZIP Code)
301 Industrial

Telephone Number for Information
(815) 459-2040

Date Prepared
November 28, 1988

Signature of Preparer (optional)
Information obtained thru steel supplie

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))			OSHA PEL	ACGIH TLV	Other Limits Recommended	% Max (optional)
Iron (Fe)	CAS#	7439-89-5	10mg/m³	5mg/m³		80.00
Chrome (Cr)	"	7440-47-3	1mg/m³	0.5mg/m³		4.70
Nickel (Ni)	"	7440-02-0	1mg/m³	1mg/m³		0.35
Manganese (Mn)	"	7439-96-5	5mg/m³	5mg/m³(dust)	1(fume)	0.50
Silicon (Si)	"	7440-21-3	15mg/m³	10mg/m³		0.90
Molybdenum (Mo)	"	7439-98-7	15mg/m³	10mg/m³		10.00
Vanadium (V)	"	7440-6-22	0,5(V^2O_5dust)	None		4.00
Cobalt (Co)	"	7440-48-4	0.1mg/m³	0.1mg/m³		15.50
Carbon (C)	"	7440-44-0	N/A	N/a		1.45
Phosphorus (P)	"	7723-14-0	0.1mg/m³	0.1mg/m³		0.03
Sulfur (S)	"	7704-34-9	13mg/m³	5mg/m³		0.15

Section III — Physical/Chemical Characteristics

Boiling Point
N/A

Specific Gravity (H_2O = 1)
1.8-19.3

Vapor Pressure (mm Hg.)
N/A

Melting Point
Above 2500°F

Vapor Density (AIR = 1)
N/A

Evaporation Rate (Butyl Acetate = 1)
N/A

Solubility in Water
N/A

Appearance and Odor
Gray, silvery or black- odorless

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)
None

Flammable Limits
N/A

LEL
N/A

UEL
N/A

Extinguishing Media
N/A

Special Fire Fighting Procedures
None

Unusual Fire and Explosion Hazards
material safety data sheet on each metal.

(Reproduce locally)

OSHA 174, Sept. 1985

Section V — Reactivity Data

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatibility (*Materials to Avoid*)
Reacts to strong acids to generate hydrogen gas.

Hazardous Decomposition or Byproducts
Metallic Oxides

Hazardous Polymerization			Conditions to Avoid
	May Occur		
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Y		Y

Health Hazards (*Acute and Chronic*)
We do not consider this product in the form it is sold to constitute a physical hazard or a health hazard. Subsequent operations such as heating above 1200°F, cutting and/or grinding may affect exposed workers.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?

Signs and Symptoms of Exposure
Short term: Metallic taste nausea, tightness of chest, fever, irritation of eyes, throat, nose, skin, loss of consciousness/death due to welding gases or lack of oxygen.

Medical Conditions Generally Aggravated by Exposure There are no reliable scientific studies which show that workers exposed to listed alloys suffer increased incidence of lung cancer, or other disease du to exposure to chromium, nickel or other elements in these products.

Emergency and First Aid Procedures
Inhalation: remove to fresh air. Eye contact: flush with running water Skin Contact: Wash with soap and water. Ingestion: Seek medical help. In all cases call physician.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
N/A Use good housekeeping practices to prevent accumulations of dust and to keep airborne dust concentrations at a minimum.

Waste Disposal Method
Dust, ect.-follow Federal, State, and Local regulations regarding disposal.

Precautions to Be Taken in Handling and Storing
Do not allow to be stored near strong acids.

Other Precautions

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)
Consult Proffesional Hygenist. Provide NIOSH approved respirators.

Ventilation		
	Local Exhaust: May be used	Special
	Mechanical (General)	Other

Protective Gloves	Eye Protection
Gloves and barrier creams	Safety glasses should be worn

Other Protective Clothing or Equipment
As required. Consult a proffesional hygenist.

Work/Hygienic Practices
Keep area dust free. Wash hand before eating when working with this product.

• U.S.G.P.O.: 1988-491-329/61773

AISI	GRADE	C	Si	Mn	W	Mo	Cr	V	Co	Ni	Fe
M1	M1	<1.0	<1.0	<.40	<3.0	<9.0	<5.0	<2.0	–	<1.0	Bal.
M2	M2	<1.0	<1.0	<.40	<7.0	<6.0	<5.0	<3.0	–	<1.0	Bal.
M7	M7	<2.0	<1.0	<.50	<3.0	<9.0	<4.0	<3.0	–	<1.0	Bal.
M42	M42	<2.0	<1.0	<.50	<2.0	<10.0	<5.0	<2.0	<9.0	<1.0	Bal.
M50	M50	<1.0	<1.0	<.50	<2.0	<5.0	<5.0	<2.00	–	<1.0	Bal.
M52	M52	<1.0	<1.0	<.50	<2.0	<5.0	<5.0	<3.00	–	<1.0	Bal.
–	K ABC III	<1.0			<3.0	<3.0	<5.0	<3.00			Bal.
–	K MAT II	<1.0			<2.0	<6.0	<4.0	<2.00	<8.0		Bal.
–	WKE 4	<2.0			<10.0	<4.0	<5.0	<4.00	<10.0		Bal.
–	ASP 24	<1.0			<7.0	<7.0	<5.0	<2.00			Bal.
–	ASP 31	<1.0			<7.0	<7.0	<5.0	<2.00	<9.0		Bal.

Above percent values are maximum levels of each alloying element. Specific chemistry is available on request.

086071 001 1191

Ridge Tool Company 1 0
4 Clark Street
Elyria, Ohio 44036-2023, U.S.A.

MATERIAL SAFETY DATA SHEET

****

SECTION I - PRODUCT INFORMATION

PRODUCT NAME:
RIDGID DARK THREAD CUTTING OIL

CHEMICAL FAMILY:
PETROLEUM HYDROCARBON

DOT PROPER SHIPPING NAME:
NOT A REGULATED MATERIAL

EMERGENCY TELEPHONE NUMBER:
(216) 323-5581

TELEPHONE NUMBER FOR INFORMATION:
(216) 329-4800

DATE PREPARED:
MARCH 14, 1994

****

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

****

HAZARDOUS COMPONENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	%
Paraffinic Mineral Oil	64742-58-1	5mg/m3TWA	5mg/m3 TWA 10mg/m3 STEL	

Unlisted ingredients are trade secrets and are not hazardous chemicals under OSHA Hazard Communications Standard (29 CFR 1910.1200)

****

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

****

Boiling Point: 480
Specific Gravity (H2O = 1): 0.87
Vapor Pressure (mm Hg.): 0.01 @ 20C
Solubility in Water: NIL
Vapor Density (Air = 1): 1
Evaporation Rate (Butyl Acetate=1): 1
APPEARANCE AND ODOR: Dark brown liquid with mild sulfur odor.

****

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

****

Flash Point: (Method Used)
340F (PMCC) 385F (ASTM D-92)

Flammable Limits:
Not Determined

LEL:

UEL:

Extinguishing Media: Water Fog, Dry Chemical, CO2 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 mixtures with air.

****

SECTION V - REACTIVITY DATA

****

Stability: Stable
Conditions to Avoid: Spark and Open Flames
Incompatibility: (Materials to Avoid): Strong acids and oxidants
Hazardous Decomposition or Byproducts: Upon Combustion - CO, CO2, Oxides of

Hazardous Polymerization	May Occur		Conditions to Avoid:
	Will not Occur	x	None

****
SECTION VI - HEAL7H HAZARD DATA
****

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	x	x	x

Health Hazards: (Acute and Chronic): Causes Irritation - May be skin defatter upon prolonged or repeated contact.

Carcinogenicity:	NPT?	IARC Monographs?	OSHA Regulated?
	Not Listed	Not Listed	Not Listed

Signs and Symptoms of Exposure: Oil mist inhalation may cause dizziness, nausea and difficult breathing.

Medical Conditions Generally Aggravated by Exposure: Sensitive Dry Skin.

Emergency and First Aid Procedures: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Wash skin with soap and water. If swallowed, do not induce vomiting. Get medical attention. If inhaled, remove to flesh air and give artificial respiration is necessary. Get medical attention.

****
SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE
****

Steps to be Taken in Case Material is Released or Spilled: Do not use water - Soak up with sand, earth or other inert material. Put in suitable container. Dispose of in accordance with Local, State and Federal regulations.

Waste Disposal Method: Dispose of material in accordance with Local, State and Federal regulations. Avoid contamination of sewers and water ways.

Precautions to be Taken in Handling and Storing: Avoid contact with eyes, skin, and clothing. Remove contaminated clothing. Launder before re-use. Wash thoroughly after handling.

Other Precautions: Avoid breathing mist or vapors.

****
SECTION VIII - CONTROL MEASURES
****

Respiratory Protection (Specify Type): Use NISOH approved respirator if engineering or other controls are not adequate to reduce airborne exposure to below permissible exposure limits.

Ventilation: Local exhaust recommended.

Protective Gloves:	Eye Protection:
Neoprene Oil Impervious	Safety Glasses or Goggles

Other Protective Clothing or Equipment: Aprons, Oil Repellerit Barrier Creme or other as required to avoid skin contact.

Work/Hygienic Practices: Wash after handling.

****
SECTION IX - REGULATORY INFORMATION
****
TSCA: All components are registered under regulations of TSCA.
SARA Title III: Contains no ingredients subject to reporting under Section 313. Is reportable under Sections 311 and 312 if thresholds are met. Contains no extremely hazardous substances under Section 302. Health categories are Health/Acute and Health/Chronic.

WE BELIEVE THE STATEMENT, 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.

SPX

Robinair Division
SPX Corporation

Exponent of Excellence

ROBINAIR

Robinair Way
Montpelier, OH 43543-0193

Phone 419-485-5561
FAX 419-485-8300

Material Safety Data Sheet

Trade Name: Premium (High) Vacuum Pump Oil (13203,13204)

Synonyms: Lubricating Oil

Date: 12-21-94

CAS No.: 64741-88-4
(Refer to Section 1)
ROBINAIR INDEX NO: 113

PHONE NO. (For Info.)
(419) 485-5561
Chemtrec Emergency: (800) 424-9300

Material Hazard Evaluation
(Per OSHA Hazard Communication Standard [29 CFR Part 1910.12001) (OHCS)

Health: Non-Hazardous (OHCS).

Precautionary Statement: None.

HMIS Rating: Health 0 Flammability 1 Reactivity 0

==========

1.0 Generic Composition/Components

Components	CAS #	%	Hazard Data
Refined Petroleum Oil(s)	64741-88-4	100	Oral LD50(rat): > 15g/kg Eye: Practically Non-iffitating Skin: Practically Non-irritating Thin LC50/4H(rat): >5,000 mg/m3

Hazard Rating: least - 0; slight - 1; moderate - 2; high - 3; extreme - 4
Robinair assignment based on our evaluation per NFPA and NPCA guidelines.

==========

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

Combustible	No Flammable	No Pyrophoric
No Compressed Gas	No Organic Peroxide	No Reactivity
No Explosive	No Oxidizer	Yes Stable

Boiling Point, 760 mmHg, 'C'F:	~373(-703)
Specific Gravity (60/60'F (H2O = 1):	0.87
Vapor Density (air= 1):	> 1
% Volatiles by Volume:	Negligible
Melting Point 'C'F:	NA
Vapor Pressure. mmHg (25'C):	~4 x 10-5
Solubility in H2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate= I):	< 1
pH of Undiluted Product:	NA
Appearance and Odor:	Faint vellow or amber liquid. bland odor

3.0 Fire and Explosion Data

Flash Point. COC. 'C'F	224(435)
Flash Point. PMC. 'C'F	218(424)
Fire Point. COC. 'C'F	252(485)
NFPA Rating2	Health: 0 Flammability: 1 Reactivitv: 0
Flammable Limits (% by volume in air)	Lower: NA Upper: NA
Extinguishing Media	C02. dry chemical, foam, water fog
Special Fire Fighting Procedure	None
Unusual Fire or Explosion Hazard	Water may cause frothing

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	None
Incompatibility:	Strong oxidants, acids, & caustics
Hazardous Decomposition Products: (thermal. unless otherwise specified)	C02, CO
Conditions Contributing to Hazardous Polymerization:	None

Hazard Rating: least - 0; slight - 1; moderate - 2; high - 3; extreme - 4
Robinair assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:
Remove sources of heat or ignition, provide adequate ventilation, contain leak
Small Spills: Absorb with suitable material such as rags, straw or sand.
Large Spills: Contain spill in earthen dikes for later recovery.
Report spills as required to appropriate authorities.

Waste Disposal:
It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
Check before disposing to be sure you are in compliance with all applicable laws and regulations.
Chemtrec/RCRA Emergency Hotline Number. 800-424-9346.

Protective Measures During Repair and Maintenance of Contaniinated'Equipmetit:
Refer to Section 7.0 - Special Protection Information.
Avoid prolonged contact with used oil.
Wash exposed skin thoroughly with soap and water.

6.0 Health Hazard Data

Health Hazard Classification
(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
No	Animal Carcinogen	No	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	No	Target Organ
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:
NTP No IARC No OSHA No Other No

Toxicity Summary: Slightly toxic, 1 pint is approximate lethal oral dose for 150 lb. human adult.

Major Route(s) of Entry: Inhalation of incidental mists or vapors.

NA - Not Applicable ND - No Data NE - Not Established

Acute Exposure Symptoms

Inhalation:	Low risk at ambient temperatures. In enclosed spaces or when hot, vapors may reach concentrations sufficient to cause drowsiness, dizziness, headache, nausea, or lung irritation. Mists above TLV may cause chemical pneumonitis.
Dermal Contact:	Transient. slight irritation.
Eye Contact:	Practically non-irritant.
Ingestion:	Low toxicity. Very large amounts may cause generalized depression, headache, drowsiness, nausea, vomiting or diarrhea. Small doses may produce irritation and diarrhea

Chronic Exposure

Prolonged and/or frequent contact may cause drying, cracking (dermatitis) or folliculitis. Repeated, excessive exposure to mists or fumes may induce pulmonary irritation or chronic bronchitis.

Other Special Effects

None expected.

Medical Conditions Aggravated by Exposure

None.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before laundering.
s:	Flush with large volumes of water. Seek physician if any complications arise.
ngestion:	Do not induce vomiting. Seek medical aid.
Injection:	Subcutaneous injection is a medical emergency. Seek medical aid immediately.

Notes to Physician: Following ingestion at a viscosity of around 200 SUS (100'F) there may be a minimal risk of aspiration into the lungs. For quantities above a few drops, careful cuffed tube lavage may still be considered. Aspirated material may cause chemical pneumonitis or lipoid pneumonia. Subcutaneous or intramuscular injection requires prompt surgical debridement. If not familiar with technique, seek skilled advice.

7.0 Special Protection Information

Ventilation Requirements: Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards as evaluated by designated personnel.

Permitted Threshold Air Concentrations:

Mineral Oil Mist	TLV-TWA	5Mg/M3	OSHA-PEL	5Mg/M3
	TLV-STEL	10mg/m3	OSHA-STEL	ND
	TLV-Ceiling	ND	OSHA-Ceiling	ND
			OSHA-Peak	ND

Specific Personal Protective Equipment:

Respiratory: Normally none required. If high vapor or mist concentrations expected, use respirator approved for organic vapors and mists.
Eyes: Safety goggles or chemical splash goggles if splashing is anticipated.
Dermal: Oil impervious gloves if frequent or prolonged contact is expected
Other Clothing or Equipment: Wear body-covering work clothes to avoid prolonged or repeated exposure. Launder soiled work clothes before reuse.

8.0 Transportation and Special Precautions

Storage: Do not apply high heat or flame to container. Keep separate from strong oxidizing agents.
tion: Empty containers may contain product residue which could include flammable or explosive vapors.
Consult appropriate Federal State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Petroleum Lubricating Oil
Hazard Class:	Non-Hazardous
Hazard Identification Number:	None assigned
Placard:	None

NA - Not Applicable ND - No Data NE - Not Established

9.0 Environmental Data

Product Name Premium High Vacuum Pump Oil
(13203,13204)

SARA TITLE III
Section 313 - Toxic chemicals
This Product does not contain toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
None		

Section 311 - Hazard Categories

Yes	Not Applicable	No	Fire Haurd
No	Acute (Immediate Health Hazard)	No	Sudden Release of Pressure Hazard
No	Chronic (Delayed Health Hazard)	No	Reactive Hazard

Section 302/(A) - Extremely Hazardous Substances
(RQ = Reportable Quantity)
(TPQ= Threshold Plaming Quantity)
This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None				

Clean Water Act
Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center- 800-424-8802.

Comprehensive Environmental Response, Compensation & Liability Act (CERCLA) - Section 102
Hazardous Substances

Component	CAS#	%	RQ lbs.

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

New Jersey Worker & Community Right-to-Know Act
Petroleum Oil

Canada
WHMIS (Workplace Hazardous Material Information System)
("NC") Not Controlled

Federal Regulations
Reported in TSCA Inventory:

Product	[X] Yes	No		NA (Mixture)
Components	Yes	No	[X]	NA

NA - Not Applicable ND - No Data NE - Not Established

10.0 Labeling

NOTE
This product has been determined not to be a physical or a health hazard as defined by the OSHA Hazard Communication Standard.

ALL STATEMENTS, INFORMATION, AND DATA PROVIDED IN THIS MATERIAL SAFETY DATA SHEET ARE BELIEVED TO BE ACCURATE AND RELIABLE, BUT ARE PRESENTED WITHOUT GUARANTEE, REPRESENTATION, WARRANTY, OR RESPONSIBILITY OF ANY KIND, EXPRESSED OR IMPLIED. ANY AND ALL REPRESENTATIONS AND/OR WARRANTIES OF MERCHANTIBILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY DISCLAIMED. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

R.D. Clark
NAME

Safety & Envimnniental Administrator
Title

SIGNATURE

12-21-94
DATE

NA - Not Applicable ND - No Data NE - Not Established

MATERIAL SAFETY DATA SHEET

Complies with OSHA's 29 CFR 1910.1200 and State Hazard Communication Standards.

ROCHESTER MIDLAND
P.O. BOX 1515
ROCHESTER, NY 14603-1515
(716) 336-2200

Medical Emergency Telephone (716) 266-2283

****
SECTION 1
****
PRODUCT IDENTITY: BIOGENIC ELECTROSAFE, Solvent Degreaser
DATE PREPARED: 6/11/91
NFPA/HMIS HAZARD CODES (minilmal = 0; slight = 1, moderate = 2; serious = 3; severe = 4)
Health: 2/2 Fire: 2/2 Reactivity: 0/0 Special: NA

****
SECTION 2: HAZARDOUS INGREDIENTS/IDENTITY INFORMATION
****

HAZARDOUS COMPONENTS	CAS #	OSHA-PEL	ACGIH-TLV	% BY WT.
Petroleum distillate	64742-47-8	None Est.*	None Est.	65-75
d-Limonene	5989-27-5	None Est.	None Est.	25 - 35

*Supplier recommendation 200 - 300 ppm

****
SECTION 3: PHYSICAL/ CHEMICAL CHARACTERISTICS
****
BOILING POINT: 350-450F
POR PRESSURE: 1 mm Hg @ 25F
POR DENSITY (air = 1): Heavier
LUBILITY IN WATER: Insoluble
SPECIFIC GRAVITY: 0.799
PERCENT VOLATILE: 100
EVAPORATION RATE: Slower than ether
pH: Not Applicable
APPEARANCE AND ODOR: Clear colorless liquid; mild citrus odor.

****
SECTION 4: FIRE AND EXPLOSION HAZARD DATA
****
FLASH POINT: 145F TCC
FLAMMABLE LIMITS: Lel 0.7%; Uel 7% min.
EXTINGUISHING MEDIA: Foam, dry chemical, carbon dioxide, water fog or spray.
SPECIAL FIREFIGHTING PROCEDURES: As for any combustible hydrocarbon. Use air supplied breathing equipment. Avoid breathing vapor or fumes. Cool exposed containers with water spray.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustible liquid. Do not store or mix with strong oxidants. Empty containers may retain ignitable product residue. Do not cut, puncture, or weld on or near containers.

****
SECTION 5: REACTIVITY DATA
****
STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: Open flames or welding arcs.

INCOMPATIBILITY: Strong acids and oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS: Incomplete combustion produces fumes, smoke, soot, carbon dioxide and carbon monoxide.

****
SECTION 6: HEALTH HAZARD DATA
****
ROUTES OF ENTRY/SIGNS AND SYMPTOMS OF EXPOSURE: ACUTE: Eye irritant. Prolonged skin contact can cause irritation or dermatitis. Excess inhalation may cause nose and respiratory irritation; headache, nausea, dizziness, drowsiness, other temporary central nervous system effects. Ingestion: irritation,nausea, vomiting; possible dizziness, effects as for inhalation; possible chemical pneumonitis from aspiration of vomited material.
CHRONIC EFFECTS: None expected in normal use.
CARCINOGENS: None listed under OSHA, IARC or NTP. Recent NTP testing with daily very high oral doses of d-Limonene has created kidney tumors in one species of male laboratory rat. When handled as recommended, d-Limonene is not expected to pose a measurable carcinogenic risk to humans.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory (from inhalation); skin contact may aggravate existing dermatitis.
EMERGENCY AND FIRST AID PROCEDURES: Eyes: immediately flush with water for 15 minutes. Skin: wash with water. Remove contaminated clothing. Inhalation: remove to fresh air. Ingestion: DO NOT INDUCE VOMITING. Drink several glasses of water or milk. Get medical attention for eye, ingestion, or if irritation persists.

****
SECTION 7: PRECAUTIONS FOR SAFE HANDLING AND USE
****
SPILL OR LEAK PROCEDURES: Ventilate area and use appropriate protective equipment. SMALL SPILLS: Mop up all possible. Flush residue with water. LARGE SPILLS: Dike to contain liquid, reclaim all possible. Absorb remainder on inert material and place in closed containers for disposal. Flush residue away with water.
WASTE DISPOSAL METHOD: Dispose of in accordance with Federal, State and local regulations.
HANDLING AND STORING: Use with adequate ventilation. Do not store or handle near heat, sparks, flame or strong oxidants. Store only in original container and keep closed. Do not reuse empty container.
OTHER PRECAUTIONS: Avoid prolonged or repeated skin contact. Avoid breathing vapors.

****
SECTION 8: CONTROL MEASURES
****
RESPIRATORY PROTECTION: Not normally needed. NIOSH approved organic vapor respirator in enclosed area or if spray in air causes irritation.
VENTILATION: Local exhaust as needed if vapor or spray in air exceeds recommended exposure limit or causes irritation. Use nonsparking equipment.

GLOVES: Solvent resistant material such as Viton, neoprene or nitrile rubber.
EYE PROTECTION: Chemical safety glasses or goggles
OTHER PROTECTIVE EQUIPMENT: As required to prevent prolonged or repeated skin contact.
WORK/HYGIENIC PRACTICES: Wash skin contact areas immediately. Wear solvent resistant gloves for other than incidental hand contact while using product or solutions. Remove and launder contaminated clothing before reuse.

This information was compiled from current, reliable sources and is believed to be correct. As data, and/or regulations change, and conditions of use and handling are beyond our control, no warranty, express or implied, is made as to completeness or continuing accuracy of this information.

Ref # 29-45-282

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

7SD58

MATERIAL SAFETY DATA SHEET
FOR COATINGS, RESINS AND RELATED MATERIALS

SECTION I PRODUCT AND PREPARATION INFORMATION

MANUFACTURER: RUST-OLEUM CORPORATION
ADDRESS: 11 HAWTHORN PARKWAY
VERNON HILLS, IL
60061

EMERGENCY AND INFORMATION TELEPHONE: (847)367-7700

PRODUCT CLASS: AEROSOL COATINGS, TOPCOATS
MANUFACTURERS CODE: V2602, V2603, V2606, V2607, V2608, V2609, V2610, V2613, V2614, V2615, V2617, V2618, V2619, V2620, V2621, V2622, V2623, V2624, V2625, V2626, #
TRADE NAME: PEM-KOTE SFW88, SFW89, SFW92, SFW93, SFW94, SFW95, SFW96, SFW98, SFW99, SFX01, SFX03, SFX04, SFX05, SFX06, SFX07, SFX08, SFX09, SFX10, SFX11, SFX12.
DATE OF PREPARATION: FEBRUARY 1, 1996 (DLC)

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT/CAS NO.	WT%	EXPOSURE LIMITS ACGIH-TLV	OSHA PEL	LEL	MM HG @ 20 C
XYLENE/1330-20-7	15-30%*	100 PPM	100 PPM	1.2%	9.5
ETHYLBENZENE/100-41-4	3-6%	100 PPM	100 PPM	0.8%	7.1
ACETONE/67-64-1	30-50%*	750 PPM	750 PPM	2.6%	181.7
AROMATIC HYDROCARBON/ 64742-95-6	0-10%*	NE	100 PPM	1.0%	5.0
PETROLEUM NAPHTHA/ 64742-89-8	2-5%	400 PPM	400 PPM	1.0%	5.20
PROPELLANT/68476-85-7	25-30%*	1000 PPM	1000 PPM	1.8%	85 PSI

* NEAREST 5%
NE - NOT ESTABLISHED NA - NOT APPLICABLE

SECTION III - PHYSICAL DATA

BOILING RANGE: BELOW 0 F VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE (ETHER=1): SLOWER % VOLATILE BY VOLUME: NA
VAPOR PRESSURE: PROPELLANT, 85 PSIG AT 70 F (21 C)
APPEARANCE AND ODOR: COLORED LIQUID, SOLVENT ODOR
PH: NA WT/GAL: NA
FREEZING POINT: NOT ESTABLISHED

SECTION IV - FIRE AND EXPLOSION HAZARDS

FLAMMABILITY CLASSIFICATION: EXTREMELY FLAMMABLE
DOT CLASSIFICATION: CONSUMER COMMODITY ORM-D
FLASHPOINT: < 0 F (TCC)
UPPER FLAMMABLE LIMIT: 9.5%
LOWER FLAMMABLE LIMIT: 1.8% AUTO IGNITION TEMPERATURE: NOT AVAILABLE

HAZARDOUS COMBUSTION PRODUCTS: MAY FORM TOXIC MATERIALS: CARBON MONOXIDE, CARBON DIOXIDE, VARIOUS HYDROCARBONS, ETC.

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT: PERFORATION OF THE PRESSURIZED CONTAINER MAY CAUSE BURSTING OF THE CAN. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY TO HOT SURFACES.
EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE: KEEP AWAY FROM ELECTRICAL EQUIPMENT, HEAT, SPARKS AND OPEN FLAME.

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL OR FOAM.

SPECIAL FIRE FIGHTING PROCEDURES: SELF-CONTAINED BREATHING APPARATUS RECOMMENDED; SMOTHER TO EXCLUDE AIR. DO NOT USE WATER; HANDLE AS AN OIL FIRE. CLASS B FIRE PROCEDURES.

UNUSUAL FIRE AND EXPLOSION HAZARDS: KEEP AWAY FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND OPEN FLAME.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:
ACUTE (INHALATION): HARMFUL IF INHALED. MAY AFFECT THE BRAIN AND NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. REPEATED OVEREXPOSURE MAY PROGRESSIVELY LEAD TO STAGGERING GAIT, CONFUSION, UNCONSCIOUSNESS OR COMA. CAUSES NOSE AND THROAT IRRITATION.

ACUTE (SKIN OR EYE CONTACT): CAUSES EYE AND SKIN IRRITATION WHICH CAN LEAD TO DERMATITIS WITH REPEATED EXPOSURES.

INGESTION: MAY CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

CHRONIC: REPORTS HAVE ASSOCIATED REPEATED PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. OVEREXPOSURE TO XYLENE AND TOLUENE IN LAB ANIMALS HAS BEEN ASSOCIATED WITH LIVER ABNORMALITIES, KIDNEY, LUNG, SPLEEN AND EYE DAMAGE AS WELL AS ANEMIA. EFFECTS IN HUMANS HAVE INCLUDED LIVER AND CARDIAC ABNORMALITIES. A COMPONENT HAS BEEN SHOWN TO CAUSE BIRTH DEFECTS IN LABORATORY ANIMAL STUDIES.

EMERGENCY AND FIRST AID PROCEDURES:
INHALATION: REMOVE FROM EXPOSURE, RESTORE BREATHING AND NOTIFY A PHYSICIAN.
EYE CONTACT: FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. NOTIFY A PHYSICIAN.
SKIN CONTACT: WASH AFFECTED AREA WITH SOAP AND WATER, REMOVE CONTAMINATED CLOTHING AND WASH BEFORE REUSE.
INGESTION: DO NOT INDUCE VOMITING. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION. ASPIRATION OF THIS MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

TOXICOLOGICAL PROPERTIES:
CARCINOGENICITY: NOT CLASSIFIED
REPRODUCTIVE TOXICITY: EXPERIMENTAL REPRODUCTIVE EFFECTS
TERATOGENICITY: AN EXPERIMENTAL TERATOGEN
MUTAGENICITY: NOT AVAILABLE
TOXICOLOGICALLY SYNERGISTIC PRODUCTS: NOT AVAILABLE

SECTION VI REACTIVITY DATA

STABILITY: STABLE
INCOMPATIBILITY: STRONG OXIDIZING AGENTS AND ACIDS
HAZARDOUS POLYMERIZATION: CANNOT OCCUR
CONDITIONS TO AVOID FOR POLYMERIZATION: UNKNOWN
DECOMPOSITION PRODUCTS: SMOKE MAY BE ACRID AND FUMES IRRITATING. BURNING GENERATES CO, CO2, VARIOUS HYDROCARBONS, ETC.

SECTION VII - SPILL OR LEAK PROCEDURES

RELEASE OR SPILL PROCEDURES: REMOVE ALL SOURCES OF IGNITION, VENTILATE AREA AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD: DISPOSE OF ACCORDING TO LOCAL PROVINCIAL AND FEDERAL REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: USE NIOSH APPROVED CHEMICAL CARTRIDGE RESPIRATOR TO REMOVE SOLID AIRBORNE PARTICLES OR OVERSPRAY AND ORGANIC VAPORS DURING SPRAY APPLICATION. IN CONFINED AREAS: USE NIOSH APPROVED SUPPLIED-AIR RESPIRATORS OR HOODS DURING SPRAY APPLICATION.

EYE PROTECTION: USE SAFETY EYEWEAR DESIGNED TO PROTECT AGAINST SPLASH OF LIQUIDS.

OTHER PROTECTIVE EQUIPMENT: USE IMPERVIOUS GLOVES AND/OR CLOTHING TO PREVENT SKIN CONTACT.

VENTILATION: PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF HAZARDOUS INGREDIENTS BELOW ACCEPTABLE LIMITS, ESPECIALLY IN ENCLOSED AREAS.

SECTION IX - SPECIAL PRECAUTIONS

HANDLING/STORAGE PRECAUTIONS: INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING VAPORS AND INHALING CONTENTS CAN BE HARMFUL OR FATAL.

CALIFORNIA PROPOSITION 65 STATEMENT: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

MATERIAL SAFETY DATA SHEET (MSDS)
Please retain for your records.

MATERIAL SAFETY DATA SHEET

2SC44
5W908,5W907
5W177,5W178

- Coatings, Resins and Related Materials

SECTION I - PRODUCT AND PREPARATION INFORMATION
MANUFACTURER: RUST-OLEUM CORPORATION
ADDRESS: 11 Hawthorn Parkway, Vernon Hills, IL 60061
EMERGENCY AND INFORMATION TELEPHONE: (708) 367-7700

PRODUCT CLASS: Aerosol Spray Paints
MANUFACTURERS CODE: 2233, 2242, 2255 and 2264
TRADE NAME: HARD HAT Fluorescent Topcoats
DATE OF PREPARATION: March 19, 1992 (rwb)

SECTION II - HAZARDOUS INGREDIENTS

		EXPOSURE LIMITS		
INGREDIENT/CAS NO	WT%	ACGIH-TLV	LEL	mmHg@20C
n-Hexane/110-54-3	15%*	50ppm	1.2%	137.0
Toluene/108-88-3	10%*	100ppm	1.2%	22.0
Mineral Spirits/8052-41-3	10%*	100ppm	1.0%	2.6
Mineral Spirits/64742-89-7	5%*	200ppm	1.0%	1.2
n-Butane/106-97-8	10%*	800ppm	1.0%	879.0
n-Propane/74-98-6	25%*	1000ppm	1.0%	5637.0

*Nearest 5%
NE-not established NA-not applicable

SECTION III - PHYSICAL DATA
Boiling range: 31-396 F
Evaporation Rate (Ether=1): Slower
Vapor density: Heavier than air
% Volatile (by volume): 85-90
Wt/gal: NA
pH: NA

SECTION IV - FIRE AND EXPLOSION HAZARDS
Flammability Classification: Extremely Flammable
Flashpoint: <-25 F (TCC)
DOT Classification: Consumer Commodity ORM-D
Extinguishing Media:
NFPA Class B extinguishers (Carbon dioxide, dry chemical or foam)
Special Fire Fighting Procedures:
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion. If water is used, fog nozzles are preferred.
Unusual Fire and Explosion Hazards:
Keep away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. DO NOT apply to hot surfaces.

SECTION V - HEALTH HAZARD DATA
Effects of Overexposure:
Acute (Inhalation):
Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. Repeated overexposures may lead progressively to staggering gait, confusion, unconsciousness or coma. Causes nose and throat irritation.
Eye (Skin or Eye Contact):
Causes eye and skin irritation which can lead to dermatitis with repeated overexposures.
Ingestion:
May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic:
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Overexposure to Toluene in lab animals has been associated with liver, kidney, lung, and spleen damage as well as anemia. Effects in humans have included liver and cardiac abnormalities. Overexposure to Hexane in high vapor concentrations (1000-1500ppm) over a period of several months has been shown to cause peripheral polyneuropathy which has the potential of becoming irreversible.

Emergency and First Aid Procedures:
Inhalation:
Remove from exposure, restore breathing and notify a physician.
Eye Contact:
Flush immediately with large amounts of water for at least 15 minutes. Notify a physician.
Skin Contact:
Wash affected area with soap and water, remove contaminated clothing and wash before reuse.
Ingestion:
DO NOT induce vomiting. Keep person warm, quiet and get medical attention. Aspiration of this material into the lungs can cause chemical pneumonitis which can be fatal.

SECTION VI - REACTIVITY DATA
Stability: Stable
Incompatible:
With strong oxidizing agents
Hazardous Decomposition Products:
By open flame- Carbon monoxide, Carbon dioxide and unidentifiable organic compounds.
Hazardous Polymerization: Will Not Occur under normal conditions.

SECTION VII - SPILL OR LEAK PROCEDURES
Release or Spill Procedures:
Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools
Waste Disposal Method:
Dispose of according to local, state and federal regulations. DO NOT incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION
Respiratory Protection:
Use NIOSH approved chemical cartridge respirator (TC23C) to remove solid airborne overspray particles and organic vapors during spraying. IN CONFINED AREAS: Use NIOSH approved supplied-air respirators or hoods (TC19C).
Eye Protection:
Use safety eyewear designed to protect against splash of liquids.
Other Protective Equipment:
Use gloves to prevent prolonged contact with skin.
Ventilation:
Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits.

SECTION IX - SPECIAL PRECAUTIONS AND REGULATORY ISSUES
Handling/Storage Precautions:
Do not store above 120 F. Protect from freezing. DO NOT puncture or incinerate containers. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

MATERIAL SAFETY DATA SHEET 2SC42
6A280,6A938
[redacted] 6A939
[redacted]atings, Resins and Related Materials

SECTION I - PRODUCT AND PREPARATION INFORMATION
MANUFACTURER: RUST-OLEUM CORPORATION
ADDRESS: 11 Hawthorn Parkway, Vernon Hills, IL 60061
EMERGENCY AND INFORMATION TELEPHONE: (708) 367-7700

PRODUCT CLASS: Aerosol Spray Paint
MANUFACTURERS CODE: 2326, 2348 UNLEADED#, 2364, and 2391
TRADE NAME: HARD HAT Striping Paints
DATE OF PREPARATION: April 26, 1993 (rwb)

SECTION II - HAZARDOUS INGREDIENTS
EXPOSURE LIMITS

INGREDIENT/CAS NO	WT%	ACGIH-TLV	OSHA-PEL	LEL	mmHg@20C
Xylene/1330-20-7	7%	100ppm	100ppm	1.0%	9.5
Toluene/108-88-3	25%*	100ppm	100ppm	1.2%	22.0
VM&P Naphtha/64742-89-8	3-10%*	300ppm	NE	0.9%	2.0
Propane/74-98-6	10%*	NE	1000ppm	2.3%	40psia
Isobutane/75-28-5	10%*	NE	NE	1.9%	40psia

*Nearest 5%
NE-not established NA-not applicable

SECTION III - PHYSICAL DATA
Boiling range: Below 0 F
Evaporation Rate (Ether=1): Slower
Vapor density: Heavier than air
% Volatile (by volume): NA
Wt/gal: NA
pH: NA

SECTION IV - FIRE AND EXPLOSION HAZARDS
Flammability Classification: Extremely Flammable
Flashpoint: <0 F (TCC)
DOT Classification: Consumer Commodity ORM-D
Extinguishing Media:
NFPA Class B extinguishers (Carbon dioxide, dry chemical or foam)
Special Fire Fighting Procedures:
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion. If water is used, fog nozzles are preferred.
Unusual Fire and Explosion Hazards:
Keep away from heat, electrical equipment, sparks and open flame. Closed containers may explode when exposed to extreme heat. DO NOT apply to hot surfaces.

SECTION V - HEALTH HAZARD DATA
Effects of Overexposure:
Acute (Inhalation):
Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. Repeated overexposure may lead progressively to staggering gait, confusion, unconsciousness or coma. [redacted]s nose and throat irritation.
[redacted] (Skin or Eye Contact):
[redacted] eye and skin irritation which can lead to dermatitis with [redacted]ed overexposures.
Ingestion:
May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic:
Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Overexposure to Xylene and Toluene in lab animals has been associated with liver, kidney, spleen and eye damage as well as anemia. Effects in humans have included liver and cardiac abnormalities.

Emergency and First Aid Procedures:
Inhalation:
Remove from exposure, restore breathing and notify a physician.
Eye Contact:
Flush immediately with large amounts of water for at least 15 minutes. Notify a physician.
Skin Contact:
Wash affected area with soap and water, remove contaminated clothing and wash before reuse. Wash hands before eating or smoking.
Ingestion:
DO NOT induce vomiting. Keep person warm, quiet and get medical attention. Aspiration of this material into the lungs can cause chemical pneumonitis which can be fatal.

SECTION VI - REACTIVITY DATA
Stability: Stable
Incompatible:
with strong oxidizing agents
Hazardous Decomposition Products:
By open flame- Carbon monoxide and Carbon dioxide.
Hazardous Polymerization: Will Not Occur

SECTION VII - SPILL OR LEAK PROCEDURES
Steps to be Taken in Case Material is Released or Spilled:
Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools
Waste Disposal Method:
Dispose of according to local, state and federal regulations. DO NOT incinerate closed containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION
Respiratory Protection:
Use NIOSH approved chemical cartridge respirator (TC23C) to remove airborne particles and organic vapors during spraying. IN CONFINED AREAS: Use NIOSH approved supplied-air respirators or hoods (TC19C).
Eye Protection:
Use safety eyewear designed to protect against splash of liquids.
Other Protective Equipment:
Use gloves to prevent contact with skin.
Ventilation:
Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits.

SECTION IX - SPECIAL PRECAUTIONS AND REGULATORY ISSUES
Handling/Storage Precautions:
DO NOT puncture or store above 120 F. Protect from freezing. DO NOT puncture or incinerate cans. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
CALIFORNIA PROPOSITION 65 STATEMENT:
These products contain a chemical known to the State of California to cause birth defects or other reproductive harm.

MATERIAL SAFETY DATA SHEET (MSDS)

This MSDS should be attached or kept with the respective product with which it is associated.

MATERIAL SAFETY DATA SHEET 7S914
[redacted]68-1D477
[redacted]1D481
[redacted]1D491
[redacted]oatings, Resins and Related Materials

SECTION I - PRODUCT AND PREPARATION INFORMATION
MANUFACTURER: RUST-OLEUM CORPORATION
11 Hawthorne Parkway
Vernon Hills, IL 60061
EMERGENCY AND INFORMATION TELEPHONE: (708) 367-7700

PRODUCT CLASS: Dem-Kote Enamel Finish
CHEMICAL NAME: Pigment Dispersions in Synthetic Resins
MANUFACTURERS CODES: 1D468, 1D469, 1D470, 1D471, 1D472, 1D473, 1D474, 1D475, 1D476, 1D477, 1D479, 1D480, 1D481, 1D483, 1D484, 1D485, 1D486, 1D487, 1D488, 1D489, 1D490, 1D491
DATE OF PREPARATION: October 13, 1994 (dlc)

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT/CAS No	WT %	ACGIH-TLV	OSHA-PEL	LEL	mm Hg@20C
EXPOSURE LIMITS					
Xylene/1330-20-7	0-30%*	100ppm	100ppm	1.2%	9.5
Ethylbenzene/100-41-4	0-10%*	100ppm	100ppm	0.8%	7.1
Toluene/108-88-3	30-50%*	100ppm	100ppm	1.2%	22.0
Propellant/69476-85-7	25-30%	1000ppm	1000ppm	1.8%	85psi
Aliphatic Hydrocarbon/ 64742-89-8	0-20%*	300ppm	300ppm	0.9%	2.0
Aromatic Hydrocarbon/ 64742-95-6	0-10%*	NE	100ppm	1.0%	3.0
Methyl n-Amyl Ketone/ 110-43-0	0-10%*	50ppm	100ppm	1.1%	2.14

*Nearest 5%
NE-not established NA-not applicable

SECTION III - PHYSICAL DATA
Boiling range: Below 0 F
Evaporation Rate (Ether=1): Slower
Vapor density: Heavier than air
% Volatile (by volume): NA
Vapor Pressure: Propellant, 85 psig at 21C (70F)
Appearance and Odor: Colored liquid, solvent odor
Wt/gal: NA
pH: NA
Freezing Point: not established

SECTION IV - FIRE AND EXPLOSION HAZARDS
Flammability Classification: Extremely Flammable
DOT Classification: Consumer Commodity ORM-D
Flashpoint: <0 F
Upper Flammable limit: 9.5%
Lower Flammable limit: 1.8%
Auto Ignition Temperature: Not available
Hazardous Combustion products: May form toxic materials: carbon monoxide, carbon dioxide, various hydrocarbons, etc.
Explosion Data - Sensitivity to Mechanical Impact: Perforation of the pressurized container may cause bursting of the can. Closed containers may explode when exposed to extreme heat. DO NOT apply to [redacted]urfaces
Explosion Data - Sensitivity to Static Discharge: Keep away from electrical equipment, heat, sparks and open flame.
Extinguishing Media: Carbon Dioxide, Dry Chemical or Foam
Special Fire Fighting Procedures:
Self-contained breathing apparatus recommended; smother to exclude air. Do not use water; handle as an oil fire. Class B fire procedures.
Unusual Fire and Explosion Hazards:
Keep away from heat, electrical equipment, sparks and open flame.

SECTION V - HEALTH HAZARD DATA
EFFECTS OF OVEREXPOSURE:
Acute (Inhalation):
Harmful if inhaled. May affect the brain and nervous system causing dizziness, headache or nausea. Repeated overexposure may progressively lead to staggering gait, confusion, unconsciousness or coma. Causes nose and throat irritation.
Acute (Skin or Eye Contact):
Causes eye and skin irritation which can lead to dermatitis with repeated overexposures.

Ingestion:
May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic:
Reports have associated repeated prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Overexposure to Xylene and Toluene in lab animals has been associated with liver abnormalities, kidney, lung, spleen and eye damage as well anemia. Effects in humans have included liver and cardiac normalities. A component has been shown to cause birth defects in ratory animal studies.
EMERGENCY AND FIRST AID PROCEDURES:
Inhalation:
Remove from exposure, restore breathing and notify a physician.
Eye Contact:
Flush immediately with large amounts of water for at least 15 minutes. Notify a physician.
Skin Contact:
Wash affected area with soap and water, remove contaminated clothing and wash before reuse.
Ingestion:
DO NOT induce vomiting. Keep person warm, quiet and get medical attention. Aspiration of this material into the lungs can cause chemical pneumonitis which can be fatal.
TOXICOLOGICAL PROPERTIES:
Carcinogenicity: Not classified
Reproductive Toxicity: Experimental reproductive effects
Teratogenicity: An experimental teratogen
Mutagenicity: Not available
Toxicologically Synergistic Products: Not available

SECTION VI - REACTIVITY DATA
Stability: Stable
Incompatible: Strong oxidizing agents and acids
Hazardous Polymerization: Cannot Occur
Conditions to Avoid for Polymerization: Unknown
Decomposition Products:
Smoke may be acrid and fumes irritating. Burning generates CO, CO2, various hydrocarbons, etc.

SECTION VII - SPILL OR LEAK PROCEDURES
Release or Spill Procedures:
Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools.
Waste Disposal Method:
Dispose of according to local, provincial and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION
Respiratory Protection:
Use NIOSH approved chemical cartridge respirator to remove solid airborne particles of overspray and organic vapors during spray application.
In Confined Areas, use NIOSH approved supplied-air respirators or hoods during spray application.
Eye Protection:
Use safety eyewear designed to protect against splash of liquids.
Other Protective Equipment:
Use impervious gloves and/or clothing to prevent skin contact.
Ventilation:
Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits, especially in enclosed areas.

SECTION IX - SPECIAL PRECAUTIONS
Handling and Storage Precautions:
Intentional misuse by deliberately concentrating vapors and inhaling contents may be harmful or fatal.
CALIFORNIA PROPOSITION 65 STATEMENT:
This product contains chemicals known to the State of California to cause birth defects or other reproductive harm.

MATERIAL SAFETY DATA SHEET
For Coatings, Resins and Related Materials

SECTION I-PRODUCT AND PREPARATION INFORMATION

MANUFACTURER: RUST-OLEUM CORPORATION
ADDRESS: 11 Hawthorn Parkway TELEPHONE: (708)367-7700
Vernon Hills, IL 60061

PRODUCT CLASS: Acrylic Emulsion
MANUFACTURERS CODE: 3575/7830
TRADE NAME: RUST CONVERTOR/RUST REMOVER

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT/CAS No	WT %	ACGIH-TLV OSHA-PEL	LEL	mmHg@20C
Diethylene glycol methyl ether/111-77-3	1%	**********	1.5%	1.0
Tannic acid/1401-55-4	1%	**********	NA	NA

TLV has not been established for this chemical

SECTION III-PHYSICAL DATA

Boiling range: 212-400F Vapor density: lighter than air
Evaporation Rate: slower than ether
Volatile: 57% wt/gal: 10.5lbs ph: 1.3-2.3

SECTION IV-FIRE AND EXPLOSION HAZARDS

Flammability Classification: non-flammable
Flashpoint: NA

Extinguishing Media: Not Applicable

Special Fire Fighting Procedures:
Water may be used to cool closed containers to prevent build-up of steam.

Unusual Fire and Explosion Hazards:
Closed containers may explode when exposed to extreme heat due to build-up of steam

SECTION V-HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

Acute(inhalation):
High vapor concentrations can Irritate eyes, nose and respiratory passages.

Acute (Skin or Eye Contact):
Due to the low pH, this product is a slight to moderate irritant In repeated contact.

Ingestion -- non-toxic

Chronic -- Non recognized

EMERGENCY AND FIRST AID PROCEDURES:

Fumes:
Remove from exposure to fresh air.

Spray (eyes):
Flush immediately with large amounts of water for at least 15 minutes. Notify a physician.

Flash (skin):
Wash affected area with soap and water, Remove contaminated clothing and wash before reuse. If redness, itching or burning sensation develops, consult a physician.

Ingestion:
DO NOT induce vomiting. Dilute with water. If gastrointestinal symptoms develop, contact a physician. Never give anything by mouth to an unconscious person.

SECTION VI-REACTIVITY DATA

Stability: Stable

Incompatible: Strong alkalies

Hazardous Decomposition Products:
By flame-carbon monoxide and Carbon dioxide

Hazardous Polymerization: will not occur

SECTION VII-SPILL OR LEAK PROCEDURES

Release or Spill Procedures:
Soak up liquid with absorbent and shovel into waste container. Wash spill area with water and flush to sewer serviced by wastewater treatment facility.

Waste Disposal Method:
Dispose of according to local, state and federal regulations.

SECTION VIII-SPECIAL PROTECTION INFORMATION

Respiratory Protection:
Use NIOSH approved mechanical filter respirator to remove solid air borne particles of overspray during spray application.

Eye Protection:
Use safety eyewear designed to protect against splash of liquids.

Other Protective Equipment:
Use gloves to prevent prolonged skin contact

Ventilation:
Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV of most hazardous ingredient in SECTION II below acceptable limit.

SECTION IX-SPECIAL PRECAUTIONS AND REGULATORY ISSUES

Handling and Storage Precautions:
Non-flammable. See OSHA 1910.106

Other Precautions:
Do not take internally. KEEP FROM FREEZING.

Ryerson
an Inland Steel company

Material Safety Data Sheet

NICKEL

252

I. PRODUCT IDENTIFICATION

Distributor: Joseph T. Ryerson & Son, Inc.
Address: 2621 W. 15th Place
Chicago, Illinois 60608
Chemical Name and Synonyms: NICKEL ALLOYS
Chemical Family: Metals
Formula: Not Applicable

Emergency Telephone: (312) 762-2121

II. PRODUCT DESCRIPTION AND HAZARDOUS INGREDIENTS/IDENTITY INFORMATION:

See Chart Inside For Listing

III. PHYSICAL DATA

Melting Point F (C): Greater Than 2300 (1260)
Vapor Pressure: Not Applicable
Vapor Density (Air = 1): Not Applicable
Solubility in Water: Negligible
Specific Gravity (H_2O = 1): Greater Than 7
% Volatile by Volume (%): Not Applicable
Evaporation Rate: Not Applicable
Appearance and Odor: Grayish to silvery odorless sheet, strip, plate, bar, structural shape, pipe or tubing.

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point F (C): Not Applicable
Extinguishing Media: Use methods applicable to surrounding area.
Flammable Limits: Not Applicable
Unusual Fire and Explosion Hazards: None
Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to surrounding materials.

DISCLAIMER

RYERSON MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The information contained in this Material Safety Data Sheet (MSDS) is believed to be correct, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material or the results to be obtained from the use thereof. User assumes all risk and liability of any use, processing or handling of any material. Variations in methods, conditions, equipment used to store, handle or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at its sole discretion.

As sold, the product described in this MSDS is considered by Ryerson to be an "article" within the meaning of Title 29 of the Code of Federal Regulations, Section 1910.1200 *et seq*. This MSDS is intended to be used solely for the purpose of satisfying informational requests made pursuant to that requirement. It is not intended to preempt, replace or expand the terms contained in Ryerson Conditions of Sale. Compliance with all applicable federal, state and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe workplace, to examine all aspects of its operation, and to determine if or where precautions in addition to those described herein, are required.

HAZARDOUS CONS

CAS NUMBER:	7440-02-0	7440-48-4	7440-47-3	7439-98-7	7440-33-7	7439-89
Grade	Nickel	Cobalt	Chromium	Molybdenum	Tungsten	Iron
200	99.2	—	—	—	—	0.4(
201	99.0	—	—	—	—	0.4(
400	66.5	1.0	—	—	—	1.5
404	54.5	—	—	—	—	0.5(
R405	66.5	1.0	—	—	—	2.5
K500	63.0	1.0	—	—	—	2.0
600	72.0	1.0	15.5	—	—	8.0
800	32.5	2.0	21.0			44.0
800H	32.5	2.0	21.0	—	—	44.0
825	42.0	2.0	21.5	3.0	—	
C276	57.0	2.5	15.5	16.0	4.0	5.5
625	62.0	1.0	21.5	9.0	—	5.0
718	52.5	1.0	18.0	3.0	—	19.0
X-750	70.0	1.0	15.5	—	—	7.0

Contaminant and Exposure Limits	Aluminum	Boron	Carbon	Cobalt	Chromium	Copper
	As Welding Fume	As Boron Oxide	Not Listed	As Dust and Fume	As Soluble Cr Salts	As Copper Dust
(mg/m³) PEL	5	15		0.1	0.5	1
(mg/m³) TLV		10		0.1	0.5(VI)	
					As Metal and Insoluble Cr Salts	As Copper Fume
PEL					1	0.1
TLV					0.5	

ITITUENTS—NOMINAL PERCENT

-6	744-21-3	7439-96-5	7440-44-0	7249-90-5	7440-32-6	7440-50-8	7727-37-9	7440-42-8	
	Silicon	Manganese	Carbon	Aluminum	Titanium	Copper	Nitrogen	Boron	Others
	0.15	0.35	0.10	—	0.10	0.25	—	—	—
	0.15	0.35	0.02	—	0.10	0.25	—	—	—
	0.50	1.25	0.15	0.50	—	31.0			
	0.10	0.10	0.15	0.50	—	45.0	—	—	—
	0.50	—	0.25	0.50	—	31.0	—	—	—
	0.50	1.5	0.20	2.70	0.60	29.0	—	—	—
	0.50	1.0	0.08	0.35	0.30	0.50	—	—	—
	1.00	1.5	0.10	0.38	0.38	0.75	—	—	—
	1.00	1.5	0.08	0.38	0.38	0.75			
	(	1.0	0.50	0.20	1.0	2.20	—	—	—
	0.08	1.0	0.01	—	—	—	—	—	V-0.35
	0.50	0.50	0.10	0.40	0.40	—	—	—	Cb + Ta-3.7
	0.35	0.35	0.05	0.50	0.90	0.10	—	0.004	Cb + Ta-5.0
	0.35	0.35	0.08	0.80	2.5	0.50	—	—	Cb + Ta-1.0

r	Iron	Manganese	Molybdenum	Nickel	Nitrogen	Silicon	Titanium	Tungsten
er	As Iron Oxide Fume	As Manganese Dust	As Soluble Mo Compounds	As Metal Ni	Not Listed	As Nuisance Dust	As Ti, Titanium Dioxide	As Tungsten Dust
1	10 -	5(c) 5(c)	5 5	1 1		15 10	15 10	5
er	As Fe - 5	As Manganese Fume	As Insoluble Mo Compounds	As soluble Ni Compounds				
) 2		5(c) 1	15 10	1 1				

V. HEALTH HAZARD DATA

Applicable Statutory or Recommended Occupational Exposure Limits: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for nickel alloys. See chart inside for listing of the individual constituents.

Effects of Overexposure:

Acute - Dust or fume may cause irritation to the eyes, nose, or throat; leave a metallic taste in the mouth; result in metal fume fever; or produce flu-like symptoms.

Chronic - *Aluminum:* May initiate fibrotic changes to lung tissue
Cobalt: Polycythemia, hyperlasia of bone marrow and thyroid, pericardial effusion and damage to alpha cells of pancreas.
Boron: No chronic debilitating symptoms indicated
Chromium: Skin ulceration, irritative dermatitis, allergic reaction, ulceration of the mucous membranes, perforation of the nasal septum, bronchial carcinoma, adenocarcinoma, mutagen(?) Listed NTPARC and IARC Monographs
Copper: No chronic debilitating symptoms indicated
Iron: Siderosis
Manganese: Bronchitis, pneumonitis, lack of coordination
Molybdenum: Morphological changes in the liver, kidneys, and spleen, anemia, diarrhea, bone deformity and growth retardation
Nickel: Inflammation of respiratory tract, pneumoconiosis. Skin sensitizer. Certain nickel compounds can cause cancer. Listed NTPARC and IARC Monographs
Titanium: No chronic debilitating symptoms indicated
Tungsten: Over exposure to tungsten dust can result in hard mental disease whose symptoms are cough dyspnea and wheezing.

Emergency and First Aid Procedures:
In the event of acute exposure, remove to fresh air, administer oxygen, and seek a physician's assistance.

VI. REACTIVITY DATA

Stability: Considered Stable
Incompatibility: Not incompatible with materials
Hazardous Polymerization: Not Applicable
Hazardous Decomposition Products: Not Applicable
Conditions to Avoid: May liberate metal fumes, metal oxides, or other oxides if exposed to elevated temperatures.

VII. SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Not Applicable
Waste Disposal Method: This material may be reclaimed for reuse.

VIII. SPECIAL PROTECTION INFORMATION

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or code of Federal Regulations, Title 29, Part 1910.252, Welding, Cutting and Brazing, 1910.134, Respiratory Protection, and 1910-Subpart Z, Toxic and Hazardous Substances.

IX. SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing: Not Applicable
Other Precautions: Not Applicable

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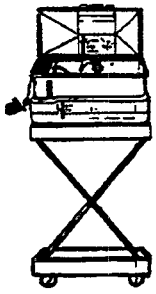
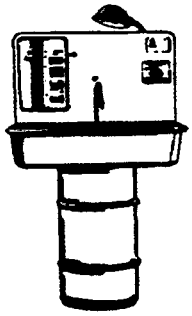
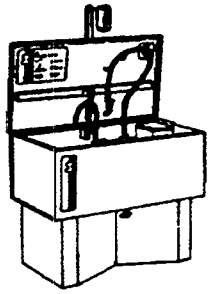
safety-kleen®



Model 14 & 60



Model 16 & 30



Model 34 & 44, COMS, and other

Material Safety Data Sheet

Safety-Kleen 105 Solvent

Part # 6617

SK 105 Solvent; Revision 12/90; Form Part No. 82310

Dear Safety-Kleen Customer,

At Safety-Kleen Corp., our material safety data sheets are more than a requirement to us. They are a commitment to our customers and their employees.

The material safety data sheet is a valuable source of information and should be readily available and compatible with your hazard communication program. With this in mind, we are providing to you, our valued customer, this important information about our products.

We would also like to take this opportunity to thank you for showing your concern for the environment by choosing Safety-Kleen Corp. products and services.

Sincerely,

Joseph F. Knott
President, Chief Operating Officer
Safety-Kleen Corp.

SAFETY-KLEEN PREMIUM GOLD SOLVENT

MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **SAFETY-KLEEN PREMIUM GOLD SOLVENT**

SYNONYMS: (Also known as SAFETY-KLEEN PREMIUM GOLD SOLVENT - CALIF. and SAFETY-KLEEN PREMIUM SOLVENT.) Parts Washer Solvent; Petroleum Distillates; Petroleum Naphtha; Naphtha, Solvent; Stoddard Solvent; Mineral Spirits.

PRODUCT PART NUMBERS: (Also known as 6639.) 6638.

PRODUCT USE: Cleaning and degreasing metal parts.
If this product is used in combination with other chemicals, refer to the Material Safety Data Sheets for those chemicals.

24-HOUR EMERGENCY TELEPHONES

	MEDICAL:	TRANSPORTATION (SPILL):
These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed below.	**1-800-752-7869 (USA) Extension 2**	**1-800-468-1760 (USA)**
	1-312-942-5969 (CANADA)	**1-613-996-6666 (CANADA)**

MANUFACTURER/SUPPLIER: Safety-Kleen Corp.
1000 North Randall Road
Elgin, IL, 60123-7857 USA
1-800-669-5740

TECHNICAL INFORMATION: 1-800-669-5740 Extension 7500

MSDS FORM NUMBER: 82658 (also formerly 82657) **ISSUE:** April 4, 1997

ORIGINAL ISSUE: January 26, 1995 **SUPERSEDES:** September 18, 1996

PREPARED BY: Product MSDS Coordinator **APPROVED BY:** MSDS Task Force

SAFETY-KLEEN PREMIUM GOLD SOLVENT
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

WT%	NAME	SYNONYM	CAS NO.	OSHA PEL TWA	OSHA PEL STEL	ACGIH TLV TWA	ACGIH TLV STEL	LD[a]	LC[b]
100	Distillates (petroleum), hydrotreated light	N.Av.	64742-47-8	500[c] ppm	N.Av.	100[c] ppm	N.Av.	>5000[d]	>2000 mg/m^3/ 4 hours

N.Av. = Not Available
[a]Oral-Rat LD50 (mg/kg)
[b]Inhalation-Rat LC50
[c]Based on Stoddard Solvent.
[d]Skin-Rat LD50>2000 mg/kg

See 29 CFR 1910.1000(d)(2) and ACGIH *Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices* booklet (Appendix C) for the determination of exposure limits for mixtures. Consult an industrial hygienist or similar professional to confirm that the calculated exposure limits are appropriate.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

APPEARANCE
Liquid, clear, colorless to pale yellow, mild hydrocarbon odor.

IMMEDIATE HAZARDS
Combustible liquid and vapor.
Harmful if inhaled.
Eye and skin irritant.
May be harmful if swallowed.

DELAYED HAZARDS
Contains material which may cause central nervous system damage.

POTENTIAL HEALTH EFFECTS

INHALATION (BREATHING): High vapor or mist concentrations may be harmful if inhaled. High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs). High concentrations of vapor or mist may cause nausea and vomiting. High concentrations of vapor or mist may cause headaches, dizziness, incoordination, numbness, irregular heartbeat, and other central nervous system effects. Massive acute overexposure may result in rapid central nervous system depression, sudden collapse, deep coma, and death.

EYES: Direct contact with materials or exposure to vapors may cause irritation.

SKIN: Direct contact with materials or exposure to vapors may cause irritation. A single, prolonged exposure is not likely to cause the material to be absorbed through the skin in harmful amounts.

INGESTION (SWALLOWING): May cause throat irritation, nausea, vomiting, and central nervous system effects as noted under **INHALATION (BREATHING)**. Breathing material into the lungs during ingestion or vomiting may cause lung injury and possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing lung, cardiac, central nervous system, or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated inhalation may cause toxic effects. Prolonged or repeated eye contact may cause inflammation of the membrane lining the eyelids and covering the eyeball. Prolonged or repeated skin contact may cause drying, cracking, redness, itching, swelling, or burns.

CANCER INFORMATION: No known carcinogenicity. For more information, see **SECTION 11: CARCINOGENCITY**.

Also see **SECTION 15: CALIFORNIA.**

SECTION 4: FIRST AID MEASURES

INHALATION: (BREATHING) Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Someone should stay with victim. Get medical attention if breathing difficulty persists.

EYES: For direct contact, immediately flush eyes with plenty of water, holding eyelids apart, for 15 minutes. If irritation or redness from exposure to vapor or mist develops, move away from exposure into fresh air. Get medical attention if irritation or pain persists.

SKIN: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain persists.

INGESTION: (SWALLOWING) Immediately get medical attention. Do NOT induce vomiting. If spontaneous vomiting occurs, keep head below hips to avoid breathing material into the lungs.

NOTE TO PHYSICIANS: No specific antidote available. Treat symptomatically and supportively. Administration of gastric lavage, if warranted, should be performed by qualified medical personnel. Call medical emergency telephone number (see **SECTION 1**) for additional information.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT: 148°F (64°C) Tag Closed Cup (minimum)

FLAMMABLE LIMITS IN AIR: **LOWER:** 0.5 VOL% (minimum)
UPPER: 9.3 VOL% (maximum)

AUTOIGNITION TEMPERATURE: 440°F (227°C) (minimum)

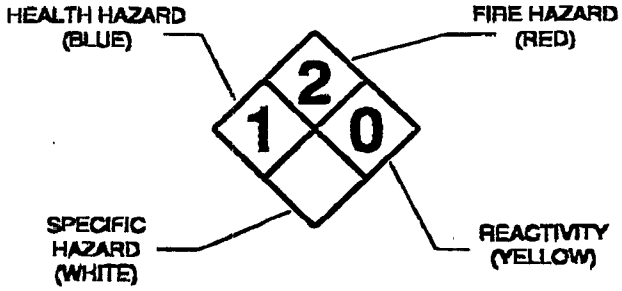
HAZARDOUS COMBUSTION PRODUCTS: Burning may produce carbon monoxide.

CONDITIONS OF FLAMMABILITY: Heat, sparks, or flame.

SAFETY-KLEEN PREMIUM GOLD SOLVENT
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical, water spray, or water fog.

NFPA 704 HAZARD IDENTIFICATION: This information is intended solely for the use by individuals trained in this system.



FIRE FIGHTING INSTRUCTIONS: Keep storage containers cool with water spray. Positive-pressure, self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing may provide limited protection.

FIRE AND EXPLOSION HAZARDS: Decomposition and combustion products may be toxic. "Empty" containers may retain residue and can be dangerous. Heated containers may rupture. Vapors can travel to ignition source and flash back. Vapor explosion hazard indoors, outdoors, or in sewers. Run-off to sewer may create fire or explosion hazard. Not sensitive to mechanical impact. Material may be sensitive to static discharge, which could result in fire or explosion.

EMERGENCY RESPONSE GUIDE NUMBER: 128
Reference *North American Emergency Response Guidebook*

SECTION 6: ACCIDENTAL RELEASE MEASURES

Remove all ignition sources. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Wear protective equipment specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain away from surface waters and sewers. Contain as a liquid for possible recovery or sorb with compatible sorbent material and shovel with a clean, non-sparking tool into sealable container for disposal.

Additionally, for large spills: isolate hazard area. Keep unnecessary and unprotected personnel from entering. Dike far ahead of liquid spill for collection and later disposal.

SAFETY-KLEEN PREMIUM GOLD SOLVENT
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

SECTION 7: HANDLING AND STORAGE

HANDLING: Keep away from heat, sparks, or flame. Where explosive mixtures may be present, equipment safe for such locations should be used. Use clean, non-sparking tools and explosion-proof equipment. When transferring material, metal containers, including trucks and tank cars, should be grounded and bonded. Avoid contact with eyes, skin, clothing, and shoes. Use in well ventilated area. Do not breathe vapor or mist.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat, flame, sparks, static electricity, or other sources of ignition; containers may explode and cause injury or death. Empty product containers may retain product residue and can be dangerous. See **SECTION 14: TRANSPORT INFORMATION** for Packing Group information.

PERSONAL HYGIENE: Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limit. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limit. Where explosive mixtures may be present, equipment safe for such locations should be used.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved respiratory protective equipment when concentration of vapor or mist exceeds applicable exposure limit. A self-contained breathing apparatus (SCBA) and full protective equipment are required for large spills or fire emergencies. Selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4-M1982.

EYE PROTECTION: Where eye contact is likely, wear chemical goggles; contact lens use is not recommended.

SKIN PROTECTION: Where skin contact is likely, wear nitrile, Viton®, or equivalent protective gloves; use of butyl rubber, natural rubber, or equivalent gloves is not recommended.

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OTHER PROTECTIVE EQUIPMENT:	Where spills and splashes are likely, wear appropriate chemical-resistant boots, apron, or other protective clothing. Clean water should be available in work areas for flushing the eyes and skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, APPEARANCE, AND ODOR:	Liquid, clear, colorless to pale yellow, mild hydrocarbon odor.
ODOR THRESHOLD:	30 ppm (based on Stoddard Solvent)
SPECIFIC GRAVITY:	0.78 to 0.82 60°F/60°F (15.6°C/15.6°C) (water = 1)
DENSITY:	6.5 to 6.8 lb/US gal (780 to 820 g/l)
VAPOR DENSITY:	5 (air = 1) approximately
VAPOR PRESSURE:	0.2 mm Hg at 68°F (20°C) (approximately) 0.6 mm Hg at 100°F (38°C) (approximately)
BOILING POINT:	350°F (177°C) (initial)
FREEZING/MELTING POINT:	less than -45°F (-43°C)
pH:	Not applicable.
EVAPORATION RATE:	0.1 (butyl acetate = 1)
SOLUBILITY IN WATER:	Insoluble.
MOLECULAR WEIGHT:	160 (approximately)

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	Stable under normal temperatures and pressures. Avoid heat, sparks, or flame.
INCOMPATIBILITY:	Avoid acids, alkalies, oxidizing agents, reducing agents, or reactive halogens.
REACTIVITY:	Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.
HAZARDOUS DECOMPOSITION PRODUCTS:	None under normal temperatures and pressures. See also **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS.**

SECTION 11: TOXICOLOGICAL INFORMATION

SENSITIZATION:	Based on best current information, there is no known human sensitization associated with these materials.

CARCINOGENICITY: IARC classifies chemicals by their carcinogenic risk, including agents that are known, probable, or possible carcinogens. NTP classifies chemicals as either known carcinogens, or for which there is limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. ACGIH recognizes several categories of carcinogens, including confirmed human carcinogens and suspected human carcinogens.

Based on best current information, there is no known carcinogenicity associated with these materials.

Also see **SECTION 15: CALIFORNIA.**

REPRODUCTIVE TOXICITY: Based on best current information, there is no known reproductive toxicity associated with these materials.

Also see **SECTION 15: CALIFORNIA.**

TERATOGENICITY: Based on best current information, there is no known teratogenicity associated with these materials.

MUTAGENICITY: Based on best current information, there is no known mutagenicity associated with these materials.

TOXICOLOGICALLY SYNERGISTIC PRODUCT(S): Based on best current information, there are no known toxicologically synergistic products associated with these materials.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: A Static Acute Bioassay as per the California Department of Fish and Game WPCL, was done using fathead minnows, and up to 750 ppm of the products in water.

The material passed the bioassay with only 1 out of 10 minnows dying. To fail the bioassay, more than 40% of the fish would die in 750 ppm.

OCTANOL/WATER PARTITION COEFFICIENT: Not available.

VOLATILE ORGANIC COMPOUNDS: 100 WT%; 6.5 to 6.8 lb/US gal; 780 to 820 g/l Photochemically reactive as per 40 CFR Part 51.100(s).

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding recycling or proper disposal.

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USEPA WASTE CODE(S): Not regulated.
Based on available data, this information applies to the material as supplied to the user. Processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

SECTION 14: TRANSPORT INFORMATION

DOT: COMBUSTIBLE LIQUID, N.O.S. (PETROLEUM NAPHTHA), NA1993, PGIII

TDG: Not regulated.

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS

SARA SECTIONS 311 AND 312: Materials pose the following physical and health hazards as defined in 40 CFR Part 370 and are subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

Immediate (Acute) Health Hazard
Delayed (Chronic) Health Hazard
Fire Hazard

SARA SECTION 313: These products do not contain toxic chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

TSCA: All the components of these products are listed on the TSCA Inventory.

CALIFORNIA: These products may contain a detectable amount of benzene CAS 71-43-2. This material is listed by the State of California as a known carcinogen.

Our testing of these products indicates that this compound is not always detectable. However, when detected, the benzene level is at or below the product specification of 0.4 mg/l.

These products may contain a detectable amount of p-dichlorobenzene CAS 106-46-7. This material is listed by the State of California as a known carcinogen.

Our testing of these products indicates that this compound is not always detectable. However, when detected, the p-dichlorobenzene level is at or below 7.5 mg/l.

These products may contain a detectable amount of toluene CAS 108-88-3. This material is listed by the State of California as known to cause reproductive toxicity.

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Our testing of these products indicates that this compound is not always detectable. However, when detected, the toluene level is at or below 500 mg/l.

CANADIAN REGULATIONS

These products have 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: B3, D2B

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All the components of these products are listed on the Canadian Domestic Substances List.

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: New format.

LABEL/OTHER INFORMATION: These products are Underwriters Laboratories (UL) listed.

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or 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. The data contained on this sheet apply to the material as supplied to the user.

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SAFETY-KLEEN 105 SOLVENT

MATERIAL SAFETY DATA SHEET FOR U.S.A. AND CANADA

SECTION I -- PRODUCT INFORMATION

Safety-Kleen Corp. - 777 Big Timber Road - Elgin, IL, U.S.A. 60123
Safety-Kleen Canada Inc. - 3090 Blvd. Le Carrefour - Suite 300 - Chomedy Laval Quebec, Canada H7T 2J7
For Product Technical Information Call 312-694-2700 (U.S.A.);
800-363-2260 (Eastern Canada); 514-686-2040 (Western Provinces/Call Collect)

24-HOUR EMERGENCY TELEPHONE	*MEDICAL:*	*TRANSPORTATION:*
These numbers are for emergency use only. If you desire non-emergency information about this product, please call a telephone number listed above.	**800-752-7869 (U.S.A.)** **312-942-5969 (CANADA)** **RUSH POISON CONTROL CENTER CHICAGO, ILLINOIS, U.S.A.**	**708-888-4660 (U.S.A.)** **SAFETY-KLEEN ENVIRONMENT, HEALTH AND SAFETY DEPARTMENT** **613-996-6666 (CANADA)** **CANUTEC**

IDENTITY (TRADE NAME): **SAFETY-KLEEN 105 SOLVENT**

SYNONYMS: **PETROLEUM DISTILLATES, PETROLEUM NAPHTHA, MINERAL SPIRITS, STODDARD SOLVENT**

SK PART NUMBER: **6617**

FAMILY/CHEMICAL NAME: **HYDROCARBON SOLVENT**

PRODUCT USAGE: **SOLVENT FOR CLEANING AND DEGREASING PARTS**

SECTION II -- HAZARDOUS COMPONENTS

NAME	SYNONYM	Wt. %	CAS NO.	OSHA PEL TWA (ppm)	OSHA PEL STEL (ppm)	ACGIH TLV TWA (ppm)	ACGIH TLV STEL (ppm)	LD50[a]	LC50[b]
Parts Washer Solvent (Consists predominantly of C9-C13 Saturated Hydrocarbons)	Mineral Spirits	85.0	64741-41-9	100 **	N.Av.	100 **	N.Av.	> 5000**	3400**
C8+ Aromatics		12.0	Mixture	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.	N.Av.
*Toluene		0.5	108-88-3	100	150	100	150	5000	4000
*Xylene		1.0	1330-20-7	100	150	100	150	4300	5000
*Ethyl Benzene		0.5	100-41-4	100	125	100	125	3500	4000[c]
*1,1,1 Trichloroethane	Methyl Chloroform	0-0.5***	71-55-6	350	450	350	450	10300	18000
*Perchloroethylene	Tetrachloroethylene	0-0.5***	127-18-4	25	N.Av.	50	200	2629	4000[c]
Total Chlorinated Solvents		0-1.0***							

N.Av. = Not available.
* See Section X - Other Regulatory Information
**For Stoddard Solvent
***Even though the concentration range does not fall under the ranges prescribed by WHMIS, this is the actual range which varies with each batch of the product.

[a] Oral-Rat LD50 (mg/kg)
[b] Inhalation-Rat LC50 (ppm/4 hours)
[c] Inhalation-Rat LCLo (ppm/4 hours)

SECTION III -- PHYSICAL DATA

PHYSICAL STATE, APPEARANCE AND ODOR:	Combustible liquid, clear, green, with characteristic hydrocarbon odor.
ODOR THRESHOLD:	Not available.
BOILING POINT:	304-435°F (151-224°C).
VAPOR PRESSURE:	2 mm Hg at 68°F (20°C).
FREEZING POINT:	Not available.
EVAPORATION RATE:	0.1 (Butyl Acetate = 1).
VOLATILE:	99.9%
VOLATILE ORGANIC COMPOUNDS:	6.4 to 6.7 lbs/gal; 770 to 800 g/l
DENSITY:	Not available.
VAPOR DENSITY:	4.9 (Air = 1).
SOLUBILITY IN WATER:	Negligible.
pH:	Not applicable.
SPECIFIC GRAVITY:	0.77 to 0.80 at 60/60°F (16/16°C) (Water = 1).
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Not available.
MOLECULAR WEIGHT:	142 (Approximately).

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	105°F (41°C) SETA
AUTOIGNITION TEMPERATURE:	473°F (245°C).
CONDITIONS OF FLAMMABILITY:	Materials must be moderately heated before ignition can occur.
FLAMMABLE LIMITS IN AIR:	*LOWER:* 0.7 Vol. % *UPPER:* 6.0 Vol. %
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Decomposition and combustion products may be toxic. Heated containers may rupture, explode or be thrown into the air. Vapors are heavier than air and may travel great distances to ignition source and flash back. Not sensitive to mechanical impact. Material may be sensitive to static discharge, which could result in fire or explosion.
EXTINGUISHING MEDIA:	Carbon dioxide, foam, dry chemical, water (mist only).
FIRE FIGHTING PROCEDURES -- SPECIAL:	NFPA 704 Rating 0-2-0 Keep storage containers cool with water spray. Use self-contained breathing apparatus (SCBA).
HAZARDOUS COMBUSTION PRODUCTS:	Thermal decomposition and burning may produce carbon monoxide.

SECTION V – REACTIVITY DATA

STABILITY: Stable under normal temperatures and pressures, and not reactive with water.

INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID): Avoid oxidizing agents, flames, sparks and high temperatures.

HAZARDOUS POLYMERIZATION: Not known to occur under normal temperatures and pressures.

HAZARDOUS DECOMPOSITION PRODUCTS: Normally none.

SECTION VI – HEALTH HAZARD DATA AND TOXICOLOGICAL PROPERTIES

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact; inhalation.

EXPOSURE LIMITS: See Section II.

SIGNS AND SYMPTOMS OF EXPOSURE:

ACUTE: ***Eyes:*** Contact may cause slight to moderate irritation. High vapor concentrations (> 500 ppm) are irritating to the eyes.

Skin: Prolonged or repeated contact tends to remove skin oils, possibly leading to irritation and dermatitis. No significant skin absorption hazard.

Inhalation (Breathing): High concentrations of vapor or mist may be irritating to the respiratory tract, cause headaches, dizziness, nausea, impaired coordination, anesthesia and may have other central nervous system effects.

Ingestion (Swallowing): Low order of acute oral toxicity. May cause irritation of the throat, nausea, vomiting and symptoms of central nervous system depression. Aspiration into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

CHRONIC: Prolonged and/or repeated skin contact may cause drying and cracking or dermatitis.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with pre-existing central nervous system dysfunction may have increased susceptibility to the effects of exposure. Contact with skin may aggravate pre-existing dermatitis.

CARCINOGENICITY: IARC classifies chemicals by their carcinogenic risk, including agents that are known, probable, or possible carcinogens. NTP classifies chemicals as either known carcinogens or for which there is a limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

Perchloroethylene is listed by IARC as a possible carcinogen and is classified by NTP as having limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

OTHER POTENTIAL HEALTH HAZARDS: The following information is required by Canadian WHMIS regulations. Irritancy is covered in Signs and Symptoms of Exposure in Section VI. There is no known human sensitization or toxicologically synergistic product. Xylene has demonstrated experimental effects for reproductive toxicity, mutagenicity and teratogenicity. Studies indicate Ethylbenzene and 1,1,1-Trichloroethane are experimental teratogens.

SECTION VII – EMERGENCY AND FIRST AID PROCEDURES

EYES: For direct contact, flush eyes with water for 15 minutes lifting upper and lower lids occasionally. If irritation or redness from exposure to vapors or mists develops, move victim away from exposure into fresh air. Consult physician if irritation or pain persists.

SKIN: Remove contaminated clothing. Wash skin twice with soap and water. If irritation or pain develops and persists, consult a physician.

INHALATION: (Breathing)	Remove to fresh air immediately. Use oxygen if there is difficulty breathing or artificial respiration if breathing has stopped. Do not leave victim unattended. Seek immediate medical attention if necessary.
INGESTION: (Swallowing)	If conscious, drink 4 to 8 ounces of water and seek immediate medical attention. DO NOT induce vomiting.

SECTION VIII -- PRECAUTIONS FOR SAFE USE AND HANDLING AND PREVENTIVE MEASURES

SPILL PROCEDURES:	Remove all ignition sources. Ventilate area and avoid breathing vapors. For large spills, isolate area and deny entry. If possible, contain as a liquid for possible re-refining. Absorb with compatible absorbent material. Shovel into closable container for disposal. Wear protective equipment specified in Section IX. Contain away from surface waters and sewers.
WASTE DISPOSAL METHODS:	Dispose in accordance with Federal, State, Provincial and local regulations. Contact Safety-Kleen regarding recycling or proper disposal.
HANDLING PRECAUTIONS:	Avoid contact with eyes, skin or clothing. Use in well ventilated area and avoid breathing vapors or mists. Keep away from heat, sparks and flames.
SHIPPING AND STORING PRECAUTIONS:	Keep container tightly closed when not in use and during transport. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, grind or expose containers to flame or other sources of ignition.
PERSONAL HYGIENE:	Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco products. Launder contaminated clothing and clean protective equipment before reuse.

SECTION IX -- CONTROL MEASURES AND OTHER PREVENTIVE MEASURES

EYE PROTECTION:	Where there is likelihood of spill or splash, wear chemical goggles and faceshield. Contact lenses should not be worn.
PROTECTIVE GLOVES:	Use nitrile or neoprene gloves to prevent contact with skin.
RESPIRATORY PROTECTION:	Use NIOSH/MSHA-approved respiratory protective equipment when concentration of vapors or mists exceeds applicable exposure limit. Depending on the airborne concentration, use a respirator or gas mask with appropriate cartridges and canisters. A self-contained breathing apparatus (SCBA) is required for large spills and emergencies. Selection and use of respiratory protective equipment should be in accordance in the U.S.A. with OSHA General Industry Standard 29 CFR 1910.134 and in Canada with CSA Standard Z94.4-M1982.
ENGINEERING CONTROLS:	Provide local exhaust or general dilution ventilation needed to maintain concentrations of vapors or mists below applicable exposure limits. Where explosive mixtures may be present, systems safe for such locations should be used.
OTHER PROTECTIVE EQUIPMENT:	Wear appropriate solvent-resistant boots, apron or other protective clothing where spills and splashes are possible. A source of clean water should be available in work areas for flushing the eyes and skin.

SECTION X -- OTHER REGULATORY INFORMATION

DOT PROPER SHIPPING NAME:	PETROLEUM NAPHTHA
DOT CLASS:	COMBUSTIBLE LIQUID
DOT ID NUMBER:	UN1255

SARA TITLE III:	Product contains toxic chemicals 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. Toxic constituents are listed with an asterisk in Section II of this Material Safety Data Sheet. Product poses the following physical and/or health hazards as defined in 40 CFR 370.3 (Sections 311, 312 of SARA Title III): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard Fire Hazard
TDGA:	NAPHTHA, PETROLEUM CLASS 3.3, UN1255, P.G. III
WHMIS CLASSIFICATION:	Class B3, Combustible Liquid; Class D2A, Other Toxic Effects, Very Toxic Material; Class D2B, Other Toxic Effects, Toxic Material

SECTION XI -- PREPARATION INFORMATION

PREPARED BY: Product MSDS Coordinator *FORM PART NO.* 82310

ORIGINAL ISSUE DATE: July 20, 1989 *REVISED:* December 14, 1990 *SUPERSEDES:* March 12, 1990

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or 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. The data contained on this sheet apply to the material as supplied to the user.

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SK 105 Solvent; Revision 12/90; Form Part No. 82310

safety-kleen.

011-5023

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70-063
G.E. Paint Thinner # 1500

Material Safety Data Sheet

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.

SECTION 1

Manufacturer's Name: Pioneer Paint and Varnish Company

Address: 438 W. Congress

Emergency Telephone No.: 602-622-4736

City, State, and ZIP: Tucson, Az 85701

Other Information Calls: 602-622-4736

Signature of Person Responsible for Preparation (Optional):

Date Prepared: 12-22-86

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Toluene		100 ppm			108-88-
Xylene		100 ppm			1330-20-
V. M. & P. Naptha (# 250) (Petroleum Naptha)		225 ppm			

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point (range) 230° - 312° F.

Specific Gravity (H_2O=1)).85

Vapor Pressure (mm Hg) 25 - 54 mm HG

Vapor Density (Air = 1) 3.2-4.0

Solubility in Water: negligible(less than 0.1

Reactivity in Water: Non-reactive with water; May react with strong oxidizers.

Appearance and Odor: Colorless(Clear-water-White) Strong aromatic hydrocarbon odor.

Melting Point: N.A.

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point 45° F. C.

Method Used T.C.C.

Flammable Limits in Air % by Volume: LEL Lower 1 %; UEL Upper 6 %

Auto-Ignition Temperature: Greater than 900°F

Extinguisher Media: CO_2, dry chemical, foam, water spray

Special Fire Fighting Procedures: Use self contained breathing apparatus.

Unusual Fire and Explosion Hazards: Donot use pressure to empty drum or explosion may occur.

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SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable ☐ Conditions to Avoid; Stable ☐

Incompatability (Materials to Avoid): May react with strong oxidizers.

Hazardous Decomposition Products: ~~Normal Combustion: Fumes, smoke, Carbon Dioxide, Water vapor.~~ Incomplete Combustion: Carbon Monoxide, Aldehydes.

Hazardous Polymerization: May Occur ☐ Will Not Occur ☐ Conditions to Avoid

SECTION 6 – HEALTH HAZARDS

1. Acute 2. Chronic

Signs and Symptoms of Exposure: Skin may crack and dry or cause defatting, central nervous system depression. prolonged or repeated contact may skin irritation.

Medical Conditions Generally Aggravated by Exposure:

Chemical Listed as Carcinogen or Potential Carcinogen: unknown

National Toxicology Program: Yes ☐ No ☐

I.A.R.C. Monographs: Yes ☐ No ☐

OSHA: Yes ☐ No ☐

Emergency and First Aid Procedures: see below

ROUTES OF ENTRY

1. Inhalation: remove to fresh air. Call doctor immediately.
2. Eyes: Wash eyes with water, if irritation persists, call a physician.
3. Skin: Wash thoroughly with soap and water. Launder contaminated clothing.
4. Ingestion: DO NOT induce vomiting. Call a physician immediately.

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Use only in well ventilated area. Donot store near heat, sparks, open flames. Keep container closed. Do not use pressure to empty drum or explosion may occur.

Other Precautions: Eliminate all sources of ignition.

Steps to be Taken in Case Material is Released or Spilled: Maximize recovery, dispose of in accordance with federal, state and local regulations.

Waste Disposal Methods (Consult federal, state, and local regulations):

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): Organic vapor cartridge

Ventilation	Local Exhaust	Mechanical (General)	Special	Other
yes				

Protective Gloves: yes

Eye Protection: Chemical safety glasses

Other Protective Clothing or Equipment: protective clothing and rubber gloves are recommended.

Work/Hygienic Practices: Eyebath and safety shower

IMPORTANT

Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

Clearing

NATIONAL SANITARY SUPPLY CO.
13217 S. Figueroa Street
Los Angeles, California 90061

Manufacturer:
SANI-FRESH INTERNATIONAL INC.
4702 Goldfield Drive
San Antonio, Texas 78218
MEDICAL EMERGENCY 1-800-228-5635 EXT.140
CHEM-TEL 1-800-255-3924
INFORMATION 1-210-661-5374

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF PRODUCT*

Product Name: EXTRA CARE BARRIER CREAM
SANI-FRESH

Date Issued: 12/01/92
Supercedes: 05/08/91
National Item#: 1133XX

Product Code: # 91265

SECTION 2. HAZARDOUS INGREDIENTS/IDENTITY

INGREDIENTS	OSHA PEL	ACGIH TLV	EXPOSURE LIMITS	%	CAS #
GLYCERIN (as nuisance mist)	15*mg/m3	10*mg/m3	NE	2-10	56-81-5
WHITE MINERAL OIL (as oil mist)	5*mg/m3	5*mg/m3	NE	2-10	8042-47-5
PETROLATUM	NE	NE	NE	2-10	8009-03-8
STEARIC ACID	NE	NE	NE	2-10	57-11-4
HYDROGENATED LANOLIN	NE	NE	NE	1-5	8031-44-5
TRIETHANOLAMINE	NE	NE	NE	< 5	102-71-6
NON-HAZARDOUS INGREDIENTS **	NA	NA	NA	BAL.	NA

* INHALATION UNLIKELY DUE TO PRODUCTS PHYSICAL FORM.
** UNIDENTIFIED INGREDIENTS ARE NOT CONSIDERED HAZARDOUS UNDER THE FEDERAL HAZARD COMMUNICATION STANDARD (29 CFR-1910.1200).

SECTION 3. PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point NE
Vapor Pressure (mm Hg.): NE
Vapor Density (Air=1): NE
Solubility in Water: NEGLIGIBLE
Evaporation Rate: NA
Specific Gravity(H20=1)0.910 TO 0.920
Percent Volatile (By Volume %):(Minus Water) < 5
Reactivity In Water: NONE
Melting Point: N/E
pH: 7.0 to 8.0
Appearance and Odor: WHITE VISCOUS CREAM WITH PLEASANT ODOR

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): N/A
Flammable Limits in Air % By Volume : LEL= N/A UEL=N/A

Auto-Ignition Temperature: N/A
Extinguishing Media: USE MEDIA SUITABLE FOR SURROUNDING MATERIALS

Special Fire Fighting Procedures: NO SPECIAL PROCEDURES REQUIRED

Unusual Fire & Explosion Hazards: NONE KNOWN

SECTION 5. REACTIVITY DATA

Stability: NORMALLY STABLE Conditions to Avoid: NONE KNOWN

Incapability - Materials to Avoid: NONE KNOWN

Hazardous Polymerization: DOES NOT OCCUR

Decomposition Product: NONE KNOWN

SECTION 6. SPECIAL PRECAUTIONS AND SPILL, LEAK PROCEDURES

Precautions to be taken in handling and storage: RECOMMEND STORAGE BETWEEN 40 F (5 C) AND 90 F (32 C).
Steps to be taken in case material is released or spilled: CLEAN UP WITH ABSORBENT MATERIAL.
Waste Disposal Methods (Consult Federal, State & Local Regulations):
DISPOSE IN ACCORDANCE WITH FEDERAL, STATE & LOCAL REGULATIONS.

SECTION 7. HEALTH HAZARD

Symptoms/Effects of Overexposure:
INHALATION: PROLONGED INHALATION MAY CAUSE RESPIRATORY IRRITATION. INHALATION STUDIES HAVE SHOWN THAT LABORATORY ANIMALS EXPOSED TO EXTREMELY HIGH CONCENTRATIONS OF ETHANOLAMINES HAVE EXHIBITED KIDNEY AND LIVER DAMAGE.
SKIN: PROLONGED CONTACT MAY CAUSE MILD SKIN IRRITATION IN SENSITIVE INDIVIDUALS.LANOLIN HAS MILD ALLERGENIC PROPERTIES.
EYE: CONTACT MAY CAUSE IRRITATION.
INGESTION: MAY CAUSE NAUSEA.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE KNOWN
EMERGENCY FIRST AID:
INHALATION: MOVE VICTIM TO FRESH AIR. GET MEDICAL HELP IF IRRITATION PERSISTS.
SKIN: WASH AFFECTED AREA WITH LARGE AMOUNTS OF WATER. GET MEDICAL HELP IF IRRITATION PERSISTS.
EYES: IMMEDIATELY FLUSH EYES WITH LARGE AMOUNT OF WATER FOR AT LEAST 15 MINUTES WHILE HOLDING THE EYE LIDS OPEN. GET PROMPT MEDICAL ATTENTION.
INGESTION: CONTACT LOCAL POISON CONTROL CENTER OR PHYSICIAN IMMEDIATELY.
ROUTES OF ENTRY:
INHALATION: HIGHLY UNUSUAL
EYES: MAY OCCUR
SKIN: MAY OCCUR
INGESTION: MAY OCCUR BUT UNLIKELY
CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN:
NATIONAL TOXICOLOGY PROGRAM: NO
I.A.R.C. : NO
OSHA NO

SECTION 8. SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection: NOT NORMALLY REQUIRED
Ventilation: NOT NORMALLY REQUIRED
Local Exhaust: NOT NORMALLY REQUIRED
Mechanical: NOT NORMALLY REQUIRED
Special: NONE
Other : NONE
Protective Gloves: NONE
Eye Protection: NOT NORMALLY REQUIRED, UNDER NORMAL USE CONDITIONS.
Other Protective-
Clothing or Equipment: NONE
Work/Hygienic Practices: CLEAN-UP ALL SPILLS IMMEDIATELY. PRACTICE GOOD PERSONAL HYGIENE.

HMIS RATING: HEALTH -0 FIRE -0 REACTIVITY -0
PERSONAL PROTECTION -A (SAFETY GLASSES)

NOTE:
THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT SHOULD BE MADE BY THE MATERIAL USER BASED ON THE PARTICULAR PLANT CONDITIONS WHERE THE MATERIAL IS TO BE USED TOGETHER WITH INFORMATION CONTAINED IN THE PRODUCT MSDS.
NE MEANS NOT ESTABLISHED N/A MEANS NOT APPLICABLE

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

Clearer

NATIONAL SANITARY SUPPLY CO.
13217 S. Figueroa Street
Los Angeles, California 90061

MANUFACTURER:
SANI-FRESH INTERNATIONAL INC
4702 GOLDFIELD DRIVE
SAN ANTONIO, TX 78218
MEDICAL EMERGENCY 1-800-228-5635 EXT.140
CHEM-TEL 1-800-255-3924
INFORMATION 1-210-661-5374

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF PRODUCT

Product Name: SUPER DUTY CLEANSER W/GRIT
Product Code: 91748 (38lb.)
Product Code: 91757 (18lb.)

Date Issued: 06/27/89
National Item#: 1082XX

SECTION 2. INGREDIENTS

INGREDIENTS	OSHA PEL	ACGIH TLV	EXPOSURE LIMITS	%	CAS #
COCOAMPHODIACETATE	NE	NE	NE	<10	68650-39-5
LINOLEAMIDE DEA	NE	NE	NE	<10	56863-02-6
D-LIMONENE (DIPENTENE)	NE	NE	NE	<10	3989-27-5
NONOXYNOL-9	NE	NE	NE	<10	9016-45-9
POLYETHYLENE	NE	NE	NE	<10	9002-88-4
NON-HAZARDOUS INGREDIENTS	NA	NA	NA	BALANCE	

UNIDENTIFIED INGREDIENTS ARE NOT CONSIDERED HAZARDUS UNDER THE FEDERAL HAZARD COMMUNICATION STANDARD (29 CFR-1910.1200).
N/A = Not Applicable; N/D = Not Determined

SECTION 3. PHYSICAL DATA

Boiling Point (F):200-220
Vapor Pressure (mm Hg.): NE
Vapor Density (Air=1):(air + 1): NE
Evaporation Rate (Bu.Ac.=1): <1
Solubility in Water: APPRECIALBLE
Appearance and Odor: GREEN VISCOUS LIQUID WITH CITRUS ODOR

Specific Gravity (H20=1): 0.974
PH: 7.5 - 8.5
Percent Volatile by Volume (Minus Water): <10
Reactivity in Water: NONE

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point: NONE Method Used: C.O.C. - ASTM-D-92 & PMCC ASTM-D-93
Flammable Limits: LEL= N/A UEL= N/A

Extinguishing Media: USE MEDIA SUITABLE FOR SURROUNDING MATERIALS.

Special Fire Fighting Procedures: NO SPECIAL PROCEDURES REQUIRED.

Unusual Fire & Explosion Hazards: NONE KNOWN

SECTION 5. REACTIVITY DATA

Stability: NORMAL STABLE
Incompatibility -
Material to Avoid: NONE KNOWN

Hazardous Polymerization:

Hazardous Decomposition Products: NONE KNOWN

SECTION 6. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions to Be Taken In Handling and Storage:
RECOMMEND STORAGE BETWEEN 40 F (5C) AND 100 F (37C).
Other Precautions: NONE
Steps to Be Taken In Case Material is Released or Spilled:
CLEAN UP WITH ABSORBENT MATERIAL.
Waste Disposal Methods (Consult Federal, State & Local Regulations:
FLUSH WASTE TO SEWER WITH LARGE AMOUNTS OF WATER, IF PERMITTED BY LOCAL, STATE AND FEDERAL REGULATIONS. THIS MATERIAL IS NOT A HAZARDOUS WASTE UNDER CURRENT RCRA REGULATIONS.

SECTION 7. HEALTH HAZARD DATA

Signs & Symptoms of Overexposure: PROLONGED INHALATION OF MIST MAY CAUSE MILD RESPIRATORY IRRITATION. PROLONGED CONTACT MAY CAUSE MILK SKIN IRRITATION IN SENSITIVE INDIVIDUALS. EYE CONTACT MAY CAUSE IRRITATION.
Medical Conditions Generally Aggravated by Exposure: NONE KNOWN

SECTION 8. EMERGENCY FIRST AID

Emergency First Aid:
Eyes: IMMEDIATELY FLUSH EYES WITH LARGE AMOUNT OF WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Skin: WASH AFFECRED AREA WITH LARGE AMOUNTS OF WATER. GET MEDICAL HELP IF IRRITARION PERSISTS.
Inhalation: MOVE VICTIM TO FRESH AIR. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
Ingestion: CONTACT LOCAL POISON CONTROL CENTER OR PHYSICIAN IMMEDIATELY.
Routes of Entry:
Eyes: MAY OCCUR
Skin: MAY OCCUR
Inhalation: HIGHLY UNUSUAL
Ingestion: MAY OCCUR BUT UNLIKELY
Chemical Listed as Carcinogen or Potential Carcinogen:
National Toxicology Program: THIS PRODUCT DOES NOT CONTAIN ANY CARCINOGENS
I.A.R.C.: CARCOMPGEMS (AT 0.1% OR GREATER) AS
OSHA : DEFINED BY IARC, NTP, OR OSHA.

SECTION 9. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NOT NORMALLY REQUIRED
Ventilation: NOT NORMALLY REQUIRED
Local Exhaust: ADEQUATE
Mechanical: ADEQATE
Protection Gloves: NOT NORMALLY NEEDED
Eye Protection: IF POTENTIAL FOR EYE CONTACT EXISTS, WEAR CHEMICAL GLASSES
Clothing or Equipment: NONE NORMALLY REQUIRED
Work/Hygienic Practices: CLEAN-UP ALL SPILLS IMMEDIATELY. PRACTICE GOOD PERSONAL HYGIENE.

HMIS RATINGS: HEALTH -0 FIRE -0 REACTIVITY -0
PERSONAL PROTECTION: A-(SAFETY GLASSES)

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REPRESENTS THE LATEST DATA AND BEST OPINION AS TO THE PROPER USE AND HANDLING OF THIS PRODUCT UNDER NORMAL CONDITIONS. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT IN CONFORMANCE WITH THIS DATA SHEET AND THE PRODUCT LABEL DIRECTIONS, IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATION.

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Material Safety Data Sheet

I. PRODUCT IDENTIFICATION

Manufacturer:	Donald E. Savard Co. 418 So. Pine Street P.O. Box 267 San Gabriel, CA 91778
Trade Name:	Donald E. Savard Co./DESCO
Chemical Name:	Ferrous or Nonferrous Alloys
Common Name:	High Speed, Tool & Carbon Steels

II. HAZARDOUS INGREDIENTS

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as defined by, and in accordance with, the OSHA Hazard Communication Standard (29 CFR Part 1910, 1200) including cited appendices, lists, references, etc., all of which are hereby incorporated by reference.

MATERIAL	CAS NO.	OSHA PEL (Mg/M3)	ACGIH TLV (Mg/M3)
Cobalt	7440-48-4	0.1	0.1
Chromium	7440-47-3	1.0	0.5
Iron	1309-37-1	-	5.0
Manganese	7439-96-5	5.0 dust	5.0 dust
Molybdenum	7439-98-7	15.0	10.0
Nickel	7440-02-0	1.0	1.0
Vanadium	1314-62-1	0.5 dust 0.1 fume	0.05 dust 0.05 fume
Titanium	13463-67-7	15.0	10.0
Carbon	1333-86-4	3.5	3.5
Tungsten	7440-33-7	-	5.0
Silicon	7440-21-2	-	10.0 dust
Aluminum	7429-90	-	10.0 dust 5.0 fume

III. PHYSICAL DATA

Boiling Point:	5000°F	Melting Point:	2500° (approx.)
Specific Gravity (H20=1):	Approx 7.8-8.2 (60°F)		
Vapor Density (AIR=I):	N/A	Vapor Pressure:	N/A
%Volatile By Volume:	N/A	Solubility in H20:	Insoluble
		Evaporation (Butyl Acetate=1):	N/A
Appearance & Odor:	Various Shapes, Gray-Black, Solid, Odorless Metal		

IV. FIRE AND EXPLOSION DATA

Flash Point:	None	Fire Point:	None

V. HEALTH HAZARD INFORMATION

We do not consider this product in the form it is sold to constitute a physical hazard or a health hazard. Subsequent operations such as abrading, melting, welding, cutting or processing in any other fashion may produce potentially hazardous dust or fume which can be inhaled, swallowed, or come in contact with the skin or eyes.

Primary Routes of Entry:	Emergency First Aid:
Inhalation	Remove to fresh air; if condition continues, consult physician.

Eye Contact	Flush well with running water to remove particulate. Get medical attention.
Skin Contact	Brush off excess dust. Wash area well with soap & water.
Ingestion	Seek medical help if large quantities of material have been ingested.

Effects of Exposure: No toxic effects would be expected from exposure to the solid form of specialty steel. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may or may not cause adverse health effects associated with the listed constituents in excess of OSHA permissible exposure limits established in 29 CFR Subpart Z. (See Section II).

Exposure Limits:	Section II lists specific ingredients and permissible exposure limits.
Important:	Determine actual exposure by industrial hygiene monitoring.

Possible Signs and Symtoms of Exposure to Dust, Welding Fume and Gases:

Short Term Exposure:	Metallic taste; nausea, tightness of chest; fever; irritation of eyes, nose, throat and skin; loss of consciousness/death due to welding gases or lack of exygen.
Long Term Exposure:	There are no known adverse effects from the products in their solid form. Adverse effects may or may not result from long-term (chronic) exposure to dust, fume, gases, etc. that occur by way of subsequent operations on the product. Some studies would associate one (or more) of the constituents (per Section II) with the potential for neurologic, pulmonary, respiratory, skin or other disease. Chromium, cobalt and nickel in various chemical compounds have been identified as suspect human carcinogens by the I.A.R.C., N.T.P. Annual Report.

Aggravation of pre-existing respiratory or allergic conditions may occur in some workers.

CARBON	Not generally regarded as an industrial poison; however, no dust when inhaled in sufficient amounts is completely inert.
COBALT	Over exposure can cause chronic interstitial pneumonitis. Wheezing may be considered evidence of hypersensitivity to cobalt.
CHROMIUM	Has a high pulmonary toxicity, is an experimental cause of neoplasm(s), and is a carcinogen.
COPPER	May cause metal fume fever from breathing excessive amounts of copper dust or fumes. Health effects consist of irritation of the upper respiratory tract, metallic or sweet taste, nausea, metal fume fever and, in some instances, discoloration of skin and hair.
IRON	Iron dust can cause conjunctivitis, choroiditis, retinitis, and siderosis of tissues. Iron oxide fume is generated in welding, and continued exposure to concentrations above 30 mn/M3 can cause chronic bronchitis.
MANGANESE	Has a high toxicity via the intraperitoneal and inhalation routes; however, prolonged exposure can cause central nervous system damage.

MOLYBDENUM	Can be toxic via intraperitoneal and subcutaneous routes. Care should be taken to avoid inhalation of large amounts of dust or fume. Is generally considered to exhibit a low order of toxicity.
NICKEL	Is a potential carcinogen and can case neoplasm(s) via inhalation, subcutaneous, implantation, intraperitoneal, and parental mode of exposure routes.
VANADIUM	May act as an irritant to the conjunctivae and respiratory tract.
TANTALUM	Is not generally regarded as an industrial poison; however, no dust when inhaled in sufficient amounts is completely inert.
TITANIUM	Is considered a physiologically inert dust; howver, high concentration of oxides can cause mechanical irritation of eyes, nose and throat.

VI. REACTIVITY DATA

STABILITY: Chemically Stable

INCOMPATIBILITY: Reacts with strong acids to generate hydrogen gas

HAZARDOUS DECOMPOSITION PRODUCTS: Metallic Oxides

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE OF RELEASE OR SPILL: N/A

WASTE DISPOSAL METHOD: Solids - Sales as scrap for reuse.

Dust, etc. - Follow federal, state and local regulations regarding disposal.

VIII. SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: General-Recommended (To keep airborne concentration of dust and fumes below ACGIH TLV'S)

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection:	If fumes, misting or dust condition occurs and T.L.V. as indicated in Section II is exceeded, provide NIOSH approved respirators.
Eye Protection:	Recommend approved safety glasses or goggles when working with dusty material.
Gloves:	As required.
Other Clothing or Equipment:	As required

IX. SPECIAL PRECAUTIONS

Use good housekeeping practices to prevent accumulations of dusts and to keep airborne dust concentrations at a minimum.

This material is potentially contaminated with coatings such as oils for preservatives and other contaminants. If the material is contaminated, special precautions (such as process control and personal protective equipment appropriate to the nature of the suspected contaminants should be taken to avoid resulting exposures when handling, cutting (thermal or mechanical) and/or heating or melting.

In case of questions please call:

Company Name:	Donald E. Savard Co.
Title of Individual:	Robert D. Savard, Safety Director
Telephone Number:	213-283-0504
Issue Date:	05/25/86
Supersedes:	N/A

NOTICE

While the information set forth on this material safety data sheet is believed to be accurate as of the effective date, Donald E. Savard Co. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use or reliance on the information by any person.

PRODUCT GRADE CHART (REFERENCE PART II MSDS)

		% BY ANALYSIS OF ELEMENT					
HS Cutting Tool Grade		**M1**	**M2**	**M7**	**M42**	**M50**	**M10**
Carbon	C	.83	.85	1.0	1.07	.83	.90
Silicon	Si	.25	.30	.25	.25	.20	.30
Manganese	Mn	.25	.25	.25	.25	.25	.30
Tungsten	W	1.60	6.20	1.75	1.50	.50	
Chrome	Cr	3.80	4.20	3.75	3.75	4.10	4.00
Vanadium	V	1.15	1.85	2.05	1.15	1.00	1.95
Molybdenum	Mo	8.70	4.90	8.75	9.50	4.25	8.00
Cobalt	Co				8.00		
Copper	Cu						
Sulphur	S						
Phosphorus	P						
Iron	Fe	Balance of ingredients for all of above tool products					

S. C. Johnson Wax
Racine, Wisconsin 53403-5011
Phone: (414) 631-2777
Emergency Phone: (800) 228-5635
Extension 092
International Emergency Phone:
Extension 092

4=Very High
3=High
2=Moderate
1=Slight
0=Insignificant

HAZARD RATING

HMIS	NFPA
[3]-Health	-[ ]
[0]-Flammability	-[ ]
[0]-Reactivity	-[ ]

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION I - PRODUCT INFORMATION

PRODUCT NAME: BRAVO EXTRA HEAVY DUTY STRIPPER
PRODUCT CODE: 14585-2-3 TO 14589-2-3
CHEMICAL OR COMMON NAME: NA
DATE ISSUED: 01/06/94
SUPERSEDES: 08/04/93
MSDS SECTIONS WITH CHANGES: XI
PREPARED BY: TERRY A. MEYERS
CHEMICAL INFO. ADM.

SECTION II - INGREDIENT INFORMATION

INGREDIENTS	WEIGHT %	EXPOSURE LIMIT
Alkali Metasilicate (CAS #1344-09-8)	3-6	Not Established
[PA,NJ,MA] Sodium Hydroxide (CAS #1310-73-2)	3-5	2 mg/m3 ACGIH/OSHA CEILING
[PA,NJ,MA] Monoethanolamine (CAS #141-43-5)	3-6	3 ppm ACGIH/OSHA TWA 6 ppm ACGIH/OSHA STEL
Water (CAS #7732-18-5)	75-90	Not Established

See Regulatory Information (Section XII) for explanation of bracketed information.

SECTION III - PHYSICAL DATA

APPEARANCE/ODOR: Clear liquid with citrus odor.
SPECIFIC GRAVITY (H2O=1): 1.1
VAPOR PRESSURE (mmhg): ND
PERCENT VOLATILE BY VOLUME (%): NA
SOLUBILITY IN WATER: Complete
VAPOR DENSITY (Air=1): ND
FREEZING POINT ('F): ND
BOILING POINT ('F): above 200
pH: 12.8 min. (undiluted)
EVAPORATION RATE(Butyl Acetate=1): NA

VOC(as packaged, minus H2O): ND
THEORETICAL VOC (lb/gal): ND

SECTION IV - FIRE AND EXPLOSION INFORMATION

FLASH POINT ('F)(Method Used): NA
FLAMMABLE LIMITS: NA
EXTINGUISHING MEDIA: Foam, C02, Dry Chemical, Water Fog.
SPECIAL FIREFIGHTING PROCEDURES: Normal fire fighting procedures may be used.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Corrosive Material (See Sections VI, VIII).

SECTION V - HEALTH HAZARD DATA

PRIMARY ROUTE OF ENTRY: Skin contact.
SIGNS AND SYMPTOMS: Direct contact of product with eyes can cause severe irritation and damage. Direct contact of product with skin can cause irritation. If taken internally, product may cause corrosive damage to mouth, throat or stomach.
FIRST AID PROCEDURES: Flush eyes with water for 15-20 minutes. If irritation persists, seek medical aid. Wash skin with plenty of water. If irritation persists, seek medical aid. If product is swallowed, drink large amounts of water or milk and seek medical aid. For ingestion, due to the extreme pH of the product, the possibility of corrosive damage to mouth, throat and stomach should be considered in treatment.
MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders may be more susceptible to irritating effects.

SECTION VI - REACTIVITY DATA

STABILITY: Stable
STABILITY-CONDITIONS TO AVOID: None known
INCOMPATIBILITY: Strong acids (e.g., muriatic acid). Aluminum, tin, zinc, and copper alloys.
HAZARDOUS DECOMPOSITION PRODUCTS: When exposed to fire, produces normal products of combustion.
HAZARDOUS POLYMERIZATION: Will not occur.
HAZARDOUS POLYMERIZATION-CONDITIONS TO AVOID: None known.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Absorb with oil-dri or similar inert material. Sweep or scrape up and containerize. Rinse affected area thoroughly with water.

PRODUCT NUMBER: 14585
SERIAL NUMBER: 2-3

WASTE DISPOSAL INFORMATION: For undiluted product: Disposal is regulated under the Resource Conservation and Recovery Act as a corrosive waste (40 CFR 261.22). Disposal of regulated quantities should be by neutralization at a permitted facility in accordance with all Federal/State regulations and local ordinances regarding disposal of corrosive wastes. Waste from normal product use may be sewered to a public-owned treatment works (POTW) in compliance with applicable Federal, State and local pretreatment requirements.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: No special requirements under normal use conditions.
VENTILATION: General room ventilation adequate.
PROTECTIVE GLOVES: Rubber
EYE PROTECTION: For undiluted product: Chemical workers splash-proof goggles.
OTHER PROTECTIVE MEASURES: Use good personal hygiene practices. Where gross eye/skin contact may be a problem, wear/use appropriate protective equipment. Wear protective shoes or boots when working with product.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING: WARNING: Contains caustic alkali. Can cause eye damage. Avoid contact with eyes, skin and clothing. Harmful if swallowed. Wear eye protection and rubber gloves when handling concentrate. Wear protective shoes or boots when working with product to avoid contact with feet. Keep out of reach of children. FOR INDUSTRIAL USE ONLY.
OTHER HANDLING AND STORAGE CONDITIONS: Product residue may remain on/in empty containers. All precautions for handling this product must be used in handling the empty container and residue. Keep from freezing. Keep out of reach of children. Wash thoroughly after handling.

SECTION X - ADDITIONAL INFORMATION

ADDITIONAL INFORMATION: This MSDS also covers product codes: 04586, 04587, 04588.
EPA REGISTRATION #: NA

SECTION XI - TRANSPORTATION INFORMATION

DOT CLASS: Oxidizer. Corrosive Material (Liquid). PG I.
DOT #: NA 1760
SHIPPING NAME: Corrosive Liquids (Containing Sodium Hydroxide, Monoethanolamine)

SECTION XII - REGULATORY INFORMATION

1 components of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

There are no ingredients subject to the reporting requirements under California's Proposition 65.

MA - These ingredients are subject to the reporting requirements under the Massachusetts Hazardous Substance List.

NJ - These ingredients are subject to the reporting requirements under the New Jersey Right to Know Hazardous Substance List.

PA - These ingredients are subject to the reporting requirements under the Pennsylvania Hazardous Substance List.

NA-Not Applicable, NE-Not Established, NSR-No Special Requirement, ND-Not Determined

The information herein is given in good faith. No warranty expressed or implied is made. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations. The information contained in this form is confidential and is submitted solely for your organization's internal use.

SEV-2

SEVERANCE TOOL INC. / 3231 S. HALLADAY / SANTA ANA, CA 92705

MATERIAL SAFETY DATA SHEET

Chemical Name: Cemented Carbide Product with Cobalt binder.

Trade Name and Synonyms: All Industry Carbide Grades C-1 thru C-14

Chemical Family: Refractory Metal Carbide **Molecular Weight:** N/A

PHYSICAL DATA

Appearance and Odor:	Dark Gray Metal/No Odor		
Boiling Point:	N/A	**Specific Gravity ($H^2O=1$):**	11.0 to 15.5
Vapor Pressure (mm Hg):	N/A	**Percent Volatile by Volume:**	0
Vapor Density (Air=1):	N/A	**Evaporation Rate:**	N/A
Solubility in Water:	Insoluble	**How Best Monitored:**	Air Sample

HAZARDOUS INGREDIENTS

Material	Percent by Weight	OSHA PEL	ACGIH TLV
Tungsten Carbide (limits for Tungsten dust)	70-97%*	—	5 mg/m³
Cobalt	3-25%*	0.1 mg/m³	0.1 mg/m³
Tantalum Carbide (limits for Tantalum dust)	0.0-12%*	5 mg/m³	5 mg/m³

**Depends on grade specifications*

HEALTH HAZARD DATA

Routes of Exposure: Grinding cemented tungsten carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes.

Effects of Overexposure:

Inhalation - Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. It is reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Skin Contact - Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Eye Contact - Can cause irritation.

Ingestion - Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.

Emergency and First Aid Procedures: Applicable for dusts or mists.

Inhalation - If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.), remove from exposure and seek medical attention.

Skin Contact - If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.

Eye Contact - If irritation occurs, flush with copious amounts of water. If irritation persists, seek medical attention.

Ingestion - If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, other):
None of the components of this material have been identified as known or suspected carcinogens by NTP, IARC or OSHA.

FIRE AN EXPLOSION HAZARD DATA

Flash Point: N/A **Test Method Used:** — **Flammable Limits:** N/A **LEL:** — **UEL:** —

Hard Cemented Tungsten Carbide Product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate and subjected to an ignition source.

Extinguishing Media: For powder fires, smother with dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dusts may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

REACTIVITY DATA

Stability:
Unstable
Stable x

Conditions to Avoid: N/A

Incompatibility: Contact of dust with strong oxidizers may cause fire or explosions.

Materials to Avoid: Strong acids.

Hazardous Decomposition Products: None

Hazardous Polymerization:
May Occur
Will Not Occur x

Conditions to Avoid: N/A

SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Ventilate area of spill. Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the PEL or TLV), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate government regulations. May be sold as scrap for reclaim.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust to levels which do not exceed the PEL or TLV. If such equipment is not available use respirators as specified above.

Protective Gloves: Protective Gloves or Barrier cream are recommended when contact with dust or mist is likely. Prior to applying the Barrier cream or use of protective gloves, wash thoroughly.

Eye Protection: Safety glasses with side shields or goggles are recommended.

Other Protective Equipment: N/A

SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage: Maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid dust inhalation and direct skin contact with dust.

Other Precautions: Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the PEL or TLV), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Wash hands thoroughly after handling, before eating or smoking. Wash exposed skin at the end of work shift. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming (with appropriate filters) the clothing, rags, or other items.

Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

In case of questions please call:

Company Name: SEVERANCE TOOL INC.
Safety Director
Telephone: (714) 549-2211

Issue Date: November 25, 1985

Supersedes: N/A

SEV-2

Although Severance Tool has attempted to provide current and accurate information herein, Severance Tool makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person.

SHELL MATERIAL SAFETY DATA SHEET
MSDS NUMBER: 57,072-1 T
24 HOUR EMERGENCY ASSISTANCE
SHELL: 713-473-9461
CHEMTREC: 800-424-9300
NERAL MSDS ASSISTANCE:
SHELL: 713-241-4819
HAZARD RATING:
LEAST = 0 ACUTE HEALTH = 1
SLIGHT = 1 FIRE = 1
MODERATE = 2 REACTIVITY = 0
HIGH = 3
EXTREME = 4 * FOR ACUTE AND CHRONIC HEALTH EFFECTS REFER TO THE DISCUSSION IN SECTION III.

SECTION I

PRODUCT: SHELL ALVANIA(R) EP LF GREASE 1
CHEMICAL NAME: LUBRICATING GREASE
CHEMICAL FAMILY: HYDROCARBON
SHELL CODE: 71124

SECTION II-A - PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
p	SHELL ALVANIA EP LF GREASE 1	MIXTURE	100
1	SEVERELY HYDROTREATED HEAVY NAPHTHENIC DISTILLATE	64742-52-5	65
[redacted]	SOLVENT REFINED HYDROTREATED RESIDUAL OIL	64742-57-0	20
[redacted]	SULFURIZED LARD OIL	61790-49-6	4
[redacted]	LITHIUM HYDROXYSTEARATE	7620-77-1	7
5	ZINC NAPHTHENATE	12001-85-3	2
6	OTHER ADDITIVES	MIXTURE	2

NFPA HAZARD RATING: HEALTH 0 FIRE 1 REACTIVITY 0

SECTION II-B - ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
p	NOT AVAILABLE		

SECTION III - HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).
EYE CONTACT: MAY BE MILDLY IRRITATING TO THE EYES.
SKIN CONTACT: PROLONGED OR REPEATED CONTACT MAY CAUSE SKIN DISORDERS SUCH AS DERMATITIS, FOLLICULITIS OR OIL ACNE. RELEASE DURING HIGH PRESSURE USAGE MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.
INHALATION: NOT EXPECTED TO BE A RELEVANT ROUTE OF EXPOSURE, HOWEVER, UNDER HIGH TEMPERATURE CONDITIONS, VAPORS IRRITATING TO THE NOSE, THROAT AND UPPER RESPIRATORY TRACT MAY BE PRODUCED.

PRODUCT: SHELL ALVANIA(R) EP LF GREASE 1

INGESTION: NO SPECIFIC INFORMATION IDENTIFIED.
SIGNS AND SYMPTOMS: IRRITATION AS NOTED ABOVE. LOCAL NECROSIS IS EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING INJECTION.
AGGRAVATED MEDICAL CONDITIONS: PREEXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.
OTHER HEALTH EFFECTS: THIS PRODUCT AND ITS COMPONENTS ARE NOT CLASSIFIED AS CARCINOGENS BY INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC). NATIONAL TOXICOLOGY PROGRAM (NTP) OR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). THIS SPECIFIC PRODUCT HAS NOT BEEN TESTED IN LONG-TERM, CHRONIC EXPOSURE TESTS. LUBRICATING GREASES ARE GENERALLY CONSIDERED TO BE A LOW ORDER OF ACUTE TOXICITY TO HUMANS AND EXPERIMENTAL ANIMALS. HOWEVER, THE HANDLING PROCEDURES AND SAFETY PRECAUTIONS IN THIS MSDS SHOULD BE FOLLOWED TO MINIMIZE EMPLOYEE'S EXPOSURE.

SECTION IV - OCCUPATIONAL EXPOSURE LIMITS

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	

NO OSHA/PEL OR ACGIH/TLV HAS BEEN ESTABLISHED.

SECTION V - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING AND WIPE EXCESS OFF. WASH WITH SOAP AND WATER OR A WATERLESS HAND CLEANER FOLLOWED BY SOAP AND WATER. DO DO NOT REUSE CLOTHING UNTIL THOROUGHLY CLEANED. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.
INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.
INGESTION: DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.*
NOTE TO PHYSICIAN: *NOTE TO PHYSICIAN: IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, I.E. MOST OILS AND GREASES.

SECTION VI - SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII - PHYSICAL DATA

BOILING POINT (DEG F): N/A
SPECIFIC GRAVITY (H2O=1): N/A

VAPOR PRESSURE (MMHG): N/A
MELTING POINT (DEG F): 351 DROPPING POINT
SOLUBILITY (IN WATER): INSOLUBLE
VAPOR DENSITY (AIR=1): N/A
EVAPORATION RATE (N-BUTYL ACETATE = 1): N/A
APPEARANCE AND ODOR: SLIGHT HYDROCARBON ODOR.

SECTION VIII - FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 221 DEG C. PMCC (BASE OIL)
FLAMMABLE LIMITS /% VOLUME IN AIR LOWER: N/AV UPPER: N/AV
EXTINGUISHING MEDIA: USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. 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: DO NOT ENTER CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT INCLUDING A NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS SURROUNDING EQUIPMENT AND STRUCTURES WITH WATER.

SECTION IX - REACTIVITY

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS AND MATERIALS TO AVOID: AVOID HEAT, OPEN FLAME AND CONTACT WITH STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION X - EMPLOYEE PROTECTION

RESPIRATORY PROTECTION: NOT ORDINARILY REQUIRED.
PROTECTIVE CLOTHING: USE OIL RESISTANT GLOVES AND OTHER CLOTHING AS NEEDED TO MINIMIZE SKIN CONTACT. WEAR SAFETY GLASSES OR GOGGLES AS APPROPRIATE.

SECTION XI - ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES: SCOOP UP EXCESS GREASE. CLEAN AREA WITH APPROPRIATE CLEANER.

SECTION XII - SPECIAL PRECAUTIONS

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

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 XIII - TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS.

SECTION XIV - OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV - STATE REGULATORY INFORMATION

BASED ON INFORMATION AVAILABLE TO SHELL, THIS PRODUCT DOES NOT CONTAIN ANY CHEMICAL SUBSTANCE LISTED ON A CHEMICAL SPECIFIC STATE LIST.

SECTION XVI - SPECIAL NOTES

REVISIONS WERE MADE IN SECTION XV.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: JULY 01, 1991
J. C. WILLETT

BE SAFE
READ OUR PRODUCT
SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

PRODUCT: SHELL ALVANIA(R) EP LF GREASE 1

ENVIRONMENTAL DATA SHEET

PRODUCT: SHELL ALVANIA(R) EP LF GREASE 1
PRODUCT CODE: 71124

SECTION I - PRODUCT/COMPOSITION

NO.	COMPONENT	CAS NUMBER	PERCENT
p	SHELL ALVANIA EP LF GREASE 1	MIXTURE	100
1	SEVERELY HYDROTREATED HEAVY NAPHTHENIC DISTILLATE	64742-52-5	65
2	SOLVENT REFINED HYDROTREATED RESIDUAL OIL	64742-57-0	20
3	SULFURIZED LARD OIL	61790-49-6	4
4	LITHIUM HYDROXYSTEARATE	7620-77-1	7
5	ZINC NAPHTHENATE	12001-85-3	2
6	OTHER ADDITIVES	MIXTURE	2

SECTION II - SARA TITLE III INFORMATION

NO.	EHS RQ (LBS) (*1)	EHS TPQ (LBS) (*2)	SEC 313 (*3)	313 CATEGORY (*4)	311/312 CATEGORIES (*5)
5			YES	ZINC COMPOUND	

BASED ON THE DATA AVAILABLE TO SHELL, THIS PRODUCT CONTAINS NO HAZARDOUS SUBSTANCES AS DEFINED BY SARA TITLE III, SECTION 311(E).

FOOTNOTES:
*1 = REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, SEC.302
*2 = THRESHOLD PLANNING QUANTITY, EXTREMELY HAZARDOUS SUBSTANCE, SEC 302
*3 = TOXIC CHEMICAL, SEC 313
*4 = CATEGORY AS REQUIRED BY SEC 313 (40 CFR 372.65 C), MUST BE USED ON TOXIC RELEASE INVENTORY FORM
*5 = HAZARD CATEGORY FOR SARA SEC. 311/312 REPORTING
HEALTH H-1 = IMMEDIATE (ACUTE) HEALTH HAZARD
H-2 = DELAYED (CHRONIC) HEALTH HAZARD
PHYSICAL P-3 = FIRE HAZARD
P-4 = SUDDEN RELEASE OF PRESSURE HAZARD
P-5 = REACTIVE HAZARD

SECTION III - ENVIRONMENTAL RELEASE INFORMATION

EPA-CLEAN WATER ACT (CW). THIS PRODUCT IS CLASSIFIED AS AN OIL UNDER SECTION 311 OF THE CLEAN WATER ACT. SPILLS ENTERING (A) SURFACE WATERS OF (B) ANY WATERCOURSES OR SEWERS ENTERING/LEAVING TO SURFACE WATERS THAT CAUSE A SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

SECTION IV - RCRA INFORMATION

DISPOSE OF IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

SHELL

PRODUCT: SHELL ALVANIA(R) EP LF GREASE 1

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: APRIL 04, 1990

SHELL OIL COMPANY
CORPORATE ENVIRONMENTAL AFFAIRS
P. O. BOX 4320
HOUSTON, TX 77210

FOR ADDITIONAL INFORMATION ON THIS ENVIRONMENTAL DATA PLEASE CALL:
(713) 241-2252

FOR EMERGENCY ASSISTANCE PLEASE CALL:
SHELL: (713) 473-9461
CHEMTREC: (800) 424-9300

SHELL MATERIAL SAFETY DATA SHEET

MSDS NUMBER: 56,650-8

24 HOUR EMERGENCY ASSISTANCE
SHELL: 713-473-9461
CHEMTREC: 800-424-9300
GENERAL MSDS ASSISTANCE:
SHELL: 713-241-4819

HAZARD RATING:

LEAST = 0	ACUTE HEALTH = 1
SLIGHT = 1	FIRE = 1
MODERATE = 2	REACTIVITY = 0
HIGH = 3	
EXTREME = 4	* FOR ACUTE AND CHRONIC HEALTH EFFECTS REFER TO THE DISCUSSION IN SECTION III.

SECTION I

PRODUCT: SHELL CYPRINA(R) GREASE RA
CHEMICAL NAME: MIXTURE (SEE SECTION II-A)
CHEMICAL FAMILY: PETROLEUM HYDROCARBON; LUBRICATING GREASE
SHELL CODE: 71005

SECTION II-A - PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
p	SHELL CYPRINA GREASE RA	MIXTURE	100
1	SOL. REF., HYDROTREATED ACID TREATED HEAVY NAPHTHENIC DIST.	64742-18-3	70.3
	SOL. REF., HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	14.7
3	LITHIUM HYDROXYSTEARATE	7620-77-1	<14.0
4	SELENIUM COMPOUND	5819-01-2	0.50
5	OTHER COMPONENTS	MIXTURE	<2.0

NFPA HAZARD RATING: HEALTH 0 FIRE 1 REACTIVITY 0

SECTION II-B - ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
p	NOT AVAILABLE		

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 5 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

SECTION III - HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).
EYE CONTACT: MAY BE MILDLY IRRITATING TO THE EYES.

SKIN CONTACT: PROLONGED OR REPEATED CONTACT MAY CAUSE SKIN DISORDERS SUCH AS DERMATITIS, FOLLICULITIS OR OIL ACNE. RELEASE DURING HIGH PRESSURE USAGE MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.
INHALATION: NOT EXPECTED TO BE A RELEVANT ROUTE OF EXPOSURE, HOWEVER, UNDER HIGH TEMPERATURE CONDITIONS, VAPORS IRRITATING TO THE NOSE, THROAT AND UPPER RESPIRATORY TRACT MAY BE PRODUCED.
INGESTION: GREASES ARE GENERALLY CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.
SIGNS AND SYMPTOMS: IRRITATION AS NOTED ABOVE. LOCAL NECROSIS IS EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING INJECTION.
AGGRAVATED MEDICAL CONDITIONS: PREEXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.
OTHER HEALTH EFFECTS: THIS PRODUCT AND ITS COMPONENTS ARE NOT CLASSIFIED AS CARCINOGENS BY INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC). NATIONAL TOXICOLOGY PROGRAM (NTP) OR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). THIS SPECIFIC PRODUCT HAS NOT BEEN TESTED IN LONG-TERM, CHRONIC EXPOSURE TESTS. LUBRICATING GREASES ARE GENERALLY CONSIDERED TO BE A LOW ORDER OF ACUTE TOXICITY TO HUMANS AND EXPERIMENTAL ANIMALS. HOWEVER, THE HANDLING PROCEDURES AND SAFETY PRECAUTIONS IN THIS MSDS SHOULD BE FOLLOWED TO MINIMIZE EMPLOYEE'S EXPOSURE.

SECTION IV - OCCUPATIONAL EXPOSURE LIMITS

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	

NO OSHA/PEL OR ACGIH/TLV HAS BEEN ESTABLISHED.

SECTION V - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING AND WIPE EXCESS OFF. WASH WITH SOAP AND WATER OR A WATERLESS HAND CLEANER FOLLOWED BY SOAP AND WATER. DO DO NOT REUSE CLOTHING UNTIL THOROUGHLY CLEANED. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.
INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.
INGESTION: DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.*
NOTE TO PHYSICIAN: *NOTE TO PHYSICIAN: IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, I.E. MOST OILS AND GREASES.

SECTION VI - SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII - PHYSICAL DATA

BOILING POINT (DEG F): N/A
SPECIFIC GRAVITY (H2O=1): N/A
VAPOR PRESSURE (MMHG): N/A
MELTING POINT (DEG F): N/A
SOLUBILITY (IN WATER): INSOLUBLE
VAPOR DENSITY (AIR=1): N/A
EVAPORATION RATE (N-BUTYL ACETATE = 1): N/A
APPEARANCE AND ODOR: AMBER, SMOOTH, SLIGHT ODOR.

SECTION VIII - FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 213 DEG C. PMCC (BASE OIL)
FLAMMABLE LIMITS /% VOLUME IN AIR LOWER: N/AV UPPER: N/AV
EXTINGUISHING MEDIA: USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. 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: DO NOT ENTER CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT INCLUDING A NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS SURROUNDING EQUIPMENT AND STRUCTURES WITH WATER.

SECTION IX - REACTIVITY

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS AND MATERIALS TO AVOID: AVOID HEAT, OPEN FLAME AND CONTACT WITH STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION X - EMPLOYEE PROTECTION

RESPIRATORY PROTECTION: NOT ORDINARILY REQUIRED.
PROTECTIVE CLOTHING: USE OIL RESISTANT GLOVES AND OTHER CLOTHING AS NEEDED TO MINIMIZE SKIN CONTACT.

SECTION XI - ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES: SCOOP UP EXCESS GREASE. CLEAN AREA WITH APPROPRIATE CLEANER.

SECTION XII - SPECIAL PRECAUTIONS

STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

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 XIII - TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS.

SECTION XIV - OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV - STATE 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.

STATE LISTED COMPONENT	PERCENT	STATE CODE
SOL. REF., HYDROTREATED, ACID TREATED HEAVY NAPHTHENIC DIST. (CAS NO.: 64742-18-3)	70.3	MA

CA = CALIFORNIA HAZ. SUBST. LIST; CA65 = CALIFORNIA SAFE DRINKING WATER AND TOXICS ENFORCEMENT ACT LIST; CT = CONNECTICUT TOX. SUBST. LIST; FL = FLORIDA SUBST. LIST; IL = ILLINOIS TOX. SUBST. LIST; LA = LOUISIANA HAZ. SUBST. LIST; MA = MASSACHUSETTS SUBST. LIST; ME = MAINE HAZ SUBST. LIST; MN = MINNESOTA HAZ. SUBST. LIST; NJ = NEW JERSEY HAZ. SUBST. LIST; PA = PENNSYLVANIA HAZ. SUBST. LIST; RI = RHODE ISLAND HAZ. SUBST. LIST.

PRODUCT: SHELL CYPRINA(R) GREASE RA

SECTION XVI - SPECIAL NOTES

REVISIONS WERE MADE IN SECTION XV AND EDS SECTIONS II, III AND IV.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: AUGUST 19, 1991
J. C. WILLETT

BE SAFE
READ OUR PRODUCT
SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

MATERIAL SAFETY DATA SHEET

25

Shell

97002 (REV 1-83)

MSDS NUMBER ▶ 60,030-4 PAGE 1 OF

SECTION I	NAME
PRODUCT ▶	Shell DIALA® Oil AX
CHEMICAL/ SYNONYMS ▶	Lubricating Oil
CHEMICAL FAMILY ▶	Hydrocarbon
SHELL CODE ▶	**
C.A.S. NUMBER ▶	Mixture

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	1
FIRE	1
REACTIVITY	0

SECTION II INGREDIENTS

COMPOSITION	%	TOXICITY DATA
Shell DIALA Oil AX	100	Not Determined
Petroleum Hydrocarbons	99.5	Oral LD_{50}, rat >5g/kg*
		Dermal LD_{50}, rabbit >2g/kg*
Phenolic Oxidative Inhibitor	0.5	
**63702 63722 68702 69702		*Values are estimates based upon tests using similar oils.

SECTION III HEALTH INFORMATION

Lubricating oils are generally considered to be of a low order of acute toxicity to humans and experimental animals.

Exposure to vapors or mist of this product may cause pulmonary irritation, dizziness and nausea. Prolonged or repeated contact may cause various skin disorders such as dermatitis, folliculitis or oil acne.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

Oil Mist:
ACGIH-TLV/TWA = 5 mg/m³; ACGIH-TLV/STEL = 10 mg/m³
OSHA-PEL/TWA = 5 mg/m³ (see NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards)

SECTION V — EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with water for 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT: Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. Do not reuse clothing until thoroughly cleaned. If irritation persists, get medical attention.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

INGESTION: Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical advice.*

SECTION VI — PHYSICAL DATA

BOILING POINT (°F) ▶ N.A.	MELTING POINT (°F) ▶ N.A.	VAPOR PRESSURE (mmHg) ▶ N.A.
SPECIFIC GRAVITY (H_2O=1) ▶ 0.865-0.910	% VOLATILE BY VOLUME ▶ N.A.	VAPOR DENSITY (AIR=1) ▶ N.A.
SOLUBILITY IN WATER ▶ Negligible	EVAPORATION RATE (BUTYL ACETATE=1) ▶ N.A.	N.A. = Not Available

APPEARANCE AND ODOR

Light colored oil. Slight odor.

SECTION VII — FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD USED	FLAMMABLE LIMITS/% VOLUME IN AIR ▶ LOWER	UPPER
275°F PMCC	N.A.	

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

Do not enter confined fire space without proper protective equipment including a NIOSH approved self-contained breathing apparatus. Cool fire-exposed containers, surrounding equipment and structures with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None unusual

SECTION VIII REACTIVITY

STABILITY ▶ [ ] UNSTABLE [X] STABLE | HAZARDOUS POLYMERIZATION ▶ [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID

Avoid heat, open flames, oxidizing materials and mist formations.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide and unidentified organic compounds may be formed during combustion.

SECTION IX EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

If exposure may or does exceed occupational exposure limits (Sec.IV) use a NIOSH-approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulates.

PROTECTIVE CLOTHING

Wear gloves and other protective clothing as required to minimize skin contact. Wear safety glasses or goggles to prevent eye contact.

ADDITIONAL PROTECTIVE MEASURES

--

SECTION X ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

May burn although not readily ignitable. Use cautious judgment when cleaning up large spills.

Large spills: Wear respirator and protective clothing as appropriate. Shut off source of leak if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; dispose of properly. Flush area with water to remove trace residue.
Small spills: take up with an absorbent material and dispose of properly.

WASTE DISPOSAL

Dispose of in an appropriate disposal facility in compliance with local regulations.

ENVIRONMENTAL HAZARDS

This product is an "oil" under the Clean Water Act. KEEP OUT OF SURFACE WATERS AND ANY WATER COURSES OR SEWERS ENTERING OR LEADING TO SURFACE WATERS. See Section XIII.

SECTION XI SPECIAL PRECAUTIONS

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 ▶

[ ] FLAMMABLE LIQUID	[ ] COMBUSTIBLE LIQUID	[ ] OXIDIZING MATERIAL	[ ] NON-FLAMMABLE GAS
[ ] FLAMMABLE SOLID	[ ] POISON,CLASS A	[ ] CORROSIVE MATERIAL	[X] NOT HAZARDOUS BY D.O.T. REGULATIONS
[ ] FLAMMABLE GAS	[ ] POISON,CLASS B	[ ] IRRITATING MATERIAL	[ ] OTHER-Specify below

D.O.T. PROPER SHIPPING NAME

--

OTHER REQUIREMENTS

Bill of Lading Commodity Description: Petroleum Transformer Oil

SECTION XIII SUPPLEMENTARY HEALTH/REGULATORY INFORMATION

EPA - Clean Water Act (CWA)

This product is classified as an oil under Section 311 of the Clean Water Act. Spills entering (a) surface waters or (b) any watercourses or sewers entering/leading to surface waters that cause a sheen MUST be reported to the National Response Center, 800-424-8802.

USDA - Inspection and Grading Programs

This product may be used as a lubricant in locations operating under USDA inspection programs in which there is no possibility of the lubricant contacting edible products.

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 proceoures 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
P.O. BOX 4320
HOUSTON,TEXAS 77210
(713) 241-4819

DATE PREPARED
September 21, 1982

SHELL MATERIAL SAFETY DATA SHEET
MSDS NUMBER: 60,200-10T
24 HOUR EMERGENCY ASSISTANCE
SHELL: 713-473-9461
CHEMTREC: 800-424-9300
GENERAL MSDS ASSISTANCE:
SHELL: 713-241-4819
HAZARD RATING:
LEAST = 0 ACUTE HEALTH = 0
SLIGHT = 1 FIRE = 1
MODERATE = 2 REACTIVITY = 0
HIGH = 3
EXTREME = 4 * FOR ACUTE AND CHRONIC HEALTH EFFECTS REFER TO THE DISCUSSION IN SECTION III.

SECTION I

PRODUCT: SHELL TURBO(R) T OIL 32 (MIL-H-17672D; 2075TH)
CHEMICAL NAME: MIXTURE (SEE SECTION II-A)
CHEMICAL FAMILY: PETROLEUM HYDROCARBON; TURBINE OIL
SHELL CODE: 65602

SECTION II-A - PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
p	SHELL TURBO T OIL 32	MIXTURE	100
1	SOLVENT REFINED, HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	98-99
	MINOR ADDITIVES	MIXTURE	1-2

NFPA HAZARD RATING: HEALTH 0 FIRE 1 REACTIVITY 0

SECTION II-B - ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
p	NOT AVAILABLE		
1	>5.0 G/KG, RAT	>5.0 G/KG, RABBIT*	NOT AVAILABLE

*BASED ON API STUDIES

SECTION III - HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT: BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING, PRODUCT IS PRESUMED TO BE NON-IRRITATING TO THE EYES.

SKIN CONTACT: BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING, PRODUCT IS PRESUMED TO BE NON-IRRITATING TO THE SKIN. PROLONGED AND REPEATED CONTACT MAY RESULT IN SKIN DISORDERS SUCH AS DERMATITIS, OIL ACNE OR FOLLICULITIS. ACCIDENTAL RELEASE UNDER HIGH PRESSURE APPLICATIONS MAY RESULT IN INJECTION

PRODUCT: SHELL TURBO(R) T OIL 32 (MIL-H-17672D; 2075TH)

OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.
HALATION: THE INHALATION OF VAPORS (GENERATED AT HIGH TEMPERATURES ONLY) OR OIL MIST MAY CAUSE A MILD IRRITATION OF THE UPPER RESPIRATORY TRACT.
INGESTION: BASED ON ESSENTIALLY SIMILAR PRODUCT TESTING, PRODUCT IS PRESUMED TO BE NO MORE THAN SLIGHTLY TOXIC IF INGESTED.
SIGNS AND SYMPTOMS: IRRITATION AS NOTED ABOVE. NECROSIS MAY BE EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING HIGH PRESSURE INJECTION.
AGGRAVATED MEDICAL CONDITIONS: PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.
OTHER HEALTH EFFECTS: THIS PRODUCT AND ITS COMPONENTS ARE NOT CLASSIFIED AS CARCINOGENS BY INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC), NATIONAL TOXICOLOGY PROGRAM (NTP) OR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

SECTION IV - OCCUPATIONAL EXPOSURE LIMITS

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	
p	5 MG/M3*	NONE	5 MG/M3*	10 MG/M3*	

*OIL MIST, MINERAL

SECTION V - EMERGENCY AND FIRST AID PROCEDURES

E CONTACT: FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING AND WIPE EXCESS OFF. WASH WITH SOAP AND WATER OR A WATERLESS HAND CLEANER FOLLOWED BY SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.
INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.
INGESTION: DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.
NOTE TO PHYSICIAN: IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, I.E., MOST OILS AND GREASES.

SECTION VI - SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII - PHYSICAL DATA

BOILING POINT (DEG F): N/A
SPECIFIC GRAVITY (H2O=1): 0.8735

VAPOR PRESSURE (MMHG): <0.1
MELTING POINT (DEG F): -20 (POUR POINT)
SOLUBILITY (IN WATER): NEGLIGIBLE
VAPOR DENSITY (AIR=1): N/A
EVAPORATION RATE (N-BUTYL ACETATE = 1): N/A
APPEARANCE AND ODOR: SLIGHT HYDROCARBON ODOR.

SECTION VIII - FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 430 DEG C. PMCC
FLAMMABLE LIMITS /% VOLUME IN AIR LOWER: N/AV UPPER: N/AV
EXTINGUISHING MEDIA: USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. 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: MATERIALS WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SECTION IX - REACTIVITY

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS AND MATERIALS TO AVOID: AVOID HEAT, OPEN FLAME AND OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION X - EMPLOYEE PROTECTION

RESPIRATORY PROTECTION: IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS AND PARTICULATES.
PROTECTIVE CLOTHING: WEAR CHEMICAL-RESISTANT GLOVES AND OTHER PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE PROLONGED SKIN CONTACT. NO SPECIAL EYE PROTECTION IS ROUTINELY NECESSARY. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE BEST PROTECTION IS PROVIDED BY NITRILE GLOVES.

SECTION XI - ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES: MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

SECTION XII - SPECIAL PRECAUTIONS

MINIMIZE PROLONGED 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.STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

SECTION XIII - TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS.

SECTION XIV - OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990): PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE ENVIRONMENTAL DATA SHEET (EDS) SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV - STATE REGULATORY INFORMATION

BASED ON INFORMATION AVAILABLE TO SHELL, THIS PRODUCT DOES NOT CONTAIN ANY CHEMICAL SUBSTANCE LISTED ON A CHEMICAL SPECIFIC STATE LIST.

SECTION XVI - SPECIAL NOTES

THE MSDS WAS REVISED IN SECTIONS II-A, II-B, VII, XIII, AND EDS SECTIONS I AND IV.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: NOVEMBER 14, 1994
J. C. WILLETT

BE SAFE
READ OUR PRODUCT
SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT AVAILABLE

VIS, CS (40 DEG C.) = 145

APPEARANCE AND ODOR: PALE YELLOW OIL. SLIGHT HYDROCARBON ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
445 DEG F. (PMCC)

FLAMMABLE LIMITS /% VOLUME IN AIR
LOWER: N/AV UPPER: N/AV

EXTINGUISHING MEDIA
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. 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
MATERIALS WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SECTION IX REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:
AVOID HEAT, OPEN FLAMES, AND OXIDIZING MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS
THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID, PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOES PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED UPON COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION
IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS AND PARTICULATES.

PROTECTIVE CLOTHING
WEAR CHEMICAL-RESISTANT GLOVES AND OTHER PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE SKIN CONTACT. WEAR SAFETY GOGGLES TO AVOID EYE CONTACT. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE BEST PROTECTION IS PROVIDED BY NITRILE GLOVES.

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES
MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. *** LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL: DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

WASTE DISPOSAL
PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

ENVIRONMENTAL HAZARDS
THIS PRODUCT IS CLASSIFIED AS AN OIL UNDER SECTION 311 OF THE CLEAN WATER ACT. SPILLS ENTERING (A) SURFACE WATERS OR (B) ANY WATERCOURSES OR SEWERS ENTERING/LEADING TO SURFACE WATERS THAT CAUSE A

SHEEN MUST BE REPORTED [illegible]HE NATIONAL RESPONSE CENTER, 800-424-8802.

SECTION XII SPECIAL PRECAUTIONS

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.STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: AUGUST 26, 1985

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

JOHN P. SEPESI

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

[redacted] 22

MATERIAL SAFETY DATA SHEET

MSDS NUMBER ▶ 64,410-3 PAGE 1

97367 (4-85)

24 HOUR EMERGENCY ASSISTANCE	GENERAL MSDS ASSISTANCE
SHELL: 713-473-9461 CHEMTREC: 800-424-9300	SHELL: 713-241-4819

ACUTE HEALTH *	FIRE	REACTIVITY	HAZARD RATING ▶
1	1	0	LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4

*For acute and chronic health effects refer to the discussion in Section III

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

SECTION I	NAME
PRODUCT ▶	SHELL TURBO(R) OIL 150
CHEMICAL NAME ▶	MIXTURE (SEE SECTION II-A)
CHEMICAL FAMILY ▶	PETROLEUM HYDROCARBON; TURBINE OIL
SHELL CODE ▶	65608

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
P	SHELL TURBO OIL 150	MIXTURE	100
1	SOL. REF., HYDROTREATED HEAVY PARAFFINIC DIST.	64742-54-7	80
2	SOL REF. HYDROTREATED RESIDUAL OIL	64742-57-0	19
3	MINOR ADDITIVES	MIXTURE	<1

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
P	NOT AVAILABLE		

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 3 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT
LUBRICATING OILS ARE GENERALLY CONSIDERED TO BE NO MORE THAN MINIMALLY IRRITATING TO THE EYES.

SKIN CONTACT
LUBRICATING OILS ARE GENERALLY CONSIDERED TO BE NO MORE THAN SLIGHTLY IRRITATING TO THE SKIN. PROLONGED AND REPEATED CONTACT MAY RESULT IN SKIN DISORDERS SUCH AS DERMATITIS, OIL ACNE OR FOLLICULITIS. ACCIDENTAL RELEASE UNDER HIGH PRESSURE APPLICATIONS MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.

INHALATION
THE INHALATION OF VAPORS (GENERATED AT HIGH TEMPERATURES ONLY) OR OIL MIST MAY CAUSE A MILD IRRITATION THE OF UPPER RESPIRATORY TRACT.

INGESTION
LUBRICATING OILS ARE GENERALLY CONSIDERED NO MORE THAN SLIGHTLY TOXIC IF SWALLOWED.

SIGNS AND SYMPTOMS
IRRITATION AS NOTED ABOVE. NECROSIS MAY BE EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING HIGH PRESSURE INJECTION.

AGGRAVATED MEDICAL CONDITIONS
PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	
P	5 MG/M3*	NONE	5 MG/M3*	10 MG/M3*	NONE

*OIL MIST, MINERAL

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN CONTACT
REMOVE CONTAMINATED CLOTHING AND WIPE EXCESS OFF. WASH WITH SOAP AND WATER OR A WATERLESS HAND CLEANER FOLLOWED BY SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.

INHALATION
REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION
DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.

NOTE TO PHYSICIAN
IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, I.E., MOST OILS AND GREASES.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII PHYSICAL DATA

BOILING POINT: NOT AVAILABLE (DEG F)	SPECIFIC GRAVITY: 0.8916 (H2O=1)	VAPOR PRESSURE: NOT AVAILABLE (MM HG)
MELTING POINT: -5 (POUR POINT) (DEG F)	SOLUBILITY: NEGLIGIBLE (IN WATER)	VAPOR DENSITY: NOT AVAILABLE (AIR=1)

Oil bouant (see me [illegible]) for Blue Ridge Joo. 54489

Shell

MATERIAL SAFETY DATA SHEET

MSDS NUMBER ▶ 60,220-7 PAGE

97367 (4-85)

24 HOUR EMERGENCY ASSISTANCE	GENERAL MSDS ASSISTANCE
SHELL: 713-473-9461 CHEMTREC: 800-424-9300	SHELL: 713-241-4819

ACUTE HEALTH *	FIRE	REACTIVITY	HAZARD RATING ▶
0	1	0	LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4

*For acute and chronic health effects refer to the discussion in Section III

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

SECTION I NAME

PRODUCT ▶	SHELL TURBO(R) T OIL 68
CHEMICAL NAME ▶	MIXTURE (SEE SECTION II-A)
CHEMICAL FAMILY ▶	PETROLEUM HYDROCARBON; TURBINE OIL
SHELL CODE ▶	65605

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
P	SHELL TURBO T OIL 68	MIXTURE	100
1	SOL. REF., HYDROTREATED HEAVY PARAFFINIC DIST.	64742-54-7	49-99
2	SOL. REF., CATALYTIC DEWAXED HEAVY PARAFFINIC OIL	64742-70-7	49-50
3	MINOR ADDITIVES	MIXTURE	<1

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
P	>5.0 G/KG, RAT	>2.0 G/KG, RABBITS	NOT AVAILABLE

BASED UPON DATA AVAILABLE TO SHELL, COMPONENT 3 IN THIS PRODUCT IS NOT HAZARDOUS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT
BASED ON PRODUCT TESTING, PRODUCT IS NON-IRRITATING TO THE EYES.

SKIN CONTACT
BASED ON PRODUCT TESTING, PRODUCT IS NON-IRRITATING TO THE SKIN. PROLONGED AND REPEATED CONTACT MAY RESULT IN SKIN DISORDERS SUCH AS DERMATITIS, OIL ACNE OR FOLLICULITIS. ACCIDENTAL RELEASE UNDER HIGH PRESSURE APPLICATIONS MAY RESULT IN INJECTION OF OIL INTO THE SKIN CAUSING LOCAL NECROSIS.

INHALATION
THE INHALATION OF VAPORS (GENERATED AT HIGH TEMPERATURES ONLY) OR OIL MIST MAY CAUSE A MILD IRRITATION OF THE UPPER RESPIRATORY TRACT.

INGESTION
BASED ON PRODUCT TESTING PRODUCT, IS CONSIDERED NO MORE THAN SLIGHTLY TOXIC IF SWALLOWED.

SIGNS AND SYMPTOMS
IRRITATION AS NOTED ABOVE. NECROSIS MAY BE EVIDENCED BY DELAYED ONSET OF PAIN AND TISSUE DAMAGE A FEW HOURS FOLLOWING HIGH PRESSURE INJECTION.

AGGRAVATED MEDICAL CONDITIONS
PREEXISTING SKIN AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	
P	5 MG/M3*	NONE	5 MG/M3*	10 MG/M3*	

*OIL MIST, MINERAL

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
FLUSH EYES WITH WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

SKIN CONTACT
REMOVE CONTAMINATED CLOTHING AND WIPE EXCESS OFF. WASH WITH SOAP AND WATER OR A WATERLESS HAND CLEANER FOLLOWED BY SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. IF MATERIAL IS INJECTED UNDER THE SKIN, GET MEDICAL ATTENTION PROMPTLY TO PREVENT SERIOUS DAMAGE; DO NOT WAIT FOR SYMPTOMS TO DEVELOP.

INHALATION
REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION
DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.

NOTE TO PHYSICIAN
IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, I.E., MOST OILS AND GREASES.

SECTION VI SUPPLEMENTAL HEALTH INFORMATION

NONE IDENTIFIED.

SECTION VII PHYSICAL DATA

BOILING POINT: NOT AVAILABLE (DEG F)	SPECIFIC GRAVITY: 0.8816 (H2O=1)	VAPOR PRESSURE: NOT AVAILABL (MM HG)

MELTING POINT: -5 (POUR POINT) (DEG F)

SOLUBILITY: (IN WATER) NEGLIGIBLE

VAPOR DENSITY: (AIR=1) NOT AVAILAB

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT AVAILABLE

VIS, CS (40 DEG C.) = 64

APPEARANCE AND ODOR:
PALE YELLOW OIL. SLIGHT HYDROCARBON ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
400 DEG F. (PMCC)

FLAMMABLE LIMITS /% VOLUME IN AIR
LOWER: N/AV UPPER: N/AV

EXTINGUISHING MEDIA
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLO AND CAN BE REIGNITED ON SURFACE OF WATER.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS
MATERIALS WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SECTION IX REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:
AVOID HEAT, OPEN FLAMES, AND OXIDIZING MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS
THERMAL DECOMPOSITION PRODUCTS ARE HIGHLY DEPENDENT ON THE COMBUSTION CONDITIONS. A COMPLEX MIXTURE OF AIRBORNE SOLID, LIQUID, PARTICULATES AND GASES WILL EVOLVE WHEN THIS MATERIAL UNDERGOE PYROLYSIS OR COMBUSTION. CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED UPON COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION
IF EXPOSURE MAY OR DOES EXCEED OCCUPATIONAL EXPOSURE LIMITS (SEC. IV) USE A NIOSH-APPROVED RESPIRATOR TO PREVENT OVEREXPOSURE. IN ACCORD WITH 29 CFR 1910.134 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS AND PARTICULATE

PROTECTIVE CLOTHING
WEAR CHEMICAL-RESISTANT GLOVES AND OTHER PROTECTIVE CLOTHING AS REQUIRED TO MINIMIZE PROLONGED SK CONTACT. NO SPECIAL EYE PROTECTION IS ROUTINELY NECESSARY. TEST DATA FROM PUBLISHED LITERATURE AND/OR GLOVE AND CLOTHING MANUFACTURERS INDICATE THE BEST PROTECTION IS PROVIDED BY NITRILE GLOVE

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES
MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. * LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEA IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSEL SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

SECTION XII SPECIAL PRECAUTIONS

MINIMIZE PROLONGED 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.STORE IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION:
NOT HAZARDOUS BY D.O.T. REGULATIONS

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES

IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE EDS SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

SECTION XV SPECIAL NOTES

SECTION XI - ENVIRONMENTAL PROTECTION HAS BEEN REVISED. THE INFORMATION IN THE "WASTE DISPOSAL" AND "ENVIRONMENT PROTECTION" HAS BEEN REMOVED AND INCLUDED IN THE ATTACHED ENVIRONMENTAL DATA SHEET. IN ACCORDANCE WITH SARA TITLE III, SECTION 313, THE EDS SHOULD ALWAYS BE COPIED AND SENT WITH THE MSDS.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED:AUGUST 22, 1989

J. C. WILLETT

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

DATE OF ISSUE: JUNE 1, 1992

SMITH PIPE & STEEL COMPANY
735 NORTH 19TH AVENUE
PHOENIX, ARIZONA 85009
(602) 257-9494

MATERIAL SAFETY DATA SHEET

TRADE NAME (Common Name Or Synonym)
GALVANIZED

225

CHEMICAL NAME
GALVANIZED

I. INGREDIENTS

Material Or Component	CAS Number	% Weight	8 Hour TWA OSHA PEL (mg/m³) Dust	8 Hour TWA OSHA PEL (mg/m³) Fume	8 Hour TWA ACGIH TLV (mg/m³) Dust	8 Hour TWA ACGIH TLV (mg/m³) Fume	NTP Listed	IARC Listed
Base Metal								
Iron (Fe)	1309-37-1	85.4-90.0	-	10	0	5	No	No
Alloying Elements								
Aluminum (Al)	7429-90-5	0.1-0.5	15	-	10	5	No	No
Carbon (C)	7440-44-0	.25	NA	NA	3.5	-	No	No
Columbium (Cb)	7440-03-1	.10	10	5	10	10	No	No
Rare Earth (Ce)	7440-46-2	.10	15	5	10	10	No	No
Manganese (Mn)	7439-96-5	.05-1.90	1	3	1	3	No	No
Phosphorous (P)	7723-14-0	.15	.1	-	.1	-	No	No
Sulfur (S)	7704-34-9	.05	-	15	-	10	No	No
Titanium (T1)	7440-32-6	.30	15	5	10	10	No	No
Vanadium (V)	7440-62-2	.20	.5	.1	0.05	0.05	No	No
Metallic Coating							No	No
Aluminum	7429-90-5	.04	15	.5	10	5	No	No
Antimony	7410-36-0	.02	.5	-	.5	-	No	No
Iron	1309-37-1	.1-1.5	10	-	5	-	No	No
Lead	7439-92-1	.02	.05	.05	.15	.15	No	Yes
ıc	1314-13-2	.20	-	5	10	5	No	No

NOTE: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. No permissible exposure limits (PEL) or thresholds limit values (TLV) exist for steel. Values shown are applicable to components elements.

II. PHYSICAL DATA

MATERIAL IS (At Normal Conditions)	APPEARANCE AND ODOR	% VOLATILE BY VOLUME	VAPOR DENSITY
( ) LIQUID (X) SOLID ( ) GAS ( ) OTHER	GREY-BLACK, ODORLESS	N/A	N/A

ACIDITY/ALKALINITY			
pH = N/A	Melting Point Base Metal Approx. 2800°F Melting Point Metallic Coating 800°F	Specific Gravity (H^2O = 1) Approx. 7 Solubility in water (% by weight) N/A	VAPOR PRESSURE (MM Hg AT 20°C) N/A

III. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION. Appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulates. If exposure limits are reached or exceeded, use NIOSH approved equipment.	HANDS, ARMS AND BODY. Protective gloves should be worn as required for welding, burning or handling operations.
EYES AND FACE. Safety glasses should be worn when grinding or cutting. Face shields should be worn when welding or cutting or burning.	OTHER CLOTHING AND EQUIPMENT. As required depending on operations and safety codes.

IV. EMERGENCY MEDICAL PROCEDURES

INHALATION: Remove to fresh air; if condition continues, consult a physician.
CONTACT: Flush thoroughly with running water to remove particulate; obtain medical attention.
CONTACT: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.
ESTION: If significant amounts of metal are ingested, consult physician.

V. HEALTH/SAFETY INFORMATION

HEALTH

Steel products in their solid state present no inhalation, ingestion, or contact health hazard. Operations such as burning, welding, sawing, brazing, grinding, and machining, which result in elevating the temperature of the product to, or above its melting point, or result in the generation of airborne particulates may present hazards. The major exposure hazard is inhalation. Effects or overexposure to fume and dust are as follows:

ACUTE: Excessive inhalation of metallic fumes and dust may result in irritation of eyes, nose and throat. High concentrations of fumes and dust of iron-oxide, manganese, copper, zinc and lead may result in metal fume fever. Typical symptoms last from 12 to 48 hours and consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever.

CHRONIC: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Aluminum: May initiate fibrotic changes to lung tissue
Bismuth: No chronic debilitating symptoms indicated
Boron: No chronic debilitating symptoms indicated
Chromium: Lesions of the skin and mucous membranes, possible cancer of the nose or lungs-bronchogenic carcinoma
Copper: No chronic debilitating symptoms indicated
Iron: Siderosis, pulmonary effects. No chronic debilitating symptoms indicated.
Lead: Anemia, urinary dysfunction, weakness, constipation, nausea, nervous disorder
Manganese: Bronchitis, lack of coordination
Molybdenum: Respiratory tract irritation, possible liver and kidney damage, bone deformity
Nickel: Lesions of the skin and mucous membranes, possible cancer of the nose or lungs-bronchogenic carcinoma
Phosphorous: Necrosis of the mandible
Sulfur: (As sulfur dioxide) Edema of the lungs
Vanadium: (As vanadium pentoxide) Emphysema, pneumonia
Zinc: Gastrointestinal inflammation reported in animal studies

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with chronic respiratory disorders (i.e.:asthma, chronic bronchitis, emphysema, etc.) may be adversely affected by any fume or airborne particulate matter exposure.

OCCUPATIONAL EXPOSURE LIMITS: See Product Ingredients Section I. Chromium Nickel and lead have been identified by the International Agency for Research on Cancer (IARC) and/or the National Toxicology Program (NTP) as potential cancer causing agents.

FIRE & EXPLOSION

FLASH POINT	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS IN AIR	EXTINGUISHING MEDIA
N/A °F	N/A	Lower N/A % Upper N/A %	For molten metal use dry powder or sand.

FIRE AND EXPLOSION HAZARDS
Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

EXTINGUISHING MEDIA
Do not use water on molten metal.

REACTIVITY

STABILITY	INCOMPATIBILITY (MATERIALS TO AVOID)
Stable (X) Unstable ( )	Reacts with strong acids to form hydrogen gas.

CONDITIONS TO AVOID: Steel at temperatures above the melting point may liberate fume containing oxides of iron and alloying elements. Avoid generation of airborne fume and dust.

HAZARDOUS DECOMPOSITION PRODUCTS:
Metallic Dust or fumes may be produced during welding, burning grinding and possible machining. Refer to ANSI Z49.1.

VI. ENVIRONMENTAL

SPILL OR LEAK PROCEDURES
Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for re-use.

WASTE DISPOSAL METHOD*
Used or unused product should be disposed of in accordance with Federal, State or Local Laws and Regulations.
*Disposer must comply with Federal, State and Local disposal or discharge laws.

VII.ADDITIONAL INFORMATION

In welding, precautions should be taken for airborne contaminates which may originate from components of the welding rod.

Arc or spark generated when welding or burning could be a source of ignition for combustion and flammable materials.

DISCLAIMER

The information in this MSDS was obtained from sources which we believe are reliable, however, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

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****
SUBSTANCE IDENTIFICATION
****

CAS NUMBER: 64-17-5

RTECS NUMBER: KQ6300000

SUBSTANCE: ETYHL ALCOHOL

TRADE NAMES/SYNONYMS:
ETHANOL: ETHYL ALCOHOL, 100%; ALCOHOL; ALCOHOL ANHYDROUS; ALGRAIN; ANHYDROL; ETHYL HYDRATE; ETHYL HYDROXIDE; HAYSOL; TECSOL; PL-1075 RINSE (HITACHI CHEMICAL COMPANY, LTD. YAMAZAKI WORKS); ETHYL ALCOHOL USP 200 PROOF (USI); METHYL CARBINOL; GRAIN ALCOHOL; ETHYLIC ALCOHOL; STCC 4909159; UN 1170; C2H60; OHS0700

CHEMICAL FAMILY:
ALCOHOL, ALIPHATIC

MOLECULAR FORMULA: C-H3-C-H2-O-H

MOLECULAR WEIGHT: 46.07

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=3 REACTIVITY=0
PERSISTENCE=0
EPA RATINGS (SCALE 0-4): HEALTH=0 FIRE=3 REACTIVITY=0
****

COMPONENT: ETHYL ALCOHOL PERCENT: 100.0
CAS# 64-17-5

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
ETHYL ALCOHOL (ETHANOL):
1000 PPM (1880 MG/M3) OSHA TWA
1000 PPM (1880 MG/M3) ACGIH TWA
1000 PPM (1880 MG/M3) NIOSH RECOMMENDED TWA
1000 P

SPECTRUM CHEMICAL MFG. CORP.
14422 S. San Pedro Street
Gardena, CA 90240-9985
Phone: (310) 516-8000

Emergency Contact:
Chemtrec (800) 424-9300
Spectrum Technical Services (310) 516-8000

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CHEMICAL FAMILY:
ALCOHOL, ALIPHATIC

MOLECULAR FORMULA: C-H3-C-H2-O-H

MOLECULAR WEIGHT: 46.07

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

COMPONENT: ETHYL ALCOHOL PERCENT: 100.0
CAS# 64-17-5

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
ETHYL ALCOHOL (ETHANOL):
1000 PPM (1880 MG/M3) OSHA TWA
1000 PPM (1880 MG/M3) ACGIH TWA
1000 PPM (1880 MG/M3) NIOSH RECOMMENDED TWA
1000 PPM (1880 MG/M3) DFG MAK TWA;
2000 PPM (3760 MG/M3) DFG MAK 60 MINUTE PEAK, MOMENTARY VALUE, 3 TIMES/SHIFT

****
PHYSICAL DATA
****

DESCRIPTION: A CLEAR, COLORLESS, VOLATILE LIQUID WITH A PLEASANT ODOR AND A BURNING TASTE. BOILING POINT: 173 F (78C)

MELTING POINT: -179 F (-117C) SPECIFIC GRAVITY: 0.7893

VISCOSITY: 0.0141 PS @ 20 C VOLATILITY: 100%

****

VAPOR PRESSURE: 40 MMHG @19 C

EVAPORATION RATE: (CARSON TETRACHLORIDE-1) 1.4

SOLUBILITY IN WATER: COMPLETE ODOR THRESHOLD: 5-10 PPM

VAPOR DENSITY: 1.59

SOLVENT SOLUBILITY: SOLUBLE IN BENZENE, ETHER, ACETONE, CHLOROFORM, METHANOL, MANY ORGANIC LIQUIDS

VISCOSITY: 1.22 CPS @ 20 C

****

FIRE AND EXPLOSION DATA

****

FIRE AND EXPLOSION HAZARD:
DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK.

VAPOR-AIR MIXTURES ARE EXPLOSIVE.

FLASH POINT: 55 F (13 C) (TCC) UPER EXPLOSIVE LIMIT: 19%

LOWER EXPLOSIVE LIMIT: 3.3% AUTOIGNITION TEMP.: 685 F (363 C)

FLAMMABILITY CLASS (OSHA): IB

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR ALCOHOL-RESISTANT FOAM (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR ALCOHOL-RESISTANT FOAM (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

ALCOHOL FOAM
(NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE LIQUIDS, GASES, AND VOLATILE SOLIDS, 1991).

FIREFIGHTINGS:
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. FOR MASSIVE FIRE IN CARGO AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF TANK DUE TO FIRE. ISOLATE FOR 1/2 MILE IN ALL DIRECTIONS IF TANK, RAIL CAR OR TANK TRUCK IS INVOLVED IN FIRE (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 26).

****
EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE WATER IN FLOODING AMOUNTS AS FOG. APPLY FROM AS FAR A DISTANCE AS POSSIBLE. SOLID STREAMS MAY NOT BE EFFECTIVE. AVOID BREATHING TOXIC VAPORS, KEEP UPWIND.

WATER MAY VE INEFFECTIVE (NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE LIQUIDS, GASES, AND VOLATILE SOLIDS, 1991)

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101: FLAMMABLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49-CFR 172.101 AND SUBPART E: FLAMMABLE LIQUID

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49-CFR 173.125 EXCEPTIONS: 49-CFR 173.118

FINAL RULE ON HAZARDOUS MATERIALS REGULATIONS (hmr, 49 CFR PARTS 171-180), DOCKET NUMBERS HM-181, HM-181A, HM-181B, HM-181C, HM-181D AND HM-204.

EFFECTIVE DATE OCTOBER 1, 1991. HOWEVER, COMPLIANCE WITH THE REGULATIONS IS AUTHORIZED ON AND AFTER JANUARY 1, 1991. (55 FR 52402, 12/21/90)

EXCEPT FOR EXPLOSIVES, INHALATION HAZARDS, AND INFECTIOUS SUBSTANCES, THE EFFECTIVE DATE FOR HAZARD COMMUNICATION REQUIREMENTS IS EXTENDED TO OCTOBER 1, 1993. (56 FR 47158, 09/18/91)

U.S. DEPARTMENT OF TRANSPORTATION SHIPPING NAME-ID NUMBER, 49 CFR 172.101: ETHANOL-UN 1170

U.S. DEPARTMENT OF TRANSPORTATION HAZARD CLASS OR DIVISION, 49 CFR 172.101: 3-FLAMMABLE LIQUID

U.S. DEPARTMENT OF TRANSPORTATION PACKING GROUP, 49 CFR 172.101: PG 11

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

U.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:
EXCEPTIONS: 49 CFR 173.150
NON-BULK PACKAGING: 49 CFR 173.202
BULK PACKAGING: 49 CFR 173.242

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

TOXICITY

ETHYL ALCOHOL (ETHANOL):
IRRITATION DATA: 400 MG OPEN SKIN-RABBIT MILD; 20 MG/24 HOURS SKIN-RABBIT MODERATE; 500 MG/24 HOURS EYE-RABBIT MILD; 500 MG EYE-RABBIT SEVERE; 100 MG/4 SECONDS RINSED EYE-RABBIT MODERATE.

TOXICITY DATA: 20,000 PPM/10 HOURS INHALATION-RAT LC50; 39 GM/M3/4 HOURS INHALATION-MOUSE LC50; 21,900 PPM INHALATION-GUINEA PIG LCLO; 20 GM/KG SKIN-RABBIT LDLO; 700 MG/KG ORAL-MAN TDLO; 2000 MG/KG ORAL-CHILD LDLO; 14,400 MG/KG/30 MINUTES INTERMITTENT ORAL-CHILD TDLO; 50 MG/KG ORAL-MAN TDLO; 1430 UG/KG ORAL-MAN TDLO; 256 GM/KG/12 WEEKS ORAL-WOMAN TDLO; 1400 MG/KG ORAL-HUMAN LDLO; 7060 MG/KG ORAL-RAT LD50; 3450 MG/KG ORAL-MOUSE LD50; 6000 MG/KG ORAL-CAT LDLO; 5500 MG/KG ORAL-DOG LDLO; 6300 MG/KG ORAL-RABBIT LD50; 5560 MG/KG ORAL-GUINEA PIG LD50;19,440 MG/KG SUBCUTANEOUS-INFANT LDLO; 8285 MG/KG SUBCUTANEOU=MOUSE LD50; 1440 MG/KG INTRAVENOUS-RAT LD50; 3945 MG/KG INTRAVENOUS-CAT LDLO; 1600 MG/KG INTRAVENOUS-DOG LDLO; 1973 MG/KG INTRAVENOUS-MOUSE LD50; 2374 MG/KG INTRAVENOUS-RABBIT LD50; 4300 MG/KG INTRAPERITONEAL-MAMMAL LD50; 3000 MG/KG INTRAPERITONEAL-DOG LDLO; 3600 UG/KG INTRAPERITONEAL-RAT LD50; 933 MG/KG INTRAPERITONEAL-MOUSE LD50; 963 MG/KG INTRAPERITONEAL-RABBIT LD50; 3414 MG/KG INTRAPERITONEAL-GUINEA PIG LD50; 11 MG/KG INTRAARTERIAL-RAT LD50; 36 GM/KG PARENTERAL-GROG LDLO; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA (RTECS); TUMORIGENIC DATA (RTECS).
CARCINOGEN STATUS: NONE. HUMAN SUFFICIENT EVIDENT (IARC GROUP-1 FOR ALCOHOLIC BEVERAGES). ANIMAL INADEQUATE EVIDENCE FOR THE CARCINOGENICITY OF ETHANOL AND ALCOHOLIC BEVERAGES IN EXPERIMENTAL ANIMALS.
LOCAL EFFECTS: IRRITANT-INHALATION, SKIN, EYE.
ACUTE TOXICITY LEVEL: SLIGHTLY TOXIC BY INHALATION AND INGESTION.
TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT; HEPATDTOXIN.
AT INCREASED RISK FROM EXPOSURE; PERSONS WITH LIVER DISEASE.
ADDITIONAL DATA: ALLERGIC REACTIONS TO ALCOHOLS HAVE BEEN REPORTED.

HEALTH EFFECTS AND FIRST AID

INHALATION:
ETHYL ALCOHOL (ETHANOL):
IRRITANT/NARCOTIC.
ACUTE EXPOSURE-EXPOSURE OF HUMANS TO 1000-10,000 PPM HAS CAUSED TEMPORARY IRRITATION OF THE UPPER RESPIRATORY TRACT AND COUGHING; AND IF CONTINUED, CENTRAL NERVOUS SYSTEM DEPRESSION WITH HEADACHE, STUPOR, FATIGUE, DIZZINESS, DROWSINESS, DULLNESS, LASSITUDE AND LOSS OF APPETITE MAY OCCUR. A LEVEL OF 20,000 PPM WAS CONSIDERED JUST TOLERABLE, AND ABOVE THIS LEVEL, THE ATMOSPHERE WAS DESCRIBED AS INTOLERABLE AND SUFFOCATING ON EVEN BRIEF EXPOSURES. ADDITIONALLY, EXPOSURE OF ANIMALS TO VARIOUS

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NCENTRATION HAS RESULTED IN EXCITATION FOLLOWED BY ATAXIA, COORDINATION, PROSTRATION, TWITCHING, GENERAL PARALYSIS, DYSPNEA, AND OCCASIONALLY DEATH DUE TO RESPIRATORY FAILURE.

CHRONIC EXPOSURE-REPEATED OR PROLONGED INHALATION OF VAPORS MAY CAUSE IRRITATION OF THE MUCOUS MEMBRANES, HEADACHE, DIZZINESS, NERVOUSNESS, TREMORS, FATIGUE, NAUSEA, NARCOSIS, LACK OF CONCENTRATION, AND SOMNOLENCE. TOLERANCE MAY BE A FACTOR IN INDIVIDUAL RESPONSE TO A GIVEN AIR CONCENTRATION. REPRODUCTIVE EFFECTS HAVE BEEN REPORTED IN ANIMALS.

FIRST AID-REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
ETHYL ALCOHOL (ETHANOL):
IRRITANT.
ACUTE EXPOSURE-DIRECT CONTACT MAY CAUSE MILD REDNESS AND BURNING.

SENZITIZATION HAS OCCASIONALLY BEEN REPORTED TO OCCUR IN SOME INDIVIDUALS RESULTING IN ALLERGIC CONTACT DERMATITIS IN THE FORM OF ECZEMATOUS ERUPTIONS OR, RARELY, ERYTHEMATOUS FLUSH OR CONTAC URTICARIA AT THE EXPOSED SITE. ANIMAL STUDIES INDICATE THAT, PENDING ON CONCENTRATION AND DURATION OF EXPOSURE, VARYING EGREES OF IRRITATION MAY OCCUR RANGING FROM MILD TO SEVERE.
SKIN ABSORPTION MAY ALSO OCCUR.
CHRONIC EXPOSURE-REPEATED OR PROLONGED CONTACT WITH THE LIQUID CAN CAUSE DEFATTING OF THE SKIN, PRODUCING A DRY, FISSURED DERMATITIS, OR OTHER SYMPTOMS AS IN ACUTE EXPOSURE. A 21-DAY MODIFIED DRAIZE OPEN TEST STUDY RESULTED IN NO IRRITATION IN MEN, WHEREAS AN OCCLUSIVE TEST RESULTED IN ERYTHEMA AND INDURATION TOWARD THE END OF THE EXPOSURE PERIOD.

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 (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
ETHYL ALCOHOL (ETHANOL):
IRRITANT.
ACUTE EXPOSURE-VAPOR CONCENTRATIONS OF 1,000-10,000 PPM MAY CAUSE TEMPORARY EYE IRRITATION, WITH 15,000 PPM CAUSING CONTINUOUS TEARING. DIRECT CONTACT WITH THE LIQUID MAY CAUSE IMMEDIATE BURNING AND STINGING, WITH REFLEX CLOSURE OF THE LIDS, TEARING, TEMPORARY INJURY OF THE CONREAL EPITHELIUM, AND HYPEREMIA OF THE CONJUNCTIVE. HEALING IS USUALLY SPONTANEOUS AND COMPLETE. DEPENDING ON THE CONCENTRATION, CONTACT WITH RABBIT EYES CAUSES A ESPONSE RANGING FROM MILD IRRITATION TO SEVER INJURY. RRIGATION OF RABBIT EYES WITH A 10% SOLUTION FOR SEVERAL MINUTES CAUSED NO SERIOUS DISTURBANCES.

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CHRONIC EXPOSURE-REPEATED APPLICATION TO RABBIT EYES OF 40-80% SOLUTIONS CAUSED CORNEAL CLOUDINESS, CONJUNCTIVAL NECROSIS, AND LOSS OF CORENAL EPITHELIUM AND ENDOTHELIUM, FOLLOWED BY CONJUCTIVAL HEMORRHAGING AND EDEMA, AND INFILTRATION AND VASCULARIZATION OF THE CORNEAL STROMA.

FIRST AID-WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
ETHYL ALCOHOL (ETHANOL):
NARCOTIC/HEPATOTOXIN.
ACUTE EXPOSURE-INGESTION MAY CAUSE EMOTIONAL LABILITY AND DECREASED INHIBITIONS, WITH EXHILARATION, BOASTFULNESS, TALKATIVENESS, REMORSE, AND BELLIGERENCY; FOLLOWED BY GRADUAL VISUAL IMPAIRMENT, MUSCULAR INCOORDINATION, SLOWING OF REACTION TIME, SENSORY DISTURBANCES, AND SLURRING OF SPEECH, OTHER SYMPTOMS MAY INCLUDE FLUSHING OF THE FACE, DILATED PUPILS, RAPID PULSE, NAUSEA, VOMITING, SWEATING, AND DIURESIS. INGESTION OF LARGE AMOUNTS MAY CAUSE CONFUSION, DISORIENTATION, LOSS OF MOTOR NERVE CONTROL, SHALLOW RESPIRATION, INVOLUNTARY DEFECATION AND URINATION, DROWSINESS, STUPOR, AND POSSIBLY COMA. CONVULSIONS DUE TO HYPOGLYCEMIA, REPIRATORY DEPRESSION, AND DECREASED REFLEXES MAY OCCUR. DEATH MAY OCCUR FROM RESPIRATORY OR CIRCULATORY FAILURE OR LATER FROM ASPIRATION PHEUMONITIS OR PULMONARY EDEMA. RECOVERY MAY BE ACCOMPANIED BY HEADACHE, INSOMNIA, GASTRITIS, INFECTION, RESTLESSNESS, PSYCHOSES WITH UNCONTROLLABLE FEAR, AND VISUAL, AUDITORY, OR GUSTATORY HALLUCINATIONS, EXAGGERATED REFLEXES, TACHYCARDIA, AND CONVULSIONS. SOME INDIVIDUAL SENSITIZED BY EXTERNAL CONTACT MAY SUFFER FROM A GNERALIZED ERYTHEMA, STOMATITIS, URTICARIA, ANGIOEDEMA, MORBILLIBORM ERUPTIONS, OR ECZEMATOUS DERMATITIS AT SITES PREVIOUSLY AFFECTED BY EXTERNAL CONTACT. REPRODUCTIVE EFFECTS HAVE BEEN REPORTED IN ANIMALS.

CHRONIC EXPOSURE-CHRONIC INTOXICATION MAY RESULT IN WEIGHT LOSS, DEGENERATIVE CHANGES IN THE LIVER, KIDNEYS, AND BRAIN, GASTROENTERITIS WITH ANOREXIA AND DIARRHEA, AND CIRRHOSIS OF THE LIVER. POLYNEURITIS WITH PAIN, MOTOR AND SENSORY LOSS IN THE EXTREMETIES, AND OPTIC ATROPHY MAY OCCUR, AMNESIA, TREMORS, CONFUSION, IMPAIRED JUDGEMENT, AND LOSS OR IMPAIRMENT OF MENTAL ABILITIES ARE POSSIBLE. MANY YEARS OF CHRONIC INGESTION HAVE CAUSED ACUTE MYOPATHY WITH TENDERNESS, ACHING, EDEMA, AND DEGENERATION OF THE MUSCLES. THE HEART MAY BE AFFECTED, CAUSING PALPITATIONS, EXTRASYSTOLE, TACHYCARDIA, OR OTHER ARRHYTHMIAS, WHICH MAY PROGESS TO IRREVERSIBLE MYOCARDIAL FIBROSIS AND CIRCULATORY FAILURE. ETHYL ALCOHOL HAS BEEN CLEARLY DEMONSTRATED TO CAUSE REPRODUCTIVE EFFECTS. THE NEWBORNS OF ALCOHOLIC MOTHERS MAY EXHIBIT FETAL ALCOHOL SYNDROME WITH LOW BIRTH WEIGHTS, PROMINENCE OF THE FOREHEAD AND MANDIBLE, CLEFT PALATE, MAXILLARY

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HYPOPLASIA, SHORT PALPEBRAL FISSURES, MICROPHTHALMIA, EPICANTHAL FOLDS, SEVERE GROWTH RETARDATION, MENTAL RETARDATION, MICROCEPHALY, CARDIAC ANOMALIES, AND POSSIBLY MADRIENTATION OF THE BRAIN. 9 NEWBORNS OF A HIGH RISK GROUP, THAT IS WOMEN WHO DRINK MORE THAN 2 OUNCES PER DAY, SHOWED INCREASED TREMORS AND NON-ALERT WAKE STATES AND DECREASED VIGOROUS ACTIVITY. REPRODUCTIVE EFFECTS HAVE ALSO BEEN REPORTED IN ANIMALS. HUMAN CONSUMPTION OF ALCOHOLIC BEVERAGES HAS BEEN CAUSALLY RELATED TO THE OCCURRENCE OF MALIGNANT TUMORS OF THE ORAL CAVITY, PHARYNX, LARYNX, ESOPHAGUS AND LIVER.

FIRST AID-IF THE PERSON IS CONSCIOUS AND NOT CONVUSING, REMOVE BY THOROUGH GASTRIC LAVAGE. IF IMMEDIATE GASTRIC LAVAGE CANNOT BE ACCOMPLISHED, INDUCE EMESIS WITH SYRUP OF IPECAC (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GASTRIC LAVAGE SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

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REACTIVITY

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REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
ETHYL ALCOHOL (ETHANOL):
ACETIC ANHYDRIBE AND SODIUM HYDROGEN SULFATE: POSSIBLE EXPLOSION
ACETYL CHLORIDE: VIOLENT REACTION.
ACETYL BROMIDE: VIOLENT REACTION.
ALKALI METALS: LIBERATES FLAMMABLE HYDROGEN GAS.
ALUMINUM SESQUIBROMIDE ETHYLATE: EXPLOSION.
AMMONIUM HYDROXIDE AND SILVER (I) OXIDE: FORMATION OF EXPLOSIVE SILVER NITRIDE.
BARIUM PERCHLORATE: FORMATION OF EXPLOSIVE COMPOUND.
BROMINE PENTAFLUORIDE: IGNITION AND EXPLOSIONS ARE POSSIBLE.
CALCIUM HYPOCHLORITE: POSSIBLE EXPLOSION.
CHLORINE TRIOXIDE: VIOLENT REACTION.
CHLORYL PERCHLORATE: POSSIBLE IGNITION.
CHROMIC ANHYDRIBE: IGNITION.
CHROMIUM TRIOXIDE: POSSIBLE IGNITION.
CHROMYL CHLORIDE: IGNITION.
DIOXYGEN DIFLUORIDE: POSSIBLE EXPLOSION.
DISULFURIC ACID AND NITRIC ACID: POSSIBLE IGNITION.
DISULFURYL DIFLUORIDE: VIOLET REACTION.
FLUORINE NITRATE: EXPLOSION
HYDROGEN PERIOXIDE: FORMATION OF HIGHLY EXPLOSIVE SHOCK-SENSITIVE COMPOUND.
HYDROGEN PEROXIDE-SULFURIC ACID MIXTURE: EXPLOSION.
IODINE HEPTAFLUORIDE: IGNITION.

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IODINE-MERCURIC OXIDE-METHYL ALCOHOL MIXURE: POSSIBLE EXPLOSION.
IODINE AND PHOSPHORUS: FORMATION OF EXPLOSIVE ETHAN IODIDE.
MANGANESE PERCHLORATE AND 2,2-DIMETHOXY PROPANE: POSSIBLE EXPLOSION.
MERCURIC NITRATE: FORMATION OF EXPLOSIVE COMPOUND.
NITRIC ACID: VIOLENT REACTION.
NITROSYL PERCHLORATE: POSSIBLE EXPLOSION.
OXIDIZERS (STRONG): FIRE AND EXPLOSIOIN HAZARD.
PERCHLORATES: MAY FORM EXPLOSIVE COMPOUND WHEN MIXED.
PERCHLORIC ACID: EXPLOSION.
PERMANGANIC ACID: IGNITION OR EXPLOSION.
PERMANGANATES AND SULFURIC ACID: EXPLOSION.
PEROXYDISULFURIC ACID: POSSIBLE EXPLOSION.
PHOSPHORUS (III) OXIDE: IGNITION.
PLATINUM: IGNITION.
POTASSIUM: VIOLENT REACTION.
POTASSIUM DIOXIDE: VIOLENT REACTION, POSSIBLE EXPLOSION.
POTASSIUM PERCHLORATE: POSSIBLE EXPLOSION.
POTASSIUM PERMANGANATE: POSSIBLE EXPLOSION.
POTASSIUM TERT-BUTOXIDE: IGNITION
RUTHENIUM (VIII) OXIDE: FORMATION OF EXPLOSIVE COMPOUND.
SILVER AND NITRIC ACID: FORMATION OF EXPLOSIVE COMPOUND WHEN MIXED.
SODIUM-AIR: POSSIBLE EXPLOSION.
SODIUM HYDRAZIDE: MAY CAUSE VIOLENT EXPLOSION ON CONTACT.
SODIUM PERIOXIDE: VIOLENT REACTION.
SULFURIC ACID AND SODIUM DICHROMATE: POSSIBLE EXPLOSION.
TETRACHLOROSILANE: VIOLENT REACTION.
URANIUM HEXAFLUORIDE: VIOLENT REACTION.
URANYL PERCHLORATE: MAY FORM EXPLOSIVE COMPOUND WHEN MIXED.
SEE ALSO ALCOHOLS.

ALCOHOLS:
ACETALYDEHYDE: VIOLENT CONDENSATION REACTION.
BARIUM PERCHLORATE: FORMATION OF HIGHLY EXPLOSIVE PERCHLORIC ESTER ON REFLUXING.
CHLORINE: FORMATION OF HIGHLY EXPLOSIVE ALKYL HYPOCHLORITES.
DIETHYL ALUMINUM BROMIDE: SPONTANEOUS IGNITION.
ETHYLENE OXIDE: POSSIBLE EXPLOSION.
HEXAMETHYLENE DIISOCYANATE: POSSIBLE EXPLOSION IN ABSENCE OF SOLVENT.
HYDROGEN PEROXIDE + SULFURIC ACID: POSSIBLE EXPLOSION
HYPOCHLOROUS ACID: FORMATION OF HIGHLY EXPLOSIVE ALKYL HPOCHLORITES.
ISOCYANATES: POSSIBLE EXPLOSION IN ABSENCE OF SOLVENT.
LITHIUM ALUMINUM HYDRIBE: VIGOROUS REACTION.
NITROGEN TETROXIDE: POSSIBLE EXPLOSION.
PERCHLORIC ACID (HOT): DANGEROUS INTERACTION.
PERMONDSULFURIC ACID: POSSIBLE EXPLOSION ON CONTACT WITH PRIMARY OR SECONDARY ALCOHOLS.
TRI-ISO-BUTYL ALUMINUM: VIOLENT REACTION.

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COMPOSITION:
ERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

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STORAGE AND DISPOSAL

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OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

STORAGE

STORE IN ACCORDANCE WITH 29 CFR 1910.106.

BONDING AND GROUNDING: SUBSTANCES WITH LOW ELECTROCONDUCTIVITY, WHICH MAY BE IGNITED BY ELECTROSTATIC SPARKS, SHOULD BE STORED IN CONTAINERS WHICH MEET THE BONDING AND GROUNDING GUIDELINES SPECIFIED IN NFPA 77-1983, RECOMMENDED PRACTICE ON STATIC ELECTRICITY.

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 D001. 100 POUND CERCLA SECTION 103 REPORTABLE QUANTITY.

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CONDITIONS TO AVOID

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AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS MAY BE EXPLOSIVE AND POISONOUS; DO NOT ALLOW UNNECESSARY PERSONNEL IN AREA. DO NOT OVERHEAT CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE AND TRAVEL A CONSIDERABLE DISTANCE IN HEAT OF FIRE.

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SPILL AND LEAK PROCEDURES

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OCCUPATIONAL SPILL:
SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND DENY ENTRY.

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PROTECTIVE EQUIPMENT

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VENTILATION:
PROVIDE GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS. VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF.

RESPIRATOR.
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS.

THEY ARE RANKED IN ORDER FROM MINIUM TO MAXIMUM RESPIRATORY PROTECTION. THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST BE BASED ON THE SPECIFIC OPERATION, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND MUST BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

ANY CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S) AND A FULL FACEPIECE.

ANY GAS MASK WITH ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER), WITH A FULL FACEPIECE.

ANY TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OPERATED IN A CONTINUOUS FLOW MODE.

ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

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 PROTECTIE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

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E PROTECTION:
PLOYEE MUST WEAR SPASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE.

EMERGENCY EYE WASH: WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

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SPECTRUM®

ISO 9002 CERTIFIED GARDENA, CA NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
		See Section 15.

Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	**1-Butanol**
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248
Commercial Name(s)	Not available.
Synonym	Propylcarbinol
Chemical Name	N-Butyl alcohol
Chemical Family	Aliphatic alcohol or glycol. (Solvent.)
Chemical Formula	CH3(CH2)2CH2OH
Supplier	SPECTRUM QUALITY PRODUCTS, INC. 14422 SOUTH SAN PEDRO STREET GARDENA, CA 90248

Code	B4140
CAS#	71-36-3
RTECS	EO1400000
TSCA	On the TSCA list.
CI#	Not applicable.

IN CASE OF EMERGENCY
CHEMTREC (24hr) 800-424-9300
Emergency phone: (310)516-8000

Section 2.Composition and Information on Ingredients

		Exposure Limits			
Name	**CAS #**	**TWA (mg/m³)**	**STEL (mg/m³)**	**CEIL (mg/m³)**	**% by Weight**
{1-}Butanol	71-36-3			152	100

Toxicological Data on Ingredients

1-Butanol:
ORAL (LD50): Acute: 790 mg/kg (Rat.).
DERMAL (LD50): Acute: 3400 mg/kg (Rabbit.).
VAPOR (LC50): Acute: 8000 ppm (Rat.) (4 hour(s)).

Section 3. Hazards Identification

Potential Acute Health Effects

Very dangerous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. Very slightly to slightly dangerous in case of skin contact (sensitizer). Severe over-exposure can result in death. Can be fatal if inhaled or ingested. This product may irritate eyes and skin upon contact. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects

CARCINOGENIC EFFECTS: Not available. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. Toxicity of the product to the reproductive system: Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

Continued on Next Page

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Chemical ingredient(s) requiring this warning:

NONE

Section 4. 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. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Serious 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 dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention.
Serious 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. Seek immediate medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product	Flammable.
Auto-Ignition Temperature	343°C (649.4°F)
Flash Points	CLOSED CUP: 28.9°C (84°F) OPEN CUP: 36.1°C (97°F) (Cleveland)
Flammable Limits	LOWER: 1.4% UPPER: 11.2%
Products of Combustion	These products are carbon oxides (CO, CO2).
Fire Hazards in Presence of Various Substances	Highly flammable in presence of open flames and sparks. Slightly flammable to flammable in presence of heat, of oxidizing materials, of reducing materials, of combustible materials.
Explosion Hazards in Presence of Various Substances	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.
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemicals, CO2, alcohol foam or water spray. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special Remarks on Fire Hazards	May form explosive mixtures with air.
Special Remarks on Explosion Hazards	No additional remark.

Continued on Next Page

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SPEC-FAX

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Please call Spectrum's Technical Service Department if you have any questions regarding this fax: 1.800 772.8786.

See the final page of this transmission for possible safety equipment to use when handling this product.

ISO 9002 CERTIFIED Gardena, CA

Spectrum Quality Products, Inc. is ISO9002 certified for marketing, manufacutring, and/or distributing specialty fine chemicals and solutions for the laboratory, pharmaceutical, cosmetic, food, fragrance, biotechnology, and process industries; and distributing laboratory and industrial safety products and equipment.

Spectrum Quality Products, Inc. • 14422 South San Pedro Street, Gardena, California 90248
☎ 1-800 SPC-TRUM • 1-800 772-8786 • Office Fax: (310) 516-7512

Section 6. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Large Spill	Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition.

Section 7. Handling and Storage

Precautions	Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles as oxidizing agents, reducing agents.
Storage	Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engeneering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	TWA: 50 (ppm) Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid. (Z)
Molecular Weight	74.12
pH (1% soln/water)	Not available.
Boiling Point	117.7°C (243.9°F)
Melting Point	-89.5°C (-129.1°F)
Critical Temperature	Not available.
Specific Gravity	0.81 (Water = 1)
Vapor Pressure	4.39 mm of Hg (@ 20°C)
Vapor Density	2.55 (Air = 1)
Volatility	Not available.
Odor Threshold	1.2 ppm
Water/Oil Dist. Coeff.	1
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, methanol, diethyl ether, n-octanol.
Solubility	Easily soluble in methanol, diethyl ether. Partially soluble in cold water, hot water, n-octanol.

Odor	Vinous. (Slight.)
Taste	Not available.
Color	Colorless.

Continued on Next Page

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with various substances	Highly reactive with oxidizing agents, reducing agents. Very slightly to slightly reactive with organic materials, acids, alkalis.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.
Polymerization	No.

Section 11. Toxicological Information

Routes of Entry	Ingestion. Skin contact. Inhalation.
Toxicity to Animals	**WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.** Acute oral toxicity (LD50): 790 mg/kg (Rat.). Acute dermal toxicity (LD50): 3400 mg/kg (Rabbit.). Acute toxicity of the vapor (LC50): 8000 ppm (Rat.).
Chronic Effects on Humans	Toxicity of the product to the reproductive system: Not available.
Other Toxic Effects on Humans	Very dangerous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. Very slightly to slightly dangerous in case of skin contact (sensitizer).
Special Remarks on Toxicity to Animals	No additional remark.
Special Remarks on Chronic Effects on Humans	Can cause gastrointestinal disturbances.
Special Remarks on other Toxic Effects on Humans	Exposure can cause nausea, headache and vomiting.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	These products are carbon oxides (CO, CO2).
Toxicity of the Products of Biodegradation	The products of degradation are more toxic.
Special Remarks on the Products of Biodegradation	No additional remark.

Section 13. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities.

Section 14. Transport Information

DOT Classification	DOT CLASS 3: Flammable liquid.
Identification	Butanol UN1120 III
Special Provisions for Transport	No additional remark.

Continued on Next Page

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

The following product(s) is (are) listed by the State of Massachusetts: **1-Butanol**
The following product(s) is (are) listed by the State of Pennsylvania: **1-Butanol**
The following product(s) is (are) listed on TSCA: **1-Butanol**

California Proposition 65 Warnings

WARNING: This product contains a chemical known to the State of California to cause cancer.
Chemical ingredient(s) requiring this warning:

NONE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Chemical ingredient(s) requiring this warning:

NONE

Other Regulations

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications

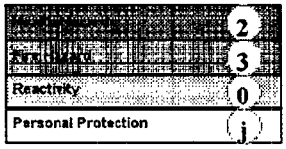
WHMIS (Canada)

WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).

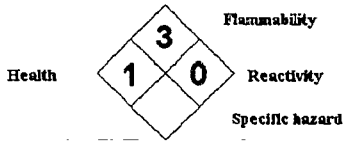
DSCL (EEC)

R10- Flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R20/22- Harmful by inhalation and if swallowed.
R36/38- Irritating to eyes and skin.

HMIS (U.S.A.)



National Fire Protection Association (U.S.A.)



WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment

Gloves (impervious).

Lab coat.

Continued on Next Page

Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

Section 16. Other Information

Catalog Number(s)	**B1185, B1197, US025, US027**
References	-Manufacturer's Material Safety Data Sheet.
Other Special Considerations	No additional remark.

Validated by E. Brull on 9/26/97.	**Verified by E. Brull.** **Printed 9/29/97.**

Emergency phone: (310)516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.

MATERIAL SAFETY DATA SHEETS
FOR COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

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SECTION I (PAGE 1)

Manufacturers Name: SPRAYON PRODUCTS Emergency Phone No: 216/292-7400
Street Address: 26300 FARGO AVE

City, State, and Zip Code: BEDFORD HTS. , OH 44146 Code Identification: 00211 D
Rev. Date: 08/19/86
Product Class (AEROSOL) LUBRICANTS Date: 03/20/89
Trade Name: 00211 DRY FILM VYDAX MOLD REL Lab No.: 18412

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	PEL PPM	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
TETRAFLUOROETHYLENE	1.058	N/E	N/E	N/E	NONE	UNKNOWN
@ TRICHLOROTRIFLUOROETHANE	<5	1000	1000	7600.00	NONE	00076-13-1
TRICHLOROMONOFLUOROMETHANE	55	1000	1000	5600.00	NONE	00075-69-4
DICHLORODIFLUOROMETHANE	40	1000	1000	4950.00	NONE	00075-71-8
@ = SARA TITLE III See Below						
AEROSOL - CONTENTS UNDER PRESSURE					55 +/- 5 PSIG	

*Carcinogenicity: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, OR THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

* SARA: These ingredients are subject to SARA TITLE III Section 313 reporting for superfund amendments and reauthorization act of 1986 and CFR part 372.

*Pursuant to Proposition 65: CERTAIN RAW MATERIALS USED IN MAKING THIS PRODUCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE REGULATED BY PROPOSITION 65. SEE SECTION IX.

SECTION III - PHYSICAL DATA

Boiling Range: PROPELLANT BELOW 0.0 F Vapor Density: HEAVIER THAN AIR

EVAPORATION RATE FASTER THAN ETHER *PROPELLANTS
Percent Volatile By Weight: 99
Weight Per Gallon: NOT APPLICABLE
Specific Gravity: NOT APPLICABLE
PH: NOT APPLICABLE
Solubility in Water: NOT APPLICABLE
Appearance & Odor: LUBRICANTS
Vapor Pressure: NOT APPLICABLE
Melting Point: NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT Category: CONSUMER COMMODITY Flash Point: NONE LEL: SEE
ORM-D SECTION II

Extinguishing Media: NOT APPLICABLE

Unusual Fire and
Explosion Hazards: KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR OTHER HEAT MAY CAUSE BURSTING (SEE, SECTION VI, IX).

Special Fire Fighting
Procedures: WATER MAY BE INEFFECTIVE - WATER MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL.

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value: (SEE SECTION II HAZARDOUS INGREDIENTS)

Effects of Overexposure: IN A CONFINED AREA VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC. IRRITANT TO SKIN AND UPPER RESPIRATORY SYSTEM. OVER-EXPOSURE MAY RESULT IN LIGHT-HEADEDNESS, STAGGERING GAIT, GIDDINESS AND POSSIBLE NAUSEA. HARMFUL OR FATAL IF SWALLOWED

Chronic: REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. ALSO KIDNEY AND LIVER DAMAGE.

Medical Conditions Prone to Aggravation by Exposure:
EFFECTS OF OVEREXPOSURE OF TETRAFLUOROETHYLENE MAY CAUSE FLU-LIKE SYMPTOMS WHICH MAY OR MAY NOT INCLUDE FEVER, CHILLS, BACKACHE, AND NUMBNESS OR TINGLING IN THE EXTREMITIES. INHALATION OF SMOKE OR FUMES OF BURNING TETRAFLUOROETHYLENE TELOMER OR TETRAFLUORO-ETHYLENE TELOMER-CONTAMINATED CIGARETTES OR TOBACCO MAY CAUSE POLYMER FUME FEVER, A FLU-LIKE CONDITION WHICH OCCURS SEVERAL HOURS AFTER EXPOSURE AND SUBSIDES WITHIN 24 HOURS EVEN IN THE ABSENCE OF TREATMENT. POLYMER FUME FEVER DOES NOT CAUSE PERMANENT INJURY AND THE EFFECTS ARE NOT CUMULATIVE.

Routes of Entry: Inhalation: YES Skin: YES Ingestion: YES

Emergency and First Aid Procedures:
Breathing: REMOVE PATIENT TO FRESH AIR.
Eyes: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.
Skin: WASH WITH SOAP AND WATER.
Swallowing: CALL PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.

SECTION VI - REACTIVITY DATA

Stability: STABLE Conditions to Avoid: DO NOT STORE ABOVE 120 F
Incompatability (NONE)
Hazardous Decomposition Products By open flame: NONFLAMMABLE - HOWEVER IF SPRAYED INTO OPEN FLAME, FUMES MAY CONTAIN TOXIC FUMES OF CHLORIDES AND FLUORIDES. HYDROGEN CHLORIDE, AND PHOSGENE GAS.

Hazardous Polymerization: WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled:
VENTILATE AREA - ESPECIALLY LOW PLACES WHERE VAPORS WILL COLLECT.
AVOID BREATHING OF VAPORS AND REMOVE WITH INERT ABSORBENT.

Waste disposal method:
DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: AVOID BREATHING OF VAPOR OR SPRAY MIST (SEE SECTION X)

Ventilation: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.

Protective Gloves: RECOMMENDED FOR PROLONGED OR REPEATED CONTACT.

Eye Protection: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

Other Protective Equipment:

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing:
DO NOT STORE ABOVE 120 F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

Other Precautions:
KEEP AWAY FROM CHILDREN.
DO NOT PUNCTURE OR INCINERATE.
DO NOT SPRAY NEAR FIRE OR OPEN FLAME.

Pursuant to Proposition 65:
PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNOR'S LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S LIST WILL BE REGULATED LATER UNDER PROPOSITION 65.
IF THIS PRODUCT INADVERTENTLY GETS ONTO CIGARETTE, CIGAR, OR PIPE TOBACCO, AND IS INHALED ALONG WITH THE TOBACCO SMOKE, FLU-LIKE SYMPTOMS MAY RESULT.

SECTION X HAZARDOUS MATERIAL IDENTIFICATION

COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION IS A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN BETTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER HANDLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN THIS SECTION IS NPCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

	HMIS. CLASSIFICATION	CODE
Health:	1	SLIGHT HAZARD
Flammability:	0	MINIMAL HAZARD
Reactivity:	0	MINIMAL HAZARD
Personal protection:	D	FACE SHIELD, GLOVES, APRON

THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

MATERIAL SAFETY DATA SHEETS
FOR COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

SECTION I

MANUFACTURERS NAME: SPRAYON PRODUCTS EMERGENCY PHONE NO: 216/292-7400
STREET ADDRESS: 26300 FARGO AVE

CITY,STATE,AND ZIP CODE: BEDFORD HTS.,OH 44146 CODE IDENTIFICATION: 00511 D
REV. DATE: 05/31/90
PRODUCT CLASS (AEROSOL) LUBRICANTS DATE: 06/18/90
TRADE NAME: 00511 DRY FILM VYDAX MOLD REL LAB NO.: 51535

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	PEL PPM	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
TETRAFLUOROETHYLENE	1.000%	N/E	N/E	N/E	NONE	00116-14-3
@ FREON TF-	(5	1000	1000	7600.00	NONE	00076-13-1
TRICHLOROMONOFLUOROMETHANE	70	1000	1000	5600.00	NONE	00075-69-4
CHLORODIFLOUROMETHANE	25	N/E	1000	N/E	NONE	00074-45-6
@ = SARA TITLE III SEE BELOW						

AEROSOL - CONTENTS UNDER PRESSURE 55 +/- 5 PSIG

CARCINOGENICITY: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH.

SARA: THESE INGREDIENTS ARE SUBJECT TO SARA TITLE III SECTION 313 REPORTING FOR SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND CFR 40 PART 372.

SARA: AEROSOL PRODUCTS ARE SUBJECT TO SARA TITLE III SECTION 312 REPORTING FOR SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND CFR 40 PART 372.

PURSUANT TO PROPOSITION 65: CERTAIN RAW MATERIALS USED IN MAKING THIS PRODUCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE [illegible]ULATED BY PROPOSITION 65. SEE SECTION IX.

SECTION III - PHYSICAL DATA

BOILING RANGE: PROPELLANT BELOW 0.0 F VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE FASTER THAN ETHER *PROPELLANTS PERCENT VOLATILE BY WEIGHT: 99 WEIGHT PER GALLON: NOT APPLICABLE
SPECIFIC GRAVITY: NOT APPLICABLE APPEARANCE & ODOR: LUBRICANTS
PH: NOT APPLICABLE VAPOR PRESSURE: NOT APPLICABLE
SOLUBILITY IN WATER: NOT APPLICABLE MELTING POINT: NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: CONSUMER COMMODITY ORM-D FLASH POINT: NONE LEL: SEE SECTION II
EXTINGUISHING MEDIA: NOT APPLICABLE
UNUSUAL FIRE AND EXPLOSION HAZARDS: KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR OTHER HEAT MAY CAUSE BURSTING (SEE, SECTION VI, IX).
SPECIAL FIRE FIGHTING PROCEDURES: WATER MAY BE INEFFECTIVE - WATER MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: (SEE SECTION II HAZARDOUS INGREDIENTS)
EFFECTS OF OVEREXPOSURE: IN A CONFINED AREA VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC, IRRITANT TO SKIN AND UPPER RESPIRATORY SYSTEM. OVER-EXPOSURE MAY RESULT IN LIGHT-HEADEDNESS, STAGGERING GAIT, GIDDINESS AND POSSIBLE NAUSEA. HARMFUL OR FATAL IF SWALLOWED
CHRONIC: REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE, ALSO KIDNEY AND LIVER DAMAGE.
MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:
EFFECTS OF OVEREXPOSURE OF TETRAFLUOROETHYLENE AND ISOMERS MAY CAUSE FLUE LIKE SYMPTOMS WHICH MAY OR MAY NOT INCLUDE FEVER, CHILLS, BACK-ACHE AND NUMBNESS OR TINGLING IN THE EXTREMITIES. INHALATION OF SMOKE OR FUMES OF BURNING TETRAFLUOROETHYLENE TELOMER OR TETRAFLUORO-

ETHYLENE TELOMER-CONTAMINATED CIGARETTES OR TOBACCO MAY CAUSE POLYMER FUME FEVER, A FLU-LIKE CONDITION WHICH OCCURS SEVERAL HOURS AFTER EXPOSURE AND SUBSIDES WITHIN 24 HOURS EVEN IN THE ABSENCE OF TREATMENT. POLYMER FUME FEVER DOES NOT CAUSE PERMANENT INJURY AND THE EFFECTS ARE NOT CUMULATIVE.

[redacted]S OF ENTRY: INHALATION: YES SKIN: YES INGESTION: YES

[redacted]ENCY AND FIRST AID PROCEDURES:

BREATHING: REMOVE PATIENT TO FRESH AIR.

EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

SKIN: WASH WITH SOAP AND WATER.

SWALLOWING: CALL PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE CONDITIONS TO AVOID: DO NOT STORE ABOVE 120 F

INCOMPATABILITY (NONE)

HAZARDOUS DECOMPOSITION PRODUCTS BY OPEN FLAME: NONFLAMMABLE - HOWEVER IF SPRAYED INTO OPEN FLAME, FUMES MAY CONTAIN TOXIC FUMES OF CHLORIDES AND FLUORIDES.

HYDROGEN CHLORIDE, AND PHOSGENE GAS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

VENTILATE AREA - ESPECIALLY LOW PLACES WHERE VAPORS WILL COLLECT.

AVOID BREATHING OF VAPORS AND REMOVE WITH INERT ABSORBENT.

WASTE DISPOSAL METHOD:

DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: AVOID BREATHING OF VAPOR OR SPRAY MIST (SEE SECTION X)

VENTILATION: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.

[redacted]PROTECTIVE GLOVES: RECOMMENDED FOR PROLONGED OR REPEATED CONTACT.

EYE PROTECTION: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

DO NOT STORE ABOVE 120 F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

OTHER PRECAUTIONS:

KEEP AWAY FROM CHILDREN.

DO NOT PUNCTURE OR INCINERATE.

DO NOT SPRAY NEAR FIRE OR OPEN FLAME.

PURSUANT TO PROPOSITION 65:

PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNOR'S LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S LIST WILL BE REGULATED LATER UNDER PROPOSITION 65.

IF THIS PRODUCT INADVERTENTLY GETS ONTO CIGARETTE, CIGAR, OR PIPE TOBACCO, AND IS INHALED ALONG WITH THE TOBACCO SMOKE, FLU-LIKE SYMPTOMS MAY RESULT.

SECTION X HAZARDOUS MATERIAL IDENTIFICATION

COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION IS A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN BETTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER HANDLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN THIS SECTION IS NFCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

		HMIS. CLASSIFICATION CODE
HEALTH:	1	SLIGHT HAZARD
[redacted]AMMABILITY:	0	MINIMAL HAZARD
[redacted]ACTIVITY:	0	MINIMAL HAZARD
PERSONAL PROTECTION:	D	FACE SHIELD, GLOVES, APRON

THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

PROVIDED BY ELECTRICAL INSULATION SUPPLIERS INC.

[redacted]

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MATERIAL SAFETY DATA SHEETS
FOR COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

****
SECTION I
****

MANUFACTURERS NAME: SPRAYON PRODUCTS EMERGENCY PHONE NO: 216/292-7400
STREET ADDRESS: 26300 FARGO AVE

CITY,STATE,AND ZIP CODE: BEDFORD HTS. ,OH CODE IDENTIFICATION: 00711 P
44146 REV. DATE: 01/06/87
PRODUCT CLASS (AEROSOL) LUBRICANTS DATE: 06/18/90
TRADE NAME: MF711; 00711 PENETRANT-LUBRICANT LAB NO.: 47267

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SECTION II - HAZARDOUS INGREDIENTS
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INGREDIENT	PERCENT	PEL PPM	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
BUTYL CELLOSOLVE	<5	25	25	240.00	1.1	00111-76-2
ALIPHATIC PETRLOEUM DISTILLAT	60	500	100	350.00	1.0	64742-88-7
A PROPANE	20	1000	1000	1800.00	2.3	00074-98-6
AEROSOL - CONTENTS UNDER PRESSURE					55 +/- 5 PSIG	

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*CARCINOGENICITY: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH.

SARA: AEROSOL PRODUCTS ARE SUBJECT TO SARA TITLE III SECTION 312 REPORTING FOR SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND CFR 40 PART 372.

*PURSUANT TO PROPOSITION 65: CERTAIN RAW MATERIALS USED IN MAKING THIS PRODUCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE REGULATED BY PROPOSITION 65. SEE SECTION IX.

****
SECTION III - PHYSICAL DATA
****

BOILING RANGE: PROPELLANT BELOW 0.0 F VAPOR DENSITY: HEAVIER THAN AIR
EVAPORATION RATE FASTER THAN ETHER PERCENT VOLATILE WEIGHT PER
*PROPELLANTS BY WEIGHT: 80 GALLON: NOT APPLICABLE
SPECIFIC GRAVITY: NOT APPLICABLE APPEARANCE & ODOR: LUBRICANTS
PH: NOT APPLICABLE VAPOR PRESSURE: NOT APPLICABLE
SOLUBILITY IN WATER: NOT APPLICABLE MELTING POINT: NOT APPLICABLE

****
SECTION IV - FIRE AND EXPLOSION HAZARD DATA
****

DOT CATEGORY: CONSUMER COMMODITY FLASH POINT: PROPELLANT BELOW 20 F LEL: SEE
ORM-D (T.O.C.) SECTION II
EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL OR FOAM.
UNUSUAL FIRE AND
EXPLOSION HAZARDS: DO NOT SPRAY NEAR OPEN FLAME. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR OTHER HEAT MAY CAUSE BURSTING.
SPECIAL FIRE FIGHTING
PROCEDURES: WATER MAY BE INEFFECTIVE - WATER MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL.

****
SECTION V - HEALTH HAZARD DATA
****

THRESHOLD LIMIT VALUE: (SEE SECTION II HAZARDOUS INGREDIENTS)
EFFECTS OF OVEREXPOSURE: IN A CONFINED AREA VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC. IRRITANT TO SKIN AND UPPER RESPIRATORY SYSTEM. OVER-EXPOSURE MAY RESULT IN LIGHT-HEADEDNESS, STAGGERING GAIT, GIDDINESS AND POSSIBLE NAUSEA. CONTAINS PETROLEUM DISTILLATES - HARMFUL OR FATAL IF SWALLOWED
CHRONIC: REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE, ALSO KIDNEY AND LIVER DAMAGE.
MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: NONE ESTABLISHED.
ROUTES OF ENTRY: INHALATION: YES SKIN: YES INGESTION: YES
EMERGENCY AND FIRST AID PROCEDURES:
BREATHING: REMOVE PATIENT TO FRESH AIR.
EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.
SKIN: WASH WITH SOAP AND WATER.
SWALLOWING: CALL PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.

****
SECTION VI - REACTIVITY DATA
****

STABILITY: STABLE CONDITIONS TO AVOID: DO NOT STORE ABOVE 120 F
INCOMPATABILITY (NONE)
HAZARDOUS DECOMPOSITION PRODUCTS BY OPEN FLAME: CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION, VENTILATE AVOID BREATHING VAPORS (SEE SECTION X) AND REMOVE WITH INERT ABSORBENT

WASTE DISPOSAL METHOD:
DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: AVOID BREATHING OF VAPOR OR SPRAY MIST(SEE SECTION X)
VENTILATION: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.
PROTECTIVE GLOVES: RECOMMENDED FOR PROLONGED OR REPEATED CONTACT.
EYE PROTECTION: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
DO NOT STORE ABOVE 120 F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

OTHER PRECAUTIONS:
KEEP AWAY FROM CHILDREN.
DO NOT PUNCTURE OR INCINERATE.
DO NOT SPRAY NEAR FIRE OR OPEN FLAME.

PURSUANT TO PROPOSITION 65:
PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNOR'S LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S LIST WILL BE REGULATED LATER UNDER PROPOSITION 65.

SECTION X HAZARDOUS MATERIAL IDENTIFICATION

COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION IS A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN BETTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER HANDLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN THIS SECTION IS NPCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

	HMIS. CLASSIFICATION	CODE
HEALTH:	2	MODERATE HAZARD
FLAMMABILITY:	4	SEVERE HAZARD
REACTIVITY:	0	MINIMAL HAZARD
PERSONAL PROTECTION:	D	FACE SHIELD, GLOVES, APRON

THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

PROVIDED BY ELECTRICAL INSULATION SUPPLIERS INC.

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MATERIAL SAFETY DATA SHEETS
FOR COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

SECTION I (PAGE 1)

Manufacturers Name: SPRAYON PRODUCTS Emergency Phone No: 216/292-7400
Street Address: 26300 FARGO AVE

City,State,and Zip Code: BEDFORD HTS. ,OH 44146 Code Identification: 03102 R
Rev. Date: 08/25/88

Product Class (AEROSOL) COATINGS Date: 06/18/90
Trade Name: 03102 REYNOLDS FAST TACK ADH Lab No.: 48831

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	PEL PPM	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
HEXANE	35	500	500	1800.00	1.1	00110-54-3
@ METHYL CHLOROFORM	20	350	350	1900.00	7.5	00071-55-6
A ISOBUTANE	10	1000	1000	1800.00	1.8	00075-28-5
A PROPANE	10	1000	1000	1800.00	2.3	00074-98-6
@ = SARA TITLE III See Below						
AEROSOL - CONTENTS UNDER PRESSURE					55 +/- 5 PSIG	

*Carcinogenicity: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH.

SARA: These ingredients are subject to SARA TITLE III Section 313 reporting for Superfund Amendments and Reauthorization Act of 1986 and CFR 40 part 372.

SARA: Aerosol products are subject to SARA TITLE III Section 312 reporting for Superfund Amendments and Reauthorization Act of 1986 and CFR 40 part 372.

*Pursuant to Proposition 65: CERTAIN RAW MATERIALS USED IN MAKING THIS PRODUCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE REGULATED BY PROPOSITION 65. SEE SECTION IX.

SECTION III - PHYSICAL DATA

Boiling Range: PROPELLANT BELOW 0.0 F Vapor Density: HEAVIER THAN AIR
EVAPORATION RATE FASTER THAN ETHER *PROPELLANTS Percent Volatile By Weight: 82 Weight Per Gallon: NOT APPLICABLE
Specific Gravity: NOT APPLICABLE Appearance & Odor: COATINGS
PH: NOT APPLICABLE Vapor Pressure: NOT APPLICABLE
Solubility in Water: NOT APPLICABLE Melting Point: NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT Category: CONSUMER COMMODITY ORM-D Flash Point: PROPELLANT BELOW 20 F (T.O.C.) LEL: SEE SECTION II
Extinguishing Media: CARBON DIOXIDE, DRY CHEMICAL OR FOAM.
Unusual Fire and
Explosion Hazards: DO NOT SPRAY NEAR OPEN FLAME, KEEP AT ROOM TEMPERATURE AS

EXPOSURE TO DIRECT SUNLIGHT OR OTHER HEAT MAY CAUSE BURSTING.

Special Fire Fighting Procedures: WATER MAY BE INEFFECTIVE - WATER MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL.

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value: (SEE SECTION II HAZARDOUS INGREDIENTS)

Effects of Overexposure: IN A CONFINED AREA VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC, IRRITANT TO SKIN AND UPPER RESPIRATORY SYSTEM. OVER-EXPOSURE MAY RESULT IN LIGHT-HEADEDNESS, STAGGERING GAIT, GIDDINESS AND POSSIBLE NAUSEA. CONTAINS PETROLEUM DISTILLATES - HARMFUL OR FATAL IF SWALLOWED

Chronic: REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE, ALSO KIDNEY AND LIVER DAMAGE.

Medical Conditions Prone to Aggravation by Exposure: PROLONGED AND REPEATED EXPOSURE TO N-HEXANE MAY DAMAGE PERIPHERAL NERVE TISSUE (THAT OF THE ARMS ANDS LEGS) AND RESULT IN MUSCULAR WEAKNESS AND LOSS OF SENSATION IN THE EXTREMITIES (PERIPHERAL NEUROPATHY).

Routes of Entry: Inhalation: YES Skin: YES Ingestion: YES

Emergency and First Aid Procedures:

Breathing: REMOVE PATIENT TO FRESH AIR.

Eyes: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

Skin: WASH WITH SOAP AND WATER.

Swallowing: CALL PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.

SECTION VI - REACTIVITY DATA

Stability: STABLE Conditions to Avoid: DO NOT STORE ABOVE 120 F

Incompatability (NONE)

Hazardous Decomposition Products By open flame: CARBON MONOXIDE, CARBON DIOXIDE, HYDROGEN CHLORIDE, AND PHOSGENE GAS.

Hazardous Polymerization: WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: REMOVE ALL SOURCES OF IGNITION, VENTILATE AVOID BREATHING VAPORS (SEE SECTION X) AND REMOVE WITH INERT ABSORBENT

Waste disposal method: DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: AVOID BREATHING OF VAPOR OR SPRAY MIST (SEE SECTION X)

Ventilation: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.

Protective Gloves: RECOMMENDED FOR PROLONGED OR REPEATED CONTACT.

Eye Protection: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

Other Protective Equipment:

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SECTION IX - SPECIAL PRECAUTIONS

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Precautions to be taken in handling and storing:

DO NOT STORE ABOVE 120 F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

Other Precautions:

KEEP AWAY FROM CHILDREN.

DO NOT PUNCTURE OR INCINERATE.

DO NOT SPRAY NEAR FIRE OR OPEN FLAME.

Pursuant to Proposition 65:

PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNOR'S LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S LIST WILL BE REGULATED LATER UNDER PROPOSITION 65.

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SECTION X HAZARDOUS MATERIAL IDENTIFICATION

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COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION IS A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN BETTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER HANDLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN THIS SECTION IS NPCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

		HMIS. CLASSIFICATION CODE
Health:	2*	MODERATE HAZARD
Flammability:	4	SEVERE HAZARD
Reactivity:	0	MINIMAL HAZARD
Personal protection:	D	FACE SHIELD, GLOVES, APRON

* - CHRONIC EFFECTS MAY BE PRESENT. SEE SUPERVISOR FOR FURTHER INFORMATION.

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THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

MATERIAL SAFETY DATA SHEET

C19537
01 00

MANUFACTURER'S NAME
SPRAYON PRODUCTS
26300 Fargo Avenue
Bedford Heights, OH 44146

EMERGENCY TELEPHONE NO.
(216) 292-7400

DATE OF PREPARATION
JULY 1997

INFORMATION TELEPHONE NO.
(216).292-7400

Section I -- PRODUCT IDENTIFICATION

PRODUCT NUMBER
C19537
PRODUCT NAME
MF-10CIV CLEAR INSULATOR
PRODUCT CLASS
Aerosol

* - Trade Mark

Section II -- HAZARDOUS INGREDIENTS

INGREDIENT / CAS No.	% by WT	ACGIH TLV	OSHA PEL	UNITS	V.P.
Propane (propellant) 74-98-6	10		1000	PPM	760.00
2-Methylpropane (propellant) 75-28-5	15	Not Established			760.00
Toluene. 108-88-3	5	50	100	PPM (Skin)	22.50
	STEL		150	PPM (Skin)	
Xylene. 1330-20-7	15	100	100	PPM	5.90
	STEL	150	150	PPM	
Acetone. 67-64-1	30	750	750	PPM	180.00
	STEL	1000	1000	PPM	
Ethyl 3-Ethoxypropionate. 763-69-9	5	Not Established			1.11

Section III -- PHYSICAL DATA

PRODUCT WEIGHT -- 6.23 lb./gal.
SPECIFIC GRAVITY -- 0.75
BOILING POINT -- <0 -342 F
VOLATILE VOLUME -- 88 %
VOLATILE WEIGHT -- 83.00 % (less Federally Exempt Solvents)
HMIS -- 2 4 0
EVAPORATION RATE -- Faster than Ether
VAPOR DENSITY -- Heavier than Air
MELTING POINT -- N.A.
SOLUBILITY IN WATER -- N.A.

Section IV -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	LEL	UEL
Propellant < 0 F	1.0	12.8

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section V -- HEALTH HAZARD DATA

ROUTES OF EXPOSURE
Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper

Section IX -- PRECAUTIONS

DOL STORAGE CATEGORY

1A

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Provided By Electrical Insulation Suppliers Inc.

NOV - 3 1997

0500014
GENERAL ELECTRIC SERVICE
1401 EAST VALENCIA ROAD

TUCSON, AZ 85706-0000

ELECTRICAL INSULATION SUPPLIERS
1255 COLLIER RD.
ATLANTA, GA 30318

PHONE # (404)355-1651
FAX # (404)609-6084

MATERIAL SAFETY DATA SHEET INFORMATION:

PLEASE FIND ENCLOSED MATERIAL SAFETY DATA SHEETS (MSDS) COVERING ITEMS PURCHASED FROM ELECTRICAL INSULATION SUPPLIERS (EIS). OSHA REGULATIONS REQUIRE MSDS INFORMATION BE MADE AVAILABLE TO ALL PERSONNEL WHO MAY BE EXPOSED TO HAZARDOUS MATERIALS IN THE WORK PLACE.

UNDER THE "EMERGENCY PLANNING COMMUNITY RIGHT-TO-KNOW ACT OF 1986" INVENTORY AND LOCATION INFORMATION, CONCERNING HAZARDOUS MATERIALS MFG JOB SITE, MAY NEED TO BE REPORTED TO THE LOCAL FIRE DEPARTMENT, THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STANDARD RESPONSE COMMISSION. YOU MAY WANT TO REFERENCE 40 CFR PART 372 FOR ADDITIONAL INFORMATION. MANUFACTURERS MUST REPORT ANNUAL RELEASES OF LISTED TOXIC CHEMICALS INTO THE ENVIRONMENT, ACCORDING TO SARA TITLE III.

ACCORDING TO 29 CFR PART 1910.1200 PARAGRAPH (g)(6) OF THE HAZARD COMMUNICATION STANDARD, A MSDS IS TO BE PROVIDED THE FIRST TIME THE CUSTOMER BUYS AN ITEM REQUIRING A MSDS. IF AT ANY TIME THE MSDS IS UPDATED OR CHANGED, THE UPDATED MSDS MUST BE SUPPLIED WITH THE FIRST SHIPMENT AFTER THE MSDS UPDATE HAS OCCURRED.

IF YOU NEED FURTHER INFORMATION CONCERNING YOUR SITUATION, YOU MAY CONTACT THE EPA IN WASHINGTON, D.C. THEIR TOLL FREE NO. IS (800)535-0202; THE RCRA/SUPERFUND HOT LINE IS (800)424-9346 OR (703)920-9810; THE TSCA HOT LINE IS (202)554-1404.

BY PROVIDING THIS DOCUMENTATION, EIS IS COMPLYING WITH FEDERAL LAWS GOVERNING MSDS INFORMATION, AS IS KNOWN TO US. THIS IS A SERVICE AIMED AT HELPING YOUR BUSINESS TO ALSO COMPLY WITH GOVERNMENT REGULATIONS.

DAVE SHARPE

"SEE THE REVERSE SIDE FOR DOCUMENT NAME AND P.O. NUMBER"

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MATERIAL SAFETY DATA SHEETS
FOA COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

SECTION I

MANUFACTURER'S NAME: SPRAYON PRODUCTS — EMERGENCY PHONE NO: 216/292-7400
STREET ADDRESS: 26300 FARGO AVE
CITY, STATE, AND ZIP CODE: BEDFORD HTS.,OH 44146 — CODE IDENTIFICATION: MF-12RE
REV. DATE: 08/17/90
PRODUCT CLASS (AEROSOL) COATINGS — DATE: 12/07/90
TRADE NAME: MF-12RE RED EPOXY ENAMEL — LAB NO.: 49114

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	OSHA PEL	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
@ XYLENE	20	100	100	435.00	1.1	01330-20-7
@ TOLUENE	10	100	100	375.00	1.2	00108-88-3
@ ACETONE	20	750	750	1780.00	2.6	00067-64-1
HI SOL	<5	100	100	N/E	1.0	64742-95-6
A ISOBUTANE	15	1000	1000	1800.00	1.8	00075-28-5
A PROPANE	15	1000	1000	1800.00	2.3	00074-98-6
@= SARA TITLE III SEE BELOW						

*AEROSOL - CONTENTS UNDER PRESSURE 55 +/- 5 PSIG

*CARCINOGENICITY: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH.

* SARA: THESE INGREDIENTS ARE SUBJECT TO SARA TITLE III SECTION 313 REPORTING FOR SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND CFR 40 PART 372.

* SARA: AEROSOL PRODUCTS ARE SUBJECT TO SARA TITLE III SECTION 312 REPORTING FOR SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND CFR 40 PART 372.

* [redacted]JANT TO PROPOSITION 65: CERTAIN RAW MATERIALS USED IN MAKING THIS [redacted]UCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE [redacted]..LATED BY PROPOSITION 65. SEE SECTION IX.

SECTION III - PHYSICAL DATA

BOILING RANGE: PROPELLANT BELOW 0.0 F — VAPOR DENSITY: HEAVIER THAN AIR

EVAPORATION RATE FASTER THAN ETHER *PROPELLANTS — PERCENT VOLATILE BY WEIGHT: 80 — WEIGHT PER GALLON: NOT APPLICABLE
SPECIFIC GRAVITY: NOT APPLICABLE — APPEARANCE & ODOR: COATINGS
PH: NOT APPLICABLE — VAPOR PRESSURE: NOT APPLICABLE
SOLUBILITY IN WATER: NOT APPLICABLE — MELTING POINT: NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY: CONSUMER COMMODITY ORM-D — FLASH POINT: PROPELLANT BELOW 20 F (T. O. C.) — LEL: SEE SECTION II
EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL OR FOAM.

UNUSUAL FIRE AND EXPLOSION HAZARDS: DO NOT SPRAY NEAR OPEN FLAME. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR OTHER HEAT MAY CAUSE BURSTING.

SPECIAL FIRE FIGHTING PROCEDURES: WATER MAY BE INEFFECTIVE - WATER MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: (SEE SECTION II HAZARDOUS INGREDIENTS)

EFFECTS OF OVEREXPOSURE: IN A CONFINED AREA VAPORS IN HIGH CONCENTRATION ARE ANESTHETIC. IRRITANT TO SKIN AND UPPER RESPIRATORY SYSTEM. OVER-EXPOSURE MAY RESULT IN LIGHT-HEADEDNESS, STAGGERING GAIT, GIDDINESS AND POSSIBLE NAUSEA.

[redacted]NTAINS PETROLEUM DISTILLATES - HARMFUL OR FATAL IF SWALLOWED.

[redacted].C: REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE, ALSO KIDNEY AND LIVER DAMAGE.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: NONE ESTABLISHED.

ROUTES OF ENTRY: INHALATION: YES SKIN: YES INGESTION: YES

EMERGENCY AND FIRST AID PROCEDURES:
BREATHING: REMOVE PATIENT TO FRESH AIR.
EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES.
SKIN: WASH WITH SOAP AND WATER.
SWALLOWING: CALL PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.

SECTION VI - REACTIVITY DATA

STABILITY: STABLE CONDITIONS TO AVOID: DO NOT STORE ABOVE 120 F
INCOMPATABILITY (NONE)
HAZARDOUS DECOMPOSITION PRODUCTS BY OPEN FLAME: CARBON MONOXIDE, CARBON DIOXIDE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION. VENTILATE, AVOID BREATHING VAPORS (SEE SECTION X) AND REMOVE WITH INERT ABSORBENT.

WASTE DISPOSAL METHOD:
DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: AVOID BREATHING OF VAPOR OR SPRAY MIST (SEE SECTION X)

IF PERSONAL EXPOSURE CANNOT BE CONTROLLED BELOW APPLICABLE LIMITS BY VENTILATION, WEAR A PROPERLY FITTED ORGANIC VAPOR/PARTICULATE RESPIRATOR APPROVED BY NIOSH/MSHA FOR PROTECTION AGAINST MATERIALS IN SECTION II.
WHEN SANDING OR ABRADING THE DRIED FILM, WEAR A DUST/MIST RESPIRATOR APPROVED BY NIOSH/MSHA FOR DUST WHICH MAY BE GENERATED FROM THIS PRODUCT, UNDERLYING PAINT, OR THE ABRASIVE.
THE APPLICABLE LIMITS FOR NUISANCE DUSTS ARE ACGIH TLV 10 MG/M3 (TOTAL DUST), OSHA PEL 15 MG/M3 (TOTAL DUST), 5 MG/M3 RESPIRABLE FRACTION).

VENTILATION: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.

PROTECTIVE GLOVES: FOR PROLONGED OR REPEATED CONTACT, WEAR GLOVES WHICH ARE RECOMMENDED BY GLOVE SUPPLIER FOR PROTECTION AGAINST MATERIALS IN SECTION II.

EYE PROTECTION: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING.
DO NOT STORE ABOVE 120 F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

OTHER PRECAUTIONS:
KEEP AWAY FROM CHILDREN.
DO NOT PUNCTURE OR INCINERATE.
DO NOT SPRAY NEAR FIRE OR OPEN FLAME.

PURSUANT TO PROPOSITION 65:
PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNOR'S LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S LIST WILL BE REGULATED LATER UNDER PROPOSITION 65

SECTION X HAZARDOUS MATERIAL IDENTIFICATION

COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN ..TTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER ..DLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN ..S SECTION IS NPCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

	HMIS. CLASSIFICATION	CODE
HEALTH:	2	MODERATE HAZARD
FLAMMABILITY:	4	SEVERE HAZARD
REACTIVITY:	0	MINIMAL HAZARD
PERSONAL PROTECTION:	D	FACE SHIELD, GLOVES, APRON

THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

MATERIAL SAFETY DATA SHEET

C19529
00

MANUFACTURER'S NAME
SPRAYON PRODUCTS
26300 FARGO AVENUE
BEDFORD HEIGHTS, OH 44146

EMERGENCY TELEPHONE NO.
(216) 292-7400

DATE OF PREPARATION
21-JUL-93

INFORMATION TELEPHONE NO.
(216) 292-7400

SECTION I -- PRODUCT IDENTIFICATION

PRODUCT NUMBER
C19529

* - TRADE MARK

PRODUCT NAME
MF-30B GLOSS BLACK

PRODUCT CLASS
Aerosol

SECTION II -- HAZARDOUS INGREDIENTS

INGREDIENT / CAS NO.	% BY WT.		ACGIH TLV	OSHA PEL	UNITS	V.P.
Propane (propellant)	10			1000	PPM	760.00
74-98-6						
2-Methylpropane (propellant)	15		Not Established			760.00
75-28-5						
Toluene	10		50	100	PPM (SKIN)	22.00
108-88-3		STEL		150	PPM (SKIN)	
Ethylbenzene	<5		100	100	PPM	7.10
100-41-4		STEL	125	125	PPM	
Xylene	15		100	100	PPM	5.90
1330-20-7		STEL	150	150	PPM	
Acetone	30		750	750	PPM	180.00
67-64-1		STEL	1000	1000	PPM	
Ethyl 3-Ethoxypropionate	<5		Not Established			1.11
763-69-9						

SECTION III -- PHYSICAL DATA

PRODUCT WEIGHT -- 6.23 LB./GAL.
EVAPORATION RATE -- Faster than ether
SPECIFIC GRAVITY -- 0.75
VAPOR DENSITY -- Heavier than air
BOILING POINT -- <0 -342'F
MELTING POINT -- N.A.
VOLATILE VOLUME -- 88 %
OLUBILITY IN WATER -- N.A.
VOLATILE WEIGHT -- 83.00 % (less Federally Exempt Solvents)
HMIS -- 2 4 0

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	LEL	UEL
PROPELLANT < 0'F	1.0	12.8

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, FOAM

Provided By Electrical Insulation Suppliers Inc.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat . Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION V -- HEALTH HAZARD DATA

ROUTES OF EXPOSURE
Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation and personal protective equipment.
ACUTE Health Hazards
EFFECTS OF OVEREXPOSURE
Irritation of eyes, skin and respiratory system. May cause nervous system depression. Extreme overexposure may result in unconsciousness and possible death.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
EMERGENCY AND FIRST AID PROCEDURES

If INHALED:	If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN-	Wash affected area thoroughly with soap and water. Remove contaminated clothing and launder before re-use.
If in EYE:	Flush eyes with large amounts of water for 15 minutes. Get medical attention.
If SWALLOWED:	Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

CHRONIC Health Hazard
No ingredient in this product is an IARC, NTP, or OSHA listed carcinogen.
Prolonged overexposure to solvent ingredients in Section II may cause adverse effects to the liver, urinary blood forminq, cardiovascular and
Rats exposed to titanium dioxide dust at 250 mg/m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

SECTION VI -- REACTIVITY DATA

STABILITY -- STABLE
CONDITIONS TO AVOID
None Known.
INCOMPATIBILITY
None Known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbonn Dioxide, Caron Monoxide
HAZARDOUS POLYMERIZATION
Will not occur

SECTION VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste number.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

SECTION VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapors and spray mist. Avoid contact with skin and eyes. Wash hands after using.
VENTILATION
Local exhhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section II.
PROTECTIVE GLOVES
None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant qloves.

SECTION IX -- PRECAUTIONS

DOL STORAGE CATEGORY
1A
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and other sources of ignition

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120'F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

C21782
00

MANUFACTURER'S NAME
SPRAYON PRODUCTS
26300 FARGO AVENUE
BEDFORD HEIGHTS, OH 44146

EMERGENCY TELEPHONE NO.
(216) 292-7400

DATE OF PREPARATION
21-JUL-93

INFORMATION TELEPHONE NO.
(216) 292-7400

SECTION I -- PRODUCT IDENTIFICATION

PRODUCT NUMBER
C21782

* - TRADE MARK

PRODUCT NAME
MF-30LG LIGHT GRAY (ASA61)

PRODUCT CLASS
AEROSOL

SECTION II -- HAZARDOUS INGREDIENTS

INGREDIENT / CAS NO.	% BY WT.	ACGIH TLV	OSHA PEL	UNITS	V.P.
PROPANE (PROPELLANT) 74-98-6	15		1000	PPM	760.00
2-METHYLPROPANE (PROPELLANT) 75-28-5	15	Not Established			760.00
TOLUENE 108-88-3	10	50	100	PPM (SKIN)	22.00
		STEL	150	PPM (SKIN)	
XYLENE 1330-20-7	10	100	100	PPM	5.90
		STEL 150	150	PPM	
ACETONE 67-64-1	25	750	750	PPM	180.00
		STEL 1000	1000	PPM	
Ethyl 3-Ethoxypropionate 763-69-9	<5	Not Established			1.11
Calcium Carbonate 471-34-1	10	10	15(5)	mg/m3 as Dust	
		*** Total Dust (Respirable Fraction)			
Titanium Dioxide 13463-67-7	<5	10	10(5)	mg/m3 as Dust	
		*** Total Dust (Respirable Fraction)			

SECTION III -- PHYSICAL DATA

PRODUCT WEIGHT	--	6.53 LB./GAL.	EVAPORATION RATE	--	Faster than ether
SPECIFIC GRAVITY	--	0.79	VAPOR DENSITY	--	Heavier than air
BOILING POINT	--	<0 -342'F	MELTING POINT	--	N.A.
VOLATILE VOLUME	--	91 %	SOLUBILITY IN WATER	-	N.A.
VOLATILE WEIGHT	--	80.02 % (LESS FEDERALLY EXEMPT SOLVENTS)			
HMIS	--	2 4 0			

Provided By Electrical Insulation Suppliers Inc.

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	LEL	UEL
PROPELLANT < 0'F	1.0	12.8

EXTINGUISHING MEDIA:
CARBON DIOXIDE. DRY CHEMICAL, FOAM

UNUSUAL FIRE AND EXPLOSION HAZARDS
Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explode when exposed to extreme heat . Application to hot surfaces requires special precautions. During emergency conditions overeposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION V -- HEALTH HAZARD DATA

ROUTES OF EXPOSURE
Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation and personal protective equipment.
ACUTE Health Hazards
EFFECTS OF OVEREXPOSURE
Irritation of eyes, skin and respiratory system. May cause nervous system depression. Extreme overexposure may result in unconsciousness and possible death.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
EMERGENCY AND FIRST AID PROCEDURES

If INHALED:	If affected, remove from exposure. Restore breathing. Keep warm and quiet.
If on SKIN-	Wash affected area thoroughly with soap and water. Remove contaminated clothing and launder before re-use.
If in EYE:	Flush eyes with large amounts of water for 15 minutes. Get medical attention.
If SWALLOWED:	Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give several glasses of water. Seek medical attention.

CHRONIC Health Hazard
No ingredient in this product is an IARC, NTP, or OSHA listed carcinogen.
Prolonged overexposure to solvent ingredients in Section II may cause adverse effects to the liver, urinary blood forming, cardiovascular and
Rats exposed to titanium dioxide dust at 250 mg/m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

SECTION VI -- REACTIVITY DATA

STABILITY -- STABLE
CONDITIONS TO AVOID
None Known.
INCOMPATIBILITY
None Known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbonn Dioxide, Caron Monoxide
HAZARDOUS POLYMERIZATION
Will not occur

SECTION VII -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate and remove with inert absorbent.
WASTE DISPOSAL METHOD
Waste from this product may be hazardous as defined under the Resource nservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste number.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

SECTION VIII -- PROTECTION INFORMATION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation. Avoid breathing vapors and spray mist. Avoid contact with skin and eyes. Wash hands after using.
VENTILATION
Local exhhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section II.
PROTECTIVE GLOVES
None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant qloves.

Provided By Electrical Insulation Suppliers Inc.

EYE PROTECTION
Wear safety spectacles with unperforated sidesheilds.

SECTION IX -- PRECAUTIONS

DOL STORAGE CATEGORY
1A
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and other sources of ignition Consult NFPA Code. Use approved Bonding and Grounding procedures. Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120'F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.
OTHER PRECAUTIONS
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

C21778
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MANUFACTURER'S NAME
SPRAYON PRODUCTS
26300 FARGO AVENUE
BEDFORD HEIGHTS, OH 44146

EMERGENCY TELEPHONE NO.
(216) 292-7400

DATE OF PREPARATION
JULY 1997

INFORMATION TELEPHONE NO.
(216) 292-7400

SECTION I -- PRODUCT IDENTIFICATION

PRODUCT NUMBER
C21778
PRODUCT NAME
MF-3OMG MED GRAY
PRODUCT CLASS
AEROSOL

* - TRADE MARK

SECTION II -- HAZARDOUS INGREDIENTS

INGREDIENT / CAS NO.	% BY WT.		ACGIH TLV	OSHA PEL	UNITS	V.P.
PROPANE (PROPELLANT)	15			1000	PPM	760.00
74-98-6			NOT	ESTABLISHED		
2-MEHTYLPROPANE (PROPELLANT)	15					760.00
75-28-5						
TOLUENE.	20		50	100	PPM (SKIN)	22.00
108-88-3		STEL		150	PPM (SKIN)	
XYLENE.	10		100	100	PPM	5.90
1330-20-7		STEL	150	150	PPM	
ACETONE.	20		750	750	PPM	180.00
67-64-1		STEL	1000	1000	PPM	
EHTYL 3-ETHOXYPROPIONATE.	<5		NOT	ESTABLISHED		1.11
763-69-9						
TITANIUM DIOXIDE	5		10	10(5)	MG/M3 AS DUST ***	
13463-67-7			*** TOTAL DUST (RESPIRABLE FUNCTION)			

SECTION III -- PHYSICAL DATA

PRODUCT WEIGHT	-- 6.43 LB./GAL.	EVAPORATION RATE	-- FASTER THAN ETHER
SPECIFIC GRAVITY	-- 0.77	VAPOR DENSITY	-- HEAVIER THAN AIR
BOILING POINT	-- <0 -342 F	MELTING POINT	-- N.A.
VOLATILE VOLUME	-- 91 %	SOLUBILITY IN WATER	-- N.A.
VOLATILE WEIGHT	-- 81.75 % (LESS FEDERALLY EXEMPT SOLVENTS)		
HMIS	-- 2 4 0		

SECTION IV -- FIRE AND EXPLOSIONN HAZARD DATA

FLASH POINT	LEL	UEL
PROPELLANT < 0 F	1.0	12.8

EXTINGUISHING MEDIA
CARBON DIOXIDE, DRY CHEMCIAL,FOAM
UNUSUAL FIRE AND EXPLOSION HAZARDS
ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS, AND OPEN FLAME.
CLOSED CONTAINERS MAY EXPLOSDE WHEN EXPOSED TO EXTREME HEAT. APPLICATION TO HOT SURFACES REQUIRES SPECIAL PRECAUTIONS. DURING EMERGENCY CONDITIONS OVEREXPOSURE TO DECOMPOSITION PRODUCTS MAY CAUSE A HEALTH HAZARD. SYMPTOMS MAY NOT BE IMMEDIATELY APPARENT. OBTAIN MEDICAL ATTENTION.
SPECIAL FIRE FIGHTING PROCEDURES
FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT.

SECTION V -- HEALTH HAZARD DATA

ROUTES OF EXPOSURE
EXPOSURE MAY BE BY INHALATION AND/OR SKIN OR EYE CONTACT, DEPENDING ON CONDITIONS OF USE. TO MINIMIZE EXPOSURE, FOLLOW RECOMMENDATIONS FOR PROPER USE, VENTILATION, AND PERSONAL PROTECTIVE EQUIPMENT.
ACUTE HEALTH HAZARDS
EFFECTS OF OVEREXPOSURE
IRRITATION OF EYES, SKIN AND RESPIRATORY SYSTEM. MAY CAUSE NERVOUS

1A

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

KEEP AWAY FROM HEAT, SPARKS, ANND OPEN FLAME. VAPORS WILL ACCUMULATE READILY AND MAY IGNITE EXPLOSIVELY.

DURING USE AND UNTIL ALL VAPORS ARE GONE: KEEP AREA VENTILATED - DO NOT SMOKE - EXTINGUISHING ALL FLAMES, PILOT LIGHTS, AND HEATERS - TURN OFF STOVES, ELECTRIC TOOLS, AND APPLIANCES, AND ANY OTHER SOURCES OF IGNITION.

CONSULT NFPA CODE. USE APPROVED BONDING AND GROUNDING PROCEDURES.

CONTENTS UNDER PRESSURE. DO NOT PUNCTURE, INCINERATE, OR EXPOSE TO TEMPERATURE ABOVE 12O F. HEAT FROM SUNLIGHT, RADIATORS, STOVES, HOT WATER, AND OTHER HEAT SOURCES COULD CAUSE CONTAINER TO BURST. DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.

OTHER PRECAUTIONS

INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTC CAN BE HARMFUL OR FATA.

THE ABOVE INFORMATION PERTAINS TO THIS PRODUCT AS CURRENTLY FORMULATED, AND IS BASED OF THE INFORMATIONN AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

Provided By Electrical Insulation Suppliers Inc.

MATERIAL SAFETY DATA SHELTS
FOR COATINGS, RESINS AND RELATED MATERIALS
(APPROVED BY U.S. DEPARTMENT OF LABOR)

SECTION I

Manufacturers Name: SPRAYON PRODUCTS — Emergency Phone No: 216/292-7400
Street Address: 26300 FARGO AVE
City, State, and Zip Code- BEDFORD HTS., OH 44146 — Code Identification: MF-6BLF
Rev. Date: 08/17/90
Date: 12/07/90
Product Class (AEROSOL) COATINGS
Trade Name: MF-6BLF BLUE LAYOUT FLUID — Lab No.: 49769

SECTION II HAZARDOUS INGREDIENTS

	INGREDIENT	PERCENT	OSHA PEL	TLV PPM	TLV MG/M3	LEL	CAS NUMBER
*@	TOLUENE	25	100	100	375.00*	1.2	*00108-88-3
*@	METHYL ETHYL KETONE	<5	200	200	590.00*	1.8	*00078-93-3
*@	XYLENE	<5	100	100	435.00*	1.1	*01330-20-7
*@	N-BUTANOL	<5	50	50	150.00*	1.4	*00071-36-3
*@	METHYL ISOBUTYL KETONE	<5	100	50	205.00*	1.4	*00108-10-1
*@	ACETONE	40	750	750	*1780.00*	2.6	*00067-64-1
*	ETHYL -ETHOXYPROPIONATE	<5	N/E	50	N/E	1.0	*00763-69-9
*	A ISOBUTANE	10	1000	*1000	*1800.00*	1.8	*00075-28-5
*	A PROPANE	10	1000	*1000	*1800.00*	2.3	*00074-98-6

@ = SARA TITLE III See Below

AEROSOL - CONTENTS UNDER PRESSURE 55 +/- 5 PSIG

*Carcinogenicity: THIS PRODUCT IS NOT CONSIDERED TO BE A CARCINOGEN
* BY HE NATIONAL TOXICOLOGY PROGRAM. THE INTERNATIONAL AGENCY FOR RESEARCH ON
* CANCER. THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR NATIONAL
* INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH.
*
* SARA: These ingredients are subject to SARA TITLE III Section 313 reporting
* for Superfund Amendments and Reauthorization Act of 1986 and CFR 40
* part 372.
*
* SARA: Aerosol products are subject to SARA TITLE III Section 313 reporting for
* Superfund Amendments and Reauthorization Act of 1986 and CFR 40 part 372
*
* Pursant to Proposition 65: CERTAIN RAW MATERIALS USED IN MAKING IHIS
* PRODUCT MAY CONTAIN SMALL AMOUNTS OF MATERIALS AS IMPURITIES WHICH ARE
* REGULATED BY PROPOSITION 65. SEE SECTION IX.

SECTION III - PHYSICAL DATA

Boiling Range: PROPELLANT BELOW 0.0'F Vapor Density: HEAVIER THAN AIR

****
SECTION VII - SPILL OR LEAK PROCEDURES
****

Steps to be taken in case material is released or spilled
REMOVE ALL SOURCES OF IGNITION, VENTILATE AVOID BREATHING VAPORS (SEE SECTION X) AND REMOVE WITH INERT ABSORBENT

Waste disposal method:
DO NOT INCINERATE - DISPOSE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS REGARDING POLLUTION.

****
SECTION VIII - SPECIAL PROTECTION INFORMATION
****

Respiratory Protection: AVOID BREATHING OF VAPOR OR SPRAY MIST (SEE SECTION X)

IF PERSONAL EXPOSURE CANNOT BE CONTROLLED BELOW APPLICABLE LIMITS BY VENTILATION, WEAR A PROPERLY FITTED ORGANIC VAPOR/PARTICULATE RESPIRATOR APPPOVED BY NIOSH/MSHA FOR PROTECTION AGAINST MATERIALS IN SECTION II.
WHEN SANDING OR ABRADING THE DRIED FILM, WEAR A DUST/MIST RESPIRATOR APPROVED BY NIOSH/MSHA FOR DUST WHICH MAY BE GENERATED FROM THIS PRODUCT, UNDERLYING PAINT, OR THE ABRASIVE.
THE APPLICABLE LIMITS FOR NUISANCE DUSTS ARE ACGIH TLV 10 mg/m3 (TOTAL DUST-, OSHA PEL 15 MG/M3 (TOTAL DUST). 5 mg/m3 RESPIRABLE FRACTION).

Ventilation: PROVIDE LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP TLV OF ALL HAZARDOUS INGREDIENTS IN SECTION II BELOW ACCEPTABLE LIMIT, AND LEL IN SECTION II BELOW STATED LIMIT.

Protective Gloves: FOR PROLONGED OR REPEATED CONTACT, WEAR GLOVES WHICH ARE RECOMMENDED BY GLOVE SUPPLIER FOR PROTECTION AGAINST MATERIALS IN SECTION II.

Eye Protection: FOR PROLONGED USE IN CLOSE QUARTERS RECOMMEND SAFETY GLASSES WITH UNPERFORATED SIDESHIELDS.

Other Protective Equipment:

****
SECTION IX - SPECIAL- PRECAUTIONS
****

Precautions to be taken in handling and storing:
DO NOT STORE ABOVE 120'F. KEEP AT ROOM TEMPERATURE AS EXPOSURE TO DIRECT SUNLIGHT OR HEAT MAY CAUSE BURSTING.

Other Precautions:
KEEP AWAY FROM CHILDREN.
DO NOT PUNCTURE OR INCINERATE.
DO NOT SPRAY NEAR FIRE OR OPEN FLAME.
Provided By Electrical Insulation Suppliers Inc.

Pursuant to Proposition 65:
PROPOSITION 65 APPLIES TO A LIST OF CHEMICALS NAMED BY THE GOVERNOR OF CALIFORNIA AS CARCINOGENS OR REPRODUCTIVE TOXINS. WARNING REQUIREMENTS FOR SPECIFIC CHEMICALS TAKE EFFECT ONE YEAR AFTER THEY ARE ADDED TO THE GOVERNORS LIST. OTHER CHEMICALS ALREADY ADDED TO THE GOVERNOR'S' LIST WILL BE REGULATED LATER UNDER PROPOSITION 65.

****

SECTION IX - HAZARDOUS MATERIAL IDENTIFICATION

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COMMUNICATION OF PHYSICAL PROPERTY, HEALTH, AND SAFETY INFORMATION IS A KEY FACTOR IN OUR PRODUCT SAFETY PROGRAM. WITH THIS INFORMATION YOU CAN BETTER FULFILL YOUR OBLIGATION TO EDUCATE EXPOSED PERSONNEL IN THE PROPER HANDLING TECHNIQUES REQUIRED TO MAINTAIN SAFETY IN THE WORKPLACE. LISTED IN THIS SECIION IS NPCA-HMIS CLASSIFICATION FOR THIS PRODUCT.

	HMIS. CLASSIFICATION	CODE
Health:	2	MODERATE HAZARD
Flammability:	4	SEVERE HAZARD
Reactivity:	0	MINIMAL HAZAAD
Personal Protection:	0	FACE SHIELD, GLOVES, APRON

****

THE ABOVE INFORMATION PERTAINS TO PRODUCT AS CURRENTLY FORMULATED, AND IS BASED ON THE INFORMATION AVAILABLE AT THIS TIME. ADDITION OF REDUCERS OR OTHER ADDITIVES TO THIS PRODUCT MAY SUBSTANTIALLY ALTER THE COMPOSITION AND HAZARDS OF THE PRODUCT. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION.

STARTEX CHEMICAL, INC.
P. O. Box 687
Conroe, Texas 77305
(409) 539-6244

MATERIAL SAFETY DATA SHEET

24 Hour Emergency Telephone Number - CHEMTREC 1-800-424-9300

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: LACQUER THINNER DATE PREPARED: 9/27/91
GENERIC ID: Solvent Blend
DOT HAZARD CLASSIFICATION: Flammable Liquid (173.115)

SECTION 11 - COMPONENTS

INGREDIENT	%(BY VOL)	PEL	TLV	NOTE
Aliphatic Petroleum Distillates- CAS#: 64742-89-8	20-25%	400 PPM		(1)
Toluene-CAS#108-88-3	40-45%	100 PPM	100 PPM	(2)
Methyl Ethyl Ketone-CAS#: 78-93-3	18-23%	200 PPM	200 PPM	(3)
Methyl Alcohol-CAS#: 67-56-1	Less than 4%	200 PPM-Skin	200 PPM-Skin	(4)
Ethylene Glycol Monobutyl Ether- CAS#: 111-76-2	2-4%	25 PPM-Skin	25 PPM-Skin	(5)

NOTES:
(1) NIOSH recommends a limit of 350 mg/cum-8-hour TWA, 1800 mg/cum as determined by a 15-minute sample. TLV not established for this material. This material contains a maximum of 7% Toluene (CAS #108-88-3) which has a PEL/TLV of 100 PPM, STEL of 150 PPM; and a maximum of 3.5% Cyclohexane (CAS#:110-82-7) which has a PEL/TLV of 300 PPM.
(2) ACGIH/OSHA - short term exposure limit (STEL) for Toluene is 150 PPM. NIOSH recommends a limit of 100 PPM, 8-hour TWA; 200 PPM 10 minute ceiling.
(3) OSHA/ACGIH short term exposure limit (STEL) for Methyl Ethyl Ketone is 300 PPM. NIOSH recommends a limit of 200 PPM, 8-hour TWA.
(4) Skin absorption may potentially contribute to the overall exposure to this material. Appropriate measures should be taken to prevent absorption so that the TLV is not invalidated. OSHA/ACGIH short term exposure limit (STEL) for Methyl Alcohol is 250 PPM. NIOSH recommends a limit of 200 PPM, 8-hour TWA; 800 PPM 15-minute ceiling.
(5) Skin absorption may potentially contribute to the overall exposure to this material. Appropriate measures should be taken to prevent absorption so that the TLV is not invalidated. NIOSH recommends a limit of 5 PPM TWA for a 10-hour workday and 40-hour workweek.

All of the above chemicals are subject to the reporting requirements of Section 313 of Sara Title III.

SECTION III - PHYSICAL DATA

BOILING POINT: 63.88'C (147'F) SPECIFIC GRAVITY: < 1.000 at 25'C(77'F)
VAPOR PRESSURE: 97.68 mmHG at 20'C(68'F)
PERCENT VOLATILES: 100.00% EVAPORATION RATE: Slower than Ether
SPECIFIC VAPOR DENSITY: Air= 1: >1.0

SECTION IV - FIRE AND EXPLOSION INFORMATION

FLASH POINT: -12.2--7.2'C (10-19'F)
EXPLOSIVE LIMIT: (Lowest Value of Component) Lower - 1.1%
EXTINGUISHING MEDIA: Regular foam or carbon dioxide or dry chemical.
HAZARDOUS DECOMPOSITION PRODUCTS: May form toxic materials: carbon dioxide and carbon monoxide, various hydrocarbons, etc.
FIREFIGHTING PROCEDURES: Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
SPECIAL FIRE & EXPLOSION HAZARDS: Never use welding or cuffing torch on or near drum (even empty) because product (even just residue) can ignite explosively. All five gallon pails and larger metal containers including tank cars and tank trucks should be grounded and/or bonded when material is transferred. Material is highly volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point.

SECTION V - HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: Not established for product. See Section II.

EFFECTS OF ACUTE OVEREXPOSURE:
EYES: Can cause severe irritation, redness, tearing, blurred vision.
SKIN: Prolonged or repeated contact can cause moderate irritation, defatting, dermatitis.
BREATHING: Excessive inhalation of vapors can cause nasal and respiratory irritation, central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness, and even death.
SWALLOWING: Can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

FIRST AID:
IF ON SKIN: Thoroughly wash exposed area with soap and water. Remove contaminated clothing. Launder contaminated clothing before re-use.
IF IN EYES: Flush with large amounts of water, lifting upper and lower lids occasionally, get medical attention.
IF SWALLOWED: Do not induce vomiting, keep person warm, quiet, and get medical attention. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.
NOTE TO PHYSICIANS: This product contains Methanol. Methanol is metabolized to Formaldehyde and Formic Acid. These metabolites may cause metabolic acidosis, visual disturbances and blindness. Since metabolism is required for these toxic symptoms, their onset may be delayed from 6 to 30 hours following ingestion. Ethanol competes for the same metabolic pathway and has been used as an antidote. Methanol is effectively removed by hemodialysis.
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.

PRIMARY ROUTE(S) OF ENTRY: Inhalation, skin absorption, skin contact.

EFFECTS OF CHRONIC OVEREXPOSURE: Minor embryotoxic/fetotoxic effects have been observed in laboratory rats exposed to Methyl Ethyl Ketone by inhalation at levels greater than 1000 PPM (5 times the OSHA-PEL/TWA) for most of the gestation period. Methyl Ethyl Ketone may potentiate (shorten the time of onset) peripheral neuropathy caused by Methyl N-Butyl Ketone or N-Hexane. Methyl Ethyl Ketone by itself has not been shown to cause peripheral neuropathy. Ethylene Glycol Monobutyl Ether (Glycol Ether EB) causes harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these finding to humans is uncertain. Overexposure to this material (or its components) has apparently been found to cause the following effects in laboratory animals: liver abnormalities, kidney damage, eye damage, lung damage, blood abnormalities, spleen damage, brain damage, nervous system damage, testis damage. Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: liver abnormalities, eye damage.

SECTION VI - REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Cannot Occur
STABILITY: Stable
INCOMPATIBILITY: Avoid contact with: strong oxidizing agents.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: Absorb liquid on paper, vermiculite, floor absorbent or other absorbent material.

LARGE SPILL: Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occured.

WASTE DISPOSAL METHOD:

SMALL & LARGE SPILLS: Dispose of in accordance with all local, state and federal regulations.

SECTION VIII - PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: If workplace exposure limit(s) of product or any component is exceeded (see Section II), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) 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 TLV(S).
PROTECTIVE GLOVES: Wear resistant gloves (consult your safety equipment supplier).
EYE PROTECTION: Chemical splash goggles 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 repeated or prolonged skin contact, wear impervious clothing and boots.

SECTION IX - SPECIAL PRECAUTIONS OR OTHER COMMENTS

Containers of this material may be hazardous when emptied. Since containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in this datasheet must be observed. The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

APPEARANCE AND ODOR: WHITE ODORLESS POWDER

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT(Method Used): NONE FLAMMABLE LIMITS: LEL: UEL:
EXTINGUISHING MEDIA: NONE
SPECIAL FIRE FIGHTING PROCEDURES: NONE
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

SECTION V-HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: N/A
EFFECTS OF OVEREXPOSURE: FAINTNESS AND POSSIBLE NAUSEA
EMERGENCY FIRST AID PROCEDURES: SKIN & EYES: WASH WITH LARGE AMOUNTS OF WATER.
INGESTION: DRINK WATER OR MILK - DO NOT INDUCE VOMITING - CALL A PHYSICIAN IMMEDIATELY.

SECTION VI-REACTIVITY DATA

STABILITY IS, UNSTABLE:[ ]
STABLE:[X]
CONDITIONS TO AVOID:
INCOMPATIBILITY(materials to avoid): ALKALIES
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: C12, NH3, ZnO
HAZARDOUS POLYMERIZATION, MAY OCCUR:[ ]
WILL NOT OCCUR:[X]
CONDITIONS TO AVOID:

SECTION VII-PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: NEUTRALIZE WITH SODIUM BICARBONATE AND WASH WITH LOTS OF WATER.
WASTE DISPOSAL METHOD: NEUTRALIZE AND WASH WITH LARGE AMOUNTS OF WATER AND DISPOSE IN ACCORDANCE WITH LOCAL AND STATE EPA REGULATIONS.

SECTION VIII-CONTROL MEASURES

RESPIRATORY PROTECTION(Specify Type): USE MASK WHEN FUMES ARE STRONG
VENTILATION:LOCAL EXHAUST: SPECIAL:
MECHANICAL(General): X OTHER:
PROTECTIVE GLOVES: YES
EYE PROTECTION: SAFETY GLASSES
OTHER PROTECTIVE CLOTHING OR DEVICES: PROTECTIVE APRON

SECTION IX-SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP AWAY FROM HEAT AND MOISTURE. THE POWDER IS VERY HYGROSCOPIC, STORE IN PLASTIC BAGS AND EXCLUDE AIR.
OTHER PRECAUTIONS: THE INFORMATION AND RECOMMENDATIONS PROVIDED HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF 3/25/85. HOWEVER, SUCH INFORMATION AND RECOMMENDATIONS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND AND SUPERIOR FLUX AND MANUFACTURING CO. DISCLAIMS ANY AND ALL LIABILITY OF LEGAL RESPONSIBILITY FOR USE OF RELIANCE UPON SAME.

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

SECTION I-PRODUCT IDENTIFICATION

IDENTITY(As used on Label and List): SUPERIOR NO. 97 FLUX

MANUFACTURER'S NAME: SUPERIOR FLUX AND MANUFACTURING CO.
ADDRESS: 95 ALPHA PARK CLEVELAND, OHIO 44143
EMERGENCY TELEPHONE NUMBER: 800-424-9300 CHEMTREC
TELEPHONE NUMBER FOR INFORMATION: 216-461-3315
DATE PREPARED: 1/17/91
SIGNATURE OF PREPARER(optional):

SECTION II- HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS #	OSHA PEL	ACGIH TLV	Other Limits	% (optional)
* GUM ROSIN	8050-09-7	n/a	n/a		40-45
ISOPROPYL ALCOHOL	67-63-0	980mg/m3	980mg/m3		55-60

*NOT CLASSIFIED AS HAZARDOUS

SECTION III-PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 180F
SPECIFIC GRAVITY(H2O=1): 0.92
VAPOR PRESSURE(mmHg): 33mm @ 20C
% VOLATILE BY VOLUME: 65.1
VAPOR DENSITY(AIR=1): 2.3
EVAPORATION RATE(Butyl Acetate=1): 2.88
MELTING POINT: N/A
SOLUBILITY IN WATER: Partial
APPEARANCE AND ODOR: Light brown liquid with alcohol odor.

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT(Method Used):53F TCC FLAMMABLE LIMITS: LEL: 2 UEL: 12.2 @ 200F
AUTOIGNITION TEMPERATURE: N/F
EXTINGUISHING MEDIA: Water spray, carbon dioxide, dry chemical
SPECIAL FIRE FIGHTING PROCEDURES: Use self contained breathing apparatus
UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep away from heat, sparks or open flame.

SECTION V-REACTIVITY DATA

STABILITY IS, UNSTABLE:[ ]
STABLE:[x]
CONDITIONS TO AVOID: N/A
INCOMPATIBILITY(materials to avoid): Strong oxidizing chemicals
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Pyrolysis of rosin products aliphatic aldehydes.
HAZARDOUS POLYMERIZATION, MAY OCCUR:[ ]
WILL NOT OCCUR:[x]
CONDITIONS TO AVOID: N/A

SECTION VI-HEALTH HAZARD DATA

ROUTES OF ENTRY, INHALATION?:[x] SKIN?:[ ] INGESTION?:[x]
HEALTH HAZARD (Acute and Chronic): Acute: Local irritant. May induce mild narcosis. Chronic: N/F
CARCINOGENICITY, NTP?: IARC Monographs?: OSHA Regulated?: None
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: N/F
EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air. Eyes: Flush thoroughly and call a physician. Skin: Wash with soap and water. Ingestion: Induce vomiting and call a physician.

SECTION VII-CONTROL MEASURES

RESPIRATORY PROTECTION(Specify Type): Optional (organic vapor)
VENTILATION:LOCAL EXHAUST: x SPECIAL:
MECHANICAL(General): x OTHER:
PROTECTIVE GLOVES: Chemical resistant
EYE PROTECTION: Safety goggles
OTHER PROTECTIVE CLOTHING OR DEVICES: Apron if needed.

SECTION VIII-SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep container closed. Keep away from heat, sparks or open flames.
WORK/HYGIENIC PRACTICES: Avoid contact with skin and breathing of vapors.
OTHER PRECAUTIONS: N/F
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove ignition sources, ventilate area, and use absorbent material.
WASTE DISPOSAL METHOD: Incinerate absorbed material or dispose of in accordance with local, state and federal regulations.

TEXACO INC.

INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
02317 MULTIGEAR LUBT EP SAE 85W-140

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Gear Oils

THIS PRODUCT IS CLASSIFIED AS:

X HAZARDOUS BY DEFINITION NO.(S) 5

____ NOT HAZARDOUS:

____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
CAUTION! MAY CAUSE IRRITATION TO EYES

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Exposed employes should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation: None required if exposures are within permissible concentrations; see below.

Ventilation: Adequate to meet component permissible concentrations.

Permissible Concentrations:

Air: None established for product. Refer to page 4 for component permissible concentrations.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: None considered necessary.

Inhalation: None considered necessary.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

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PHYSIOLOGICAL EFFECTS

Effects of Exposure

Acute:

Eyes: Believed to cause slight-moderate eye irritation.

Skin: Believed to be slightly irritating with possible redness, edema, or drying of the skin.

Respiratory System: Believed to be minimally irritating if not in excess of permissible concentrations; see page 1.

Chronic: N.D.

Other: -

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50})(Species)

Oral: Similar product >20.0 g/kg (rat); practically non-toxic

Inhalation: N.D.

Dermal: Similar product >20g/kg (rabbit); practically non-toxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: Similar product 1.67/8.0 (rabbit); slightly irritating

Eyes: Similar product 9.66/110 (rabbit); slightly irritating

Symptoms of Exposure: See above.

FIRE PROTECTION INFORMATION

Ignition Temp. °F. N.D. Flash Point °F. (Method) 385° F (COC)

Flammable Limits (%) Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulfur.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide, use water spray, dry chemical, foam, or carbon dioxide.
Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards:

None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

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ENVIRONMENTAL PROTECTION

Waste Disposal Method:
Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixture, processes, etc. may render the resulting material hazardous. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Avoid contact with eyes. Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks:
Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

PRECAUTIONS

CAUTION! MAY CAUSE IRRITATION TO EYES

Avoid contact with eyes.
Wash thoroughly after handling.

Requirements for Transportation, Handling and Storage:
Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name: N.A.
DOT Hazard Class (if applicable): N.A.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) N.D. Vapor Pressure N.D. (mmHg)

Specific Gravity 0.9117 (H_2O=1) Vapor Density N.D. (Air=1)

Appearance and Odor RED, GREEN BLOOM

pH of undiluted product N.A. Solubility N.D.

Percent Volatile by Volume N.D. Evaporation N.D. ( )=1

Viscosity cSt @100°C = 25.3 Other -

Hazardous Polymerizations _____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
			X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Additive package containing boron, phosphorus and sulfur	MIXTURE		4.00 - 10.99
Hydrotreated C25 bright stock-based lubricating oil	72623837	5 mg/m3 ACGIH (mist)	80.00 - 94.99
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	5 mg/m3 ACGIH (mist)	1.00 - 3.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

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PRODUCT SHIPPING LABEL

02317 MULTIGEAR LUBT EP SAE 85W-140

CAUTION! MAY CAUSE IRRITATION TO EYES

Avoid contact with eyes.
Wash thoroughly after handling.

In case of contact, flush eyes with plenty of water for at least 15 minutes.

Chemical/Common Name	CAS No.	Range in %
*Additive package containing boron, phosphorus and sulfur	MIXTURE	4.00 - 10.99
Hydrotreated C25 bright stock-based lubricating oil	72623837	80.00 - 94.99
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	1.00 - 3.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS

Health : 1 Reactivity : 0
Flammability: 1 Special : -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-2400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreeze
call (914) 831-2400 (EXT 204)
Chemicals/Additives
call (408) 722-####
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT
STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1985)
No critical materials present.

-

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology

Date 09-26-86 ☐ New ☒ Revised, Supersedes 02-27-86

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

NOV 09 '92 11:30 MINE-MAINT. 479-7330

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT AS PART OF TEXACO'S PRODUCT SAFETY PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

EXPLANATION OF THE INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

PRODUCT INFORMATION

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refer to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Fahrenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value as established by the American Conference of Governmental Industrial Hygenists and/or the Occupational Safety and Health Administration (with exception to petroleum oil mist). (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapor, mist, or smoke which have one or more of the above characteristics; (10) contains a component which may be carcinogenic according to NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), OSHA (Occupational Safety and Health Administration), EPA (Environmental Protection Agency) and/or NCI (National Cancer Institute.); (11) has a median LC50 (RATS) in air of 200 ppm or less by volume of gas or vapor or 2.0 mg/l or less of mist, fume or dust when administered by continuous inhalation for one hour; (12) is a hazard as identified in the Product Shipping Label on page 5.

OCCUPATIONAL CONTROL PROCEDURES

(Consult your Industrial Hygienist or Occupational Health Specialist.)

Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

Ventilation

Normal means adequate to maintain permissible concentrations.
Ventilation: type, i.e. local exhaust, mechanical, etc.

Permissible Concentrations

Indicates Threshold Limit Value (TLV) and/or Time Weighted Average (TWA) as established by the American Conference of Governmental Industrial Hygienists and/or standards promulgated by the Occupational Safety and Health Administration.

EMERGENCY AND FIRST AID PROCEDURES

Administer first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause an or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, an estimated score indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point (Method used)

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite.

Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

Products Evolved When Subjected to Heat or Combustion.

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

Unusual Fire or Explosive Hazards

Specifies hazards to personnel in case of fire, explosive danger.

ENVIRONMENTAL PROTECTION

Specifies how this product may be disposed.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

PRECAUTIONS

Label that is required or recommended.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (or Range)

In degrees Fahrenheit or Celsius Boiling Point at 760 mmHg.

Vapor Pressure

Pressure exerted when a solid or liquid is in equilibrium with its own vapor.

Specific Gravity

The ratio of the density of the product to the density of water.

Vapor Density

The ratio of the density of the vapor at saturation concentration (20 degrees Celsius or 68 degrees Fahrenheit) to the density of air at 760 mmHg.

Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

pH

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - STRONGLY ACIDIC
pH5-7 - WEAKLY ACIDIC
pH7-9 - WEAKLY BASIC
pH9-14 - STRONGLY BASIC

Solubility

Refers to the solubility of a material by weight in water at room temperature. The term negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

Percent Volatile By Volume

Refers to the amount volatilized at 20 degrees Celsius or 68 degrees Fahrenheit when allowed to evaporate.

Evaporation

Gives the rate of evaporation compared to a standard

Viscosity

Measure of flow characteristics in Kinematic viscosity in Centistokes.

Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

Composition

Components of the product as required by OSHA (1910.1200) and one or more state Right to Know laws.

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650
Phone (914) 831-3400 (Beacon)

NOV 09 '92 11:31 MINE-MAINT. 473-7330 P.9

Material Safety Data Sheet

Maybe used to comply with
OSHA's hazard Communicatin Standard,
29 cfr 1910.1200 Standard must be
consulted for specific requirements.

U.S. Department of Labor
Occupatinal Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1210-0072

IDENTITY (As Used on Label & List
Flat Soapstone

Note: Blank spaces are not permitted. If any item is not applicable, or no info. available, the space must be marked to indicate that

SECTION I

MANUFACTURER'S NAME: THERMACOTE WELCO

ADDRESS (NUMBER, STREET, CITY, STATE, & ZIP CODE
HWY 161, YORK RD., P.O. BOX 69
KINGS MTN. N.C. 28086

EMERGENCY TELEPHONE NUMBER:

TELEPHONE NUMBER FOR INFORMATION:
704-739-6421

DATE PREPARED: 3-18-87

SIGNATURE OF PREPARER (optional):

SECTION II -- HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical Identity: Common Name(s)	OSHA PEL	ACGIH TLV	OTHER LIMITS	% (OPTIONAL)
3 MgO 4 SiO2 H2O				

SECTION III -- PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: N/A

SPECIFIC GRAVITY (H2O = 1):

VAPOR PRESSURE (mm Hg.): N/A

MELTING POINT: N/A

VAPOR DENSITY (AIR = 1):

EVAPORTAION RATE: (BUTYL ACETATE = 1) N/A

SOLUBILITY IN WATER: WHITE POWDER WITH EARTHY ODOR.

APPEARANCE AND ODOR: 2.7 - 2.8

SECTION IV -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): N/A

FLAMMABLE LIMITS: N/A LEL UEL

EXTINGUISHING MEDIA: N/A

SPECIAL FIRE FIGHTING PROCEDURES: N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

SECTION V -- REACTIVITY DATA

STABILITY: UNSTABLE STABLE X CONDITIONS TO AVOID NONE

INCOMPATIBILITY (MATERIALS TO AVOID):

HAZARDOUS DECOMPOSITION OF BYPRODUCTS:

HAZARDOUS POLYMERIZATION: MAY OCCUR MAY NOT OCCUR X CONDITIONS TO AVOID NONE

SECTION VI -- HEALTH HAZARD DATA

ROUTE(S) OF ENTRY: NONE INHALATION? SKIN? INGESTIONS?

HEALTH HAZARDS (ACUTE AND CHRONIC): NONE

CARCINOGENCITY: NONE NTP? IARC MONOGRAPHS? OSHA REGULATED?

SIGNS AND SYMPTOMS OF EXPOSURE: NONE

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE

EMERGENCY AND FIRST AID PROCEDURES: NONE

SECTION VII -- PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: NONE

WASTED DISPOSAL METHOD: NONE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: NONE

OTHER PRECAUTIONS: NONE

SECTION VIII -- CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE): STANDARD DUT RESPIRATOR

VENTILATION LOCAL EXHAUST: NONE SPECIAL: NONE MECHANICAL (GENERAL): NONE OTHER: NONE

PROTECTIVE GLOVES: NONE EYE PROTECTION: NONE OTHER PROTECTIVE CLOTHING OR EQUIP.: NONE WORK/HYGIENIC PRACTICES:NONE

DATE PREPARED 11/27/85

Thermacote Welco

MATERIAL SAFETY DATA SHEET
Filler Metals and Welding Rods

SECTION I

Manufacturer's Name: THERMACOTE-WELCO COMPANY Emergency Phone 704-739-6421

Address: HWY. 161, YORK ROAD P.O. BOX 112 KINGS MOUNTAIN, NORTH CAROLINA 28086

Trade Name: WELCO Product Type: Welding Wires for MIG, TIG & SAW

Classification: E70S-2 E70S-3 E70S-6

SECTION II
HAZARDOUS INGREDIENTS/Identity Information

*IMPORTANT: This Section covers materials from which this product is manufactured.

Ingredients of The Product	CAS No.	OSHA PEL Mg/M3	ACGIH TLV Mg/M3	Carcinogenicity
Iron	7439-89-6	5	10 (as Fe_2O_3)	No
Manganese	7439-96-5	5	1	No
Silicon	7440-21-3	5 (as SiO_2)	3 (as SiO_2)	No
Aluminum	7429-90-5	5 (as Al_2O_3)	10	No

SECTION III
PHYSICAL DATA
NOT APPLICABLE

SECTION IV
FIRE AND EXPLOSION HAZARD DATA

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 V
HEALTH HAZARD DATA

"Electric arc-welding may create one or more of the following health hazards: *Fumes and gases* can be dangerous to your health. *Arc Rays* can injure eyes and burn skin. *Electric Shock* can kill.

EFFECTS OF OVEREXPOSURE: "Short-term overexposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes, tightness in chest, fever and allergic reactions, (see Sections 4 and ." "Long-term (chronic) overexposure to welding fumes may lead to siderosis (iron deposit in lungs) and is believed by some investigators to affect pulmonary function.

EMERGENCY & FIRST AID PROCEDURES: Remove to fresh air, obtain medical attention. Employ first aid techniques recommended by the American Red Cross.

(Continued on Reverse Side)

SECTION VI
REACTIVITY DATA

STABILITY: UNSTABLE: NO — CONDITIONS TO AVOID: NONE; UNLESS OTHERWISE SPECIFIED

STABLE: YES — CONDITIONS TO AVOID: NONE; UNLESS OTHERWISE SPECIFIED

INCOMPATIBILITY (MATERIALS TO AVOID): 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 the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2. Fume and gas decomposition products, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode may form. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 2, plus those from the base metal and coating, etc., as noted above.

Reasonably expected fume constituents of this product could include primarily oxides of iron; secondarily complex oxides of manganese & silicon & aluminum.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc, in addition to the shielding gases like argon and carbon dioxide whenever they are employed.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's 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".

HAZARDOUS POLYMERIZATION: NOT APPLICABLE.

SECTION VII
SPILL OR LEAK PROCEDURES

NOT APPLICABLE

WASTE DISPOSAL METHOD: Prevent waste from contaminating surrounding environment. Discard any product residue, disposable container or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

SECTION VIII
SPECIAL PROTECTION INFORMATION (See Note)

"Read and understand the *manufacturer's instructions and the precautionary label on the product. Ventilation* – Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. *Respiratory Protection* – Use respirable fume respiratory or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the *recommended exposure limit. Eye Protection* – Wear helmet or use face shield with filter lens. Provide protective screens and flash goggles, if necessary, to shield others. As a rule of thumb start with a shade that is too dark to see the weld zone. Then go the the next lighter shade which gives sufficient view of the weld zone. *Protective Clothing* – Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground."

SECTION IX
SPECIAL PRECAUTIONS (See Note)

OTHER PRECAUTIONS: Use exhaust system to clear welding fumes. Make sure that inhaled air does not contain fume constituents above permissible exposure levels.

NOTE: 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 American Welding Society, Inc., 550 N.W. Le Jeune Road, P.O. Box 351040, Miami, FL 33135, Tel. (305) 443-9353.

THERMOCLAD COMPANY

Technical Data Sheet

814/456-1243

PHYSICAL DATA SHEET

PRODUCT IDENTIFICATION	DURATOP ACW W-1527
LOT NUMBER	96
END USE	EXTERIOR TUBE COATING
SUBSTRATE	HOT ROLLED STEEL

PHYSICAL CONSTANTS

TYPE	MODIFIED ACRYLIC
APPEARANCE	CLEAR SELF ADHERING
SOLIDS % BY WEIGHT	22.62 ± 2%
SOLIDS % BY VOLUME	20.91 ± 2%
WATER % BY WEIGHT	70.27 ± 2%
WATER % BY VOLUME	70.61 ± 2%
SOLVENT % BY WEIGHT	7.11 ± 2%
SOLVENT % BY VOLUME	8.48 ± 2%
THEORETICAL VOC LEVEL	2.18 #/GAL. ± 0.20
	262 GRAMS/LITER
COVERAGE FT^2/GAL. @ 1 MILL DFT	335
@ 0.33 MILL DFT	1006
@ 0.20 MILL DFT	1675
WEIGHT/GALLON	8.50 ± 0.20
VISCOSITY #2 ZAHN @ 77°F.	15 SECONDS ± 3
VISCOSITY GARDNER SIGNATURE #2 ZAHN @ 77°F.	12 SECONDS ± 3
GLOSS (60°)	75 ± 10
pH	8.71 ± 0.30
DRY TIME (AMBIENT #15 BAR)	< 7.3 MINUTES
LEAD OR CHROME CONTENT	550 PPM ± 50
HEGMAN GRIND	6+ MINIMUM

APPLICATION

PRIMER RECOMMENDATION	NONE NEEDED
MIXING INSTRUCTIONS	READY TO USE
APPLICATION METHOD	FLOOD & WIPE, VACUUM OR SPRAY
RECOMMENDED DRY FILM THICKNESS	0.2 TO 0.4 MILS
CURING SCHEDULE	AIR DRY
SHELF LIFE	6 MONTHS +
CLEAN UP WITH	WATER

The above properties are based upon tests and data believed to be reliable; since actual use by others is beyond our control, no guarantee expressed or implied is made by The Thermoclad Company as to the effects of such use or results to be obtained.

TND: 12-14-95

The above properties of DURAVIN or DURATOP products are based upon tests and data believed to be reliable, since actual use by others is beyond our control, no guarantee, express or implied, is made by The Thermoclad Company as the the effects of such use or results to be obtained.

***** THE THERMOCLAD COMPANY - MATERIAL SAFETY DATA SHEET *****

Version Date.....06/13/95
Print Date.....10/04/96

DURATOP ACW CLEAR W-1527 (22.5%)

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT NAME OR NUMBER..... DURATOP ACW CLEAR 22.5%
MANUFACTURER'S NAME..... THE THERMOCLAD COMPANY COMPLIANCE COATINGS DIVISION
COMPANY ADDRESS..... 361 WEST 11th STREET ERIE, PENNSYLVANIA 16501-1703
COMPANY PHONE NUMBER..... (814)-456-1243 7:00am - 5:00pm (814)-899-7628
EMERGENCY PHONE NUMBER..... (800)-424-9300 CHEMTREC day or night
HAZARDOUS MATERIAL DESCRIPTION... COMBUSTIBLE LIQUID
PROPER SHIPPING NAME..... COMBUSTIBLE LIQUID
CHEMICAL FAMILY..... MODIFIED ACRYLIC EMULSION COATING
FORMULA..... W-152722.5

SECTION 2 HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	% WT	CHEMICAL NAME(S)	TLV (PPM)	SARA 313 LIST
111-76-2	< 4.50	2-BUTOXYETHANOL	50	No
7664-41-7	< 0.40	AMMONIA	25	Yes
107-98-2	< 0.80	PROPYLENE GLYCOL MONOMETHYL ETHER	100	No
7440-47-3	< 0.06	CHROMIUM METAL (as Cr)	0.50 Mg/M3	Yes
872-50-4	< 0.60	N-METHYL PYRROLIDONE	200	No

SECTION 3 PHYSICAL DATA

BOILING POINT (F)..... 212-338°
VAPOR PRESSURE mmHG @ 20 C..... NOT ESTABLISHED
VAPOR DENSITY (AIR = 1)..... > 1.00
SOLUBILITY IN WATER..... COMPLETE
PH..... 8.81 ±.30
SPECIFIC GRAVITY..... 1.02 ± 0.20
PERCENT VOLATILE BY WEIGHT (%)... 7.11 ± 2 (-H2O)
APPEARANCE AND ODOR..... SLIGHT YELLOW LIQUID, AMINE ODOR
EVAPORATION RATE (BU.ACET.=1).... > 1.00
PERCENT SOLID BY WEIGHT (%)..... 22.62 ± 2
PERCENT WATER BY WEIGHT (%)..... 70.27 ± 2
VOC #/GALLON..... < 2.18 ± 0.20
VOC GRAMS/LITER..... < 262 ± 22

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... > 143°F SETAFLASH
FLAMMABLE LIMITS (LEL & UEL)..... 1.10 12.70
EXTINGUISING MEDIA..... FOAM, CO2, DRY CHEMICAL, OR WATER FOG
SPECIAL FIRE FIGHTING PROCEDURES... NORMAL PROCEDURES MAY BE USED
UNUSUAL FIRE & EXPLOSION HAZARDS... CONTAINER MAY BURN AND LEAK IN HEAT OF FIRE.

SECTION 5 HEALTH HAZARD DATA * EFFECTS OF OVEREXPOSURE

SKIN CONTACT..... PRODUCT COULD BE MODERATELY IRRITATING TO THE SKIN. AVOID DIRECT SKIN CONTACT WHEN USING THIS MATERIAL.

EYE CONTACT..... PRODUCT COULD BE MODERATELY IRRITATING TO THE EYES. AVOID TOUCHING THE EYES WHEN USING THIS MATERIAL.

(Continued on next page.)

SECTION 5 HEALTH HAZARD DATA * EFFECTS OF OVEREXPOSURE CONT'D

INHALATION..... N/A
INGESTION..... THIS MATERIAL HAS A LOW ORDER OF ACUTE ORAL TOXICITY.
THRESHOLD LIMIT VALUE..... SEE SECTION 2
PERMISSIBLE EXPOSURE LIMIT... SEE SECTION 2
OTHER LIMIT..... N/A
PRIMARY ROUTES OF ENTRY..... SKIN CONTACT

SECTION 6 EMERGENCY AND FIRST AID PROCEDURES

SKIN..... WASH THOROUGHLY WITH SOAP AND WATER.
EYES..... FLUSH EYES WITH GENEROUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IF IT APPEARS NECESSARY.
INHALATION... REMOVE VICTIM TO FRESH AIR.
INGESTION.... IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED.

SECTION 7 REACTIVITY DATA

STABILITY..... STABLE
CONDITIONS TO AVOID (if app.)..... N/A
INCOMPATIBILITY(matrls to avoid)... NONE KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS... WHEN EXPOSED TO FIRE PRODUCES NORMAL PRODUCTS OF FIRE.
HAZARDOUS POLYMERIZATION..... WILL NOT OCCUR
CONDITIONS TO AVOID (if app.)..... N/A

SECTION 8 SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES... CONTAINS AMMONIA ! DO NOT LET SPILLED OR LEAKING MATERIAL ENTER WATERCOURSE. MAY BE TOXIC TO AQUATIC LIFE. ABSORB WITH INERT MATERIAL. SWEEP OR SCRAPE UP AND CONTAINERIZE. RINSE AFFECTED AREA THOROUGHLY WITH WATER. WEAR AND USE APPROPRIATE PROTECTIVE EQUIPMENT.
WASTE DISPOSAL METHOD..... NO SPECIAL METHODS. OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS AND ORDINANCES REGARDING DISPOSAL OF HAZARDOUS MATERIALS.

SECTION 9 SPECIAL PROTECTION INFORMATION

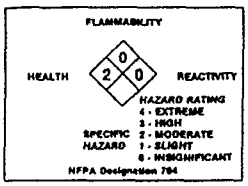
RESPIRATORY PROTECTION (specify)... NO SPECIAL REQUIREMENTS UNDER NORMAL USE CONDITIONS.
VENTILATION..... GENERAL ROOM VENTILATION IS ADEQUATE.
PROTECTIVE GLOVES(specify type).... ANY IMPERVIOUS MATERIAL.
EYE PROTECTION (specify type)..... SPLASH PROOF GOGGLES.
OTHER PROTECTIVE EQUIPMENT..... USE GOOD PERSONAL HYGIENE PRACTICES.

SECTION 10 SPECIAL PRECAUTIONS

HANDLING & STORING PRECAUTIONS... WASH THOROUGHLY AFTER EACH HANDLING. KEEP FROM FREEZING! PROTECT CONTAINER FROM PHYSICAL DAMAGE! FOR INDUSTRIAL USE ONLY! KEEP OUT OF THE REACH OF CHILDREN!
OTHER PRECAUTIONS..... AVOID CONTACT WITH EYES. AVOID PROLONGED CONTACT WITH SKIN. HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICES. WASH HANDS AND FACE BEFORE EATING, DRINKING OR SMOKING.

SECTION 11 SUPPLIER INFORMATION

THE INFORMATION SUPPLIED HERE IS BASED ON DATA WE CONSIDER TO BE ACCURATE. NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE. THIS DATA IS OFFERED SOLELY FOR YOUR CONSIDERATION, INTERPRETATION AND INFORMATION.



TRI-MARK INC.

MSDS NO: 001 Rev. 9
REVISED: 1-93

MATERIAL SAFETY DATA SHEET

For U.S. Manufactured Welding Consumables and Related Products
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910. 1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499. Standard must be consulted for specific requirements.

SECTION 1 — IDENTIFICATION

Manufacturer/Supplier Name: TRI-MARK, INC.	Telephone No: 1-513-773-2010
Address: 8585 INDUSTRY PARK DR., PIQUA, OHIO 45356	Emergency No: 1-513-773-2010

Trade Name	Specification	Product Type
Group A: TM-11, 22, 72, 73, 1HE, 771, 711, 711M, 772, 770, RX7, RX71, 55, 90, 771-A, 773, 55E.	AWS A5.20 and/or	Gas shielded Carbon Steel Flux Cored Arc Welding Electrode
Metalloy 70, 71, 70R, 74, 76, 70X.	MIL-E-24403/1	Gas shielded Carbon Steel Metal Cored Arc Welding Electrode
TM-75A1, 81A1, 811A1, 91D3, 95D2, 105D2.	AWS A5.29	Gas shielded Low Alloy Flux Cored Arc Welding Electrode
Metalloy 80D2	AWS A5.28	Gas shielded Low Alloy Composite Arc Welding Electrode
Metalloy EH14S, 3S, EL12KS	AWS A5.17	Carbon Steel Submerged Arc Welding Electrode
Group B: TM-33, 133, 33R, 44, 77, 10, 121, 123.	AWS A5.20	Self shielded Carbon Steel Arc Welding Electrode
Group C: TM-81N1, 811N1, 881N1, 811N2, 81N2, 91N2, 911N2, 991N2, 91K2, 911K2, 991K2, 101K3, 1101K3-C, 1101K3-M, 111K3, 85N1, 85N2, 85N3, 85K1, 95K2, 105K3, 115, 125K4, 81B2, 81B2L, 91B3, 91B3L, 811B2, 811B2L, 911B3, 911B3L, 85B2, 85B2L, 95B3, 81W, 811W, 100VH, 1PH, 881K2, 78K6.	AWS A5.29 and/or AWS A5.20	Gas shielded Low Alloy Flux Cored Arc Welding Electrode
TM-811N3.	Mil-E-24403/2	Gas shielded Low Alloy Flux Cored Arc Welding Electrode
Metalloy 90, 80N1, 80N2, 80N3, 80B2, 80B2L, 90B3, 100, 110, 110B, 114, 100G.	AWS A5.28	Gas shielded Low Alloy Composite Arc Welding Electrode
TM-C90M, C120M.	Mil-E-23765/2	Low Alloy Composite Submerged Arc Welding Electrode
Metalloy N1S, N2S, N3S, N4S, B2S, B3S, A3S, F2S, M2S, WS.	AWS A5.23	Low Alloy Composite Submerged Arc Welding Electrode
Group D: Metalloy 409, 409 Cb, 439, 18CrCb, 430, 430Ti, 430Cb, 420S, 410.	AWS A5.22	Corrosion-Resisting Composite Arc Welding Electrode

SECTION 2 — HAZARDOUS MATERIALS

IMPORTANT

This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are covered by Section 5. The term "Hazardous Materials" should be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200).

The following chemicals are subject to reporting under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986: aluminum (fume or dust) and compounds of barium, chromium, copper, manganese, and nickel. Refer to this section for the presence and concentration of these chemicals for a particular product.

GROUP A

Ingredient	% Weight	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON	85 - 98	7439-89-6	5R	10
MANGANESE	< 4	7439-96-5	5CL*	5
TITANIUM DIOXIDE	< 10	13463-67-7	5R	10
SILICON	< 4	7440-21-3	5R	10
FLUORSPAR	< 5	14542-23-5	2.5 (as F)	2.5 (as F)
MOLYBDENUM	< 1	7439-98-7	5R	10
CALCIUM CARBONATE	< 2	1317-65-3	15	10

GROUP B

Ingredient	% Weight	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON	85 - 95	7439-89-6	5R	10
MANGANESE	< 2	7439-96-5	5CL*	5
TITANIUM DIOXIDE	< 3	13463-67-7	5R	10
SILICON	< 2	7440-21-3	5R	10
FLUORSPAR	1 - 10	14542-23-5	2.5 (as F)	2.5 (as F)
ALUMINUM	< 5	7429-90-5	5R	10
MAGNESIUM	< 2	7439-95-4	5R	10
BARIUM FLOURIDE[1]	< 5	7787-32-8	0.5 (as Ba)	0.5 (as Ba)

GROUP C

Ingredient	% Weight	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON	80 - 95	7439-89-6	5R	10
MANGANESE	< 4	7439-96-5	5CL*	5
NICKEL	< 4	7440-02-0	1	1, A1
CHROMIUM	< 3	7440-47-3	1	0.5
TITANIUM DIOXIDE	< 10	13463-67-7	5R	10
SILICON	< 3	7440-21-3	5R	10
FLUORSPAR	< 5	14542-23-5	2.5 (as F)	2.5 (as F)
MOLYBDENUM	< 2	7439-98-7	5R	10
COPPER[2]	< 1	7440-50-8	1 (Dust)	1 (Dust)

GROUP D

Ingredient	% Weight	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON	78 - 87	7439-89-6	5R	10
MANGANESE	< 1	7439-96-5	5CL*	5
CHROMIUM	11 - 20	7440-47-3	1	0.5
TITANIUM	< 2	7440-32-6	5R	10
SILICON	< 1	7440-21-2	5R	10

A1 — *Confirmed Human Carcinogen;* *CL — *Ceiling Limit;* R — *Respirable Fraction;* **STEL — *Short Term Exposure Limit;* [1] *Present only* in TM-121, TM-123, and TM-78K6; [2] Present only in TM-81W, TM-811W, and Metalloy WS.

SECTION 3 — PHYSICAL/CHEMICAL CHARACTERISTICS

Not Applicable

SECTION 4 — FIRE AND EXPLOSION HAZARD DATA

Non Flammable: Welding arc and sparks can ignite combustibles. See Z49.1 referenced in Section 7.

SECTION 5 — REACTIVITY DATA

Hazardous Decomposition Products

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 2, plus those from the base metal and coating, etc., as noted above.

It is understood, however, that the elements and or oxides to be mentioned are virtually always present as complex oxides and not as metals. [Characterization of Arc Welding Fume: American Welding Society]. The elements or oxides listed below correspond to the ACGIH categories located in [TLV Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment].

Reasonably expected constituents of the fume would include: complex oxides of iron, manganese, silicon, and titanium. Groups A, B, and C may have fluorides present. Group C may also contain chromium and/or nickel. Group D contains chromium.

GROUP A

Ingredient	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON OXIDE	1309-37-1	10 (as Fe)	5 (as Fe)
MANGANESE	7439-96-5	1, 3 STEL**	1, 3 STEL** (Fume)
TITANIUM DIOXIDE	13463-67-7	5R	10
SILICA	69012-64-2	0.1	2
FLUORIDES		2.5 (as F)	2.5 (as F)
MOLYBDENUM	7439-98-7	5R	10

GROUP B

Ingredient	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON OXIDE	1309-37-1	10 (as Fe)	5 (as Fe)
MANGANESE	7439-96-5	1, 3 STEL**	1, 3 STEL** (Fume)
TITANIUM DIOXIDE	13463-67-7	5R	10
SILICA	69012-64-2	0.1	2
FLUORIDES		2.5 (as F)	2.5 (as F)
MAGNESIUM OXIDE	1309-48-4	5R	10
ALUMINUM OXIDE	1344-28-1	5R	10
BARIUM[1]	7440-39-3	0.5 (sol.)	0.5

GROUP C

Ingredient	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON OXIDE	1309-37-1	10 (as Fe)	5 (as Fe)
MANGANESE	7439-96-5	1, 3 STEL**	1, 3 STEL** (Fume)
NICKLE (Soluble)		0.1 (as Ni)	0.1, A1 (as Ni)
NICKLE COMPOUNDS		1 (as Ni)	1, A1 (as Ni)
CHROMIUM OXIDE (as CR (II), Cr (III))		0.5 (as Cr (II), Cr (III))	0.5 (as Cr (II), Cr (III))
CHROMIUM (Insoluble, as CR (VI))		0.1 CL* (as Cr (VI))	0.05 A1 (as Cr (VI))
TITANIUM DIOXIDE	13463-67-7	5R	10
SILICA	69012-64-2	0.1	2
FLUORIDES		2.5 (as F)	2.5 (as F)
COPPER[2]	7440-50-8	0.1 (Fume)	0.2 (Fume)

GROUP D

Ingredient	CAS No.	Exposure Limit (mg/m³) OSHA PEL	Exposure Limit (mg/m³) ACGIH TLV
IRON OXIDE	1309-37-1	10 (as Fe)	5 (as Fe)
MANGANESE	7439-96-5	1, 3 STEL**	1, 3 STEL** (Fume)
CHROMIUM OXIDE (as Cr (II), Cr (III))		0.5 (as Cr (II), Cr (III))	0.5 (Cr (II), Cr (III))
CHROMIUM (Insoluble, as Cr (VI))		0.1 CL* (as Cr (VI))	0.05 (as Cr (VI))
TITANIUM DIOXIDE	13463-67-7	5R	10
SILICA	69012-64-2	0.1	2

A1 — Confirmed Human Carcinogen; *CL — Ceiling Limit; R — Respirable Fraction; **STEL — Short Term Exposure Limit; [1] Present only in TM-121, TM-123, and TM-78K6; [2] Present only in TM-81W, TM-811W, and Metalloy WS

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet if worn or in the worker's breathing zone. [See ANSI/AWS F1.1, available from the "American Welding Society," P. O. Box 351040, Miami, FL 33135. Also, from AWS is F1.3 "Evaluating Contaminants in the Welding Environment — A Sampling Strategy Guide," which gives additional advice on sampling]. At a minimum, materials listed in this section should be analyzed.

SECTION 6 — HEALTH HAZARD DATA

Permissible Exposure Limit and Threshold Limit Value:

The exposure level for welding fume has been established at 5 mg / m³ with OSHA's PEL and ACGIH's TLV. See Section 5 for specific fume constituents which may modify the PEL and TLV.

Effects of Overexposure

Electric arc welding may create one or more of the following health hazards:

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill. See Section 7

PRIMARY ROUTES OF ENTRY are the respiratory system, eyes and/or skin.

SHORT - TERM (ACUTE) OVEREXPOSURE EFFECTS:

WELDING FUMES — May result in discomfort such as dizziness, nausea or dryness or irritaiton of nose, throat or eyes.
IRON, IRON OXIDE — None are known. Treat as a nuisance dust or fume.
MANGANESE — Metal fume fever characterized by chills, fever, upset stomach, vomiting, irritation of throat and aching of body.
FLUORIDES — Fluoride compounds evolved may cause skin and eye burns, pulmonary edema and bronchitis.
NICKEL, NICKEL COMPOUNDS — Metallic taste, nausea, tightness in chest, fever, allergic reactions.
CHROMIUM — Inhalation of fume with chromium (VI) compounds can cause irritation of the respiratory system, lung damage and asthma-like symptoms. Swallowing chromium (VI) salts can cause severe injury or death. Dust on the skin can form ulcers. Eyes may be burned by chromium (VI) compounds. Allergic reactions likely in some people from chromium compounds.
COPPER — Metal fume fever can be caused by fresh copper oxide.
BARIUM — Aching eyes, rhinitis, frontal headache, wheezing, laryngeal spasms, salivation or anorexia.
SILICA — None are known. Treat as a nuisance dust or fume.
MOLYBDENUM — None are known. Treat as a nuisance dust or fume.
TITANIUM DIOXIDE — None are known. Treat as a nuisance dust or fume.
ALUMINUM, ALUMINUM OXIDE — None are known. Treat as a nuisance dust or fume.
MAGNESIUM, MAGNESIUM OXIDE — None are known. Treat as a nuisance dust or fume.

LONG-TERM (CHRONIC) OVEREXPOSURE EFFECTS:

WELDING FUMES — Excess levels may cause bronchial asthma, lung fibrosis, pneumoconiosis or "siderosis".
IRON, IRON OXIDE FUMES — Siderosis or deposits of iron in lungs which is believed to affect pulmonary function. Lungs will clear in time when exposure to iron fumes and its compunds ceases. Iron and Magnetite (Fe_3O_4) are not regarded as fibrogenic materials.
MANGANESE — Central nervous system effects referred to as "Manganism". Symptoms include muscular weakness, tremors similar to Parkinson's Disease. Behavioral changes and changes in handwriting may also appear. Employees overexposed to manganese compounds should receive quarterly medical examinations for early detection of manganism.
FLUORIDES — Serious bone erosion (Osteoporosis) and mottling of teeth.
NICKEL, NICKEL COMPOUNDS — Lung fibrosis or pneumoconiosis. Studies of nickel refinery workers indicated a higher incidence of lung and nasal cancers.
CHROMIUM — Ulceration and perforation of the nasal septum. Respiratory irritation may occur with symptoms resembling asthma. Studies have shown that chromate production workers exposed to hexavalent chromium compounds have an excess of lung cancers. Chromium (VI) compounds are more readily absorbed through the skin than chromium (III) compounds. Good practice requires the reduction of employee exposure to chromium (III) and (VI) compounds.
COPPER — No adverse long-term health effects have been reported in the literature.
BARIUM — Exposure to soluble barium compounds may cause nervous disorders and may have deleterious effects on the heart, circulatory system and musculature.
SILICA — Treat as a nuisance dust. Little adverse effect on lungs. Does not produce significant organic disease or toxic effect when exposures are kept under reasonable control. Potentially reversible.
MOLYBDENUM — Treat as a nuisance dust. Little adverse effect on lungs. Does not produce significant organic disease or toxic effect when exposures are kept under reasonable control. Potentially reversible.
TITANIUM DIOXIDE — Treat as a nuisance dust. Little adverse effect on lungs. Does not produce significant organic disease or toxic effect when exposures are kept under reasonable control. Potentially reversible.
ALUMINUM, ALUMINUM OXIDE — Treat as a nuisance dust. Little adverse effect on lungs. Does not produce significant organic disease or toxic effect when exposures are kept under reasonable control. Potentially reversible.
MAGNESIUM, MAGNESIUM OXIDE — Treat as a nuisance dust. Little adverse effect on lungs. Does not produce significant organic disease or toxic effect when exposures are kept under reasonable control. Potentially reversible.

EMERGENCY AND FIRST AID PROCEDURES

Call for medical aid. Employ first aid techniques recommended by the American Red Cross.
Eyes & Skin: If irritation or flash burns develop after exposure, consult a physician.

CARCINOGENICITY

Nickel, Chromium (with the exception of metallic chromium and chromium (III) must be considered as carcinogens under OSHA (29CFR 1910.1200).
Welding fumes must be considered as a possible carcinogen under OSHA (29 CFR 1910.1200).

SECTION 7 — PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacturer's instructions and the precautionary label on the product. (See American National Standard Z49.1. Safety in Welding and Cutting published by the American Welding Society, P. O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402, for more detail on many of the following.
VENTILATION: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.
RESPIRATORY PROTECTION: Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.
EYE PROTECTION: Wear helmet or use face shield with filter lens. As a rule of thumb begin with Shade Number 14. Adjust if needed by selecting the next lighter and/or darker shade number. Provide protective screens and flash goggles, if necessary, to shield others.
PROTECTIVE CLOTHING: Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: Not applicable
WASTE DISPOSAL: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations.
SPECIAL PRECAUTIONS: IMPORTANT: Maintain exposure below the PEL/TLV. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLV. Always use exhaust ventilation. Refer to the following sources for important additional information.
ANSI Z49.1 The American Welding Society, P. O. Box 351040, Miami, FL 33135 — OSHA (29CFR1910) U.S. Dept. of Labor, Washington, D.C. 20210.

Tri-Mark believes this data to be accurate and to reflect qualified expert opinion regarding current research. However, Tri-Mark cannot make any express or implied warranty as to this information.

Material Safety Data Sheet

89-250-885/B

SECTION 1 - PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER ARCAIR® AIR CARBON ARC ELECTRODES (see below**)	CATALOG NUMBERS 20-, 22-, 24-, 35- series
PRODUCT USE Arc metal removal	

MANUFACTURERS NAME TWECO Products, Inc.		DISTRIBUTOR NAME	
STREET ADDRESS 4200 West Harry St. P.O. Box 12250		STREET ADDRESS	
CITY Wichita	STATE Kansas	CITY	STATE
ZIP CODE 67277	EMERGENCY PHONE # (316) 942-1421	ZIP CODE	EMERGENCY PHONE #

PREPARED BY Dennis Wilson	PHONE NUMBER (316) 942-1421	DATE PREPARED October 31 1990

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%/RANGE	CAS NUMBER	OSHA PEL	ACGIH TLV
Carbon	20-90*	7440-44-0	3.5mg/M³	3.5mg/M³
Graphite, Synthetic	20-90*	7782-42-5	10mg/M³	3.5mg/M³
Copper	10-30	7440-50-8	0.2mg/M³ Fume	0.2mg/M³
(Carbon Black)	Fully Baked Out	1333-86-4	3.5mg/M³	3.5mg/M³

NOTE: Information for Welding Fume 5mg/M³
HEALTH AND PHYSICAL HAZARDS ASSOCIATED WITH AIR CARBON ARC ELECTRODES ARE ATTRIBUTABLE TO THE FUMES GENERATED WHEN THE ELECTRODES ARE USED AND CONSUMED.
Quantative analysis detected no trace of cadmium or mercury.

SECTION 313. SUPPLIER INFORMATION

THIS PRODUCT DOES [X] DOES NOT [ ] CONTAIN 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 NUMBER	CHEMICAL NAME	%
7440-50-8	Copper	<30

THIS INFORMATION MUST BE INCLUDED IN ALL MSDSs THAT ARE COPIED AND DISTRIBUTED FOR THIS PRODUCT.

***BATCH PERCENTAGES VARY GREATLY DEPENDING UPON AVAILABILITY.**

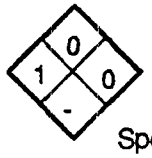
SECTION 3 - PHYSICAL DATA

PHYSICAL STATE Solid	ODOR AND APPEARANCE No notable odor, copper coated black rod			
VAPOR PRESSURE (mm Hg) N.AP.	VAPOR DENSITY (air = 1) N.AP.	EVAPORATION RATE N.AP.	BOILING POINT (°F/C) N.AP.	FREEZING POINT (°F/C) N.AP.
PH N.AP.	SPECIFIC GRAVITY N.AP.	SOLUBILITY Not Soluble		

SECTION 4 - FIRE AND EXPLOSION DATA

FLAMMABILITY Yes [ ] No [X]. IF YES, MEANS OF EXTINCTION Not Flammable			
FLASHPOINT (°F/C) AND METHOD N.AP.	FLAMMABLE LIMIT N.AP.	LEL N.AP.	UEL N.AP.
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

**Arcair® Gouging Electrodes, Copperclad®, Jetrod®
N.AP.: NON APPLICABLE; N.AV.: NOT AVAILABLE; N.EST.: NOT ESTABLISHED
N.F.P.A. RATING SYSTEM: 0 - INSIGNIFICANT; 1 - SLIGHT; 2 - MODERATE; 3 - HIGH; 4 - EXTREME



WM CLASSIFICATION: **CLASS "D" DIVISION 2**

DOT HAZARD CLASS: NOT REQUIRED

SECTION 5 - REACTIVITY DATA

CHEMICAL STABILITY Yes [X] No [ ] **IF NO, CONDITIONS TO AVOID** N.AP.

INCOMPATIBILITY WITH OTHER SUBSTANCES Yes [ ] No [X] **IF YES, WHICH ONES?** None known

HAZARDOUS POLYMERIZATION Will Occur [ ] Will Not Occur [X] **CONDITIONS TO AVOID** N.AP.

HAZARDOUS DECOMPOSITION PRODUCTS Carbon monoxide, carbon dioxide, traces of copper fume (ozone, nitrogen oxide from the electric arc and U.V. rays)

SECTION 6 - HEALTH HAZARD DATA

ROUTE OF ENTRY: SKIN CONTACT [ ] SKIN ABSORPTION [ ] EYE CONTACT [ ] INHALATION [X] INGESTION [ ] U.V. EXPOSURE [X]

EFFECTS OF ACUTE/CHRONIC EXPOSURE TO PRODUCT FUME: Bronchitis, lung deposits and tissue damage which may be irreversible. Exposure to ultra-violet arc rays can result in keratoconjuncitivitis, causing inflammation, blurred vision, headache - "sunburn."
TOXICITY: CARBON: Intravenous mouse; LD50: 440 Mg/Kg, COPPER(fume): Human, Oral LDLo: 120ug/Kg
REPRODUCTION: CARBON - Subcutaneous rat; TDLo: 167Mg/Kg (8D preg); COPPER - Oral , Rat; TDLo: 1520ug/Kg (22w pre) TDLo: 1210ug/Kg (35w pre)

CARCINOGENICITY Not Currently Listed

SIGNS AND SYMPTOMS OF EXPOSURE Breathing difficulty, headache, nausea, dryness or irritation or nose, throat, eyes. Burning sensation of skin or eyes. Unconsciousness.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE Respiratory problems, erythmas.

EMERGENCY AND FIRST AID PROCEDURES Remove to fresh air. If breathing impaired, assisted respiration may be required. Treat U.V. exposure similar to severe sunburn, seek medical attention!

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

LEAK AND SPILL PROCEDURE Sweep or pick up. Be alert to "hot ends."

WASTE DISPOSAL METHOD Solid landfill if local regulations allow.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store in dry area. Electrodes exposed to moisture may explode violently if used. Dry moist rods by baking at 300°F for ten hours.

OTHER PRECAUTIONS Read and understand "American National Standard Z49.1"; subpart Q of OSHA 29 CFR 1910.252; "Safety in Welding and Cutting" by the American Welding Society.

SECTION 8 - CONTROL MEASURES

RESPIRATORY PROTECTION (SPECIFY TYPE)
Air supplied or fume respirator should be used if ventilation is insufficient

GLOVES (SPECIFY) Welders	**RESPIRATOR (SPECIFY)** See above	**EYE (SPECIFY)** Face shield or welders helmet with #12 or darker lens
FOOTWEAR (SPECIFY) Suitable for metal working	**CLOTHING (SPECIFY)** Dark, substantial--aprons, etc.	**OTHER (SPECIFY)** See Z49

VENTILATION: **LOCAL EXHAUST** **SPECIAL**
All as required to reduce fumes generated by each specific application below ACGIH TLV.

MECHANICAL See local exhaust	**OTHER** Air sampling to determine corrective measure

WORK/HYGIENIC PRACTICES
Operator trained to avoid electrical shock and U.V. ray exposure.

REFERENCES:
Chemical Guide To OSHA Hazard Communication Standard" First Edition
Handbook Of Toxic And Hazardous Chemicals and Carcinogens" Second Edition
Registry Of Toxic Effects Of Chemical Substances"

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES. THIS IS NEITHER AN EXPRESSED NOR IMPLIED PRODUCT SPECIFICATION. RECOMMENDED HANDLING PROCEDURES AND HYGIENE ARE BELIEVED TO BE ACCURATE, HOWEVER, THESE RECOMMENDATIONS SHOULD BE REVIEWED IN THE SPECIFIC CONTEXT INTENDED USE AND DETERMINED APPROPRIATE BY THE USER.

UNITED MSDS #1

Material Safety Data Sheet

GRINDING WHEELS, Resinoid
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.

237 ABRASIVE

SECTION 1 -

Manufacturer's Name: United Abrasives Inc.

Address: P.O.Box 75, Route 66

Emergency Telephone No.: 203/456-7131

City, State, and ZIP: Willimantic CT 06226

Other Information Calls:

Signature of Person Responsible for Preparation (Optional):

Date Prepared: 11/20/85

SECTION 2 – HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s))	OSHA PEL	ACGIH TLV	Other Exposure Limits	% (optional)	CAS NO.
Aluminum oxide and/or silicon carbide and/or zirconium oxide, cured phenolic resin and/or calcium carbonate and/or carbon black and/or woven fiberglass, and/or iron sulfide.					

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: NAIF

Specific Gravity ($H_2O=1$): NAIF

Vapor Pressure (mm Hg): NAIF

Vapor Density (Air = 1): NAIF

Solubility in Water: NAIF

Reactivity in Water: NAIF

Appearance and Odor: Solid wheel, black color, odorless

Melting Point: NAIF

SECTION 4 – FIRE & EXPLOSION DATA

Flash Point: F. C. Method Used: NAIF

Flammable Limits in Air % by Volume: LEL Lower: UEL Upper:

Auto-Ignition Temperature:

Extinguisher Media: Water

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

SECTION 5 – PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Unstable [ ] Conditions to Avoid
Stable [X]

Incompatability (Materials to Avoid): NAIF

Hazardous Decomposition Products: NAIF

Hazardous Polymerization: May Occur [ ] Conditions to Avoid
Will Not Occur [X]

SECTION 6 – HEALTH HAZARDS

1. Acute: Coughing, shortness of breath
2. Chronic: May effect breathing capacity

Signs and Symptoms of Exposure: Treat as nuisance dust

Medical Conditions Generally Aggravated by Exposure: Treat as nuisance dust

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

ROUTES OF ENTRY

1. Inhalation: Remove to fresh air, obtain first aid & medical assistance
2. Eyes: Dust may irritate eyes, flush with large amounts of water.
3. Skin: NAIF
4. Ingestion: NAIF

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Store in accordance with ANSI B7.1

Other Precautions: None

Steps to be Taken in Case Material is Released or Spilled: Treat as inert dry solid

Waste Disposal Methods (Consult federal, state, and local regulations): Standard landfill methods in accordance with federal, state and local regulations.

SECTION 8 – SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (Specify Type): Approved dust respirators, see OSHA Standards

Ventilation: Local Exhaust: Keep dust below TLV
Mechanical (General):
Special:
Other:

Protective Gloves: Cloth or leather
Eye Protection: Wear eye goggles or face shield

Other Protective Clothing or Equipment: May be required in grinding operations

Work/Hygienic Practices: None

IMPORTANT
Do not leave any blank spaces. If required information is unavailable, unknown, or does not apply, so indicate.

UNITED MSDS #3

VITRIFIED GRINDING WHEELS

quick identifier

common name: (used on label/list)

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.

SECTION 1

Manufacturers name: United Abrasives Inc. Emergency

Address: P.O. Box 75 Tele #203/456-7131

City, St. & Zip Willimantic, Ct. 06226 Date prepared 11/85

SECTION 2 - HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Component(s) (chemical & common name(s)). Aluminum Oxide and/or Green Silicon Carbide and/or Silicate base oxide glass.

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling point: NAIF Specific Gravity: (H2O = 1) NIAF Vapor Pressure: (mm Hg) NAIF

Vapor Density: (Air=1) NIAF Solubility in Water: NAIF Reactivity in Water: NAIF

Appearance and Odor: NIAF Melting Point: NAIF

SECTION 4 - FIRE & EXPLOSION DATA

Flash Point: F. C. Method Used: NAIF Flammable Limits in Air % by Volume

LEL: UEL:

Auto-Ignition Temp.: Extinguisher Media: Water

Special Fire Fighting Procedures: None Unusual Fire and Explosion Hazards: None

SECTION 5 - PHYSICAL HAZARDS (REACTIVITY DATA)

Stability Unstable Conditions to Avoid

Stable X

Incompatibility (Materials to Avoid) NAIF Hazardous Decomposition Products: NAIF

Hazardous Polymerization: May Occur

Will Not Occur X Conditions to Avoid

SECTION 6 - HEALTH HAZARDS

1. Acute - Coughing, shortness of breath
2. Chronic - May effect breathing capacity

Signs and Symptoms of Exposure: Treat as nuisance dust.

Medical Conditions Generally Aggravated by Exposure: Treat as above

Chemical Listed as Carcinogen or Potential Carcinogen - Nat'l Toxicology Program -/ I.A.R.C. Monographs-/OSHA

Emergency and First Aid Procedures:

ROUTES OF ENTRY: 1. Inhalation - Remove to fresh air, obtain first aid and medical assistance.

2. Eyes - Dust may irritate eyes, wash with large amounts of water.
3. Skin - NAIF
4. Ingestion - NAIF

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in Handling & Storage: Store in accordance with ANSI B7.1

Other Precautions: None

Steps to be taken in Case Material is Released or Spilled: Treat as inert dry solid.

Waste Disposal Methods (Consult federal, state & local regulations): Standard landfill methods in accordance with federal, state and local regulations.

SECTION 8 - SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Respiratory Protection (specify type): Approved respirators, see OSHA Standards Ventilation: Keep dust below TLV

Protective Gloves: Cloth or leather Eye Protection: Wear goggles or face shield

Other Protective clothing/Equip.: May be required in grinding operations Work/Hygienic Practices: None

411 RICHARD SHELLEY
LAB SUPERVISOR

UNITED DESICCANTS
ISO 9002 CERTIFIED

101 Christine Drive
Rio Grande Industrial Park
Belen, NM 87002
Telephone: 505-864-6691
Fax: 505-864-9296

MATERIAL SAFETY DATA SHEET
DESI PAK
Packaged Desiccant

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection - Provide a NIOSH/MSHA jointly approved respirator in the absence of proper environmental control. Contact your safety equipment supplier for proper mask type.

Ventilation - Provide general and/or local exhaust ventilation to keep exposures below the TLV. Ventilation used must be designed to prevent spots of dust accumulation or recycling of dusts.

Protective Clothing - Wear protective clothing, including long sleeves and gloves, to prevent repeated or prolonged skin contact.

Eye Protection - Chemical splash goggles designed in compliance with OSHA regulations are recommended. Consult your safety equipment supplier.

SECTION IX STORAGE PRECAUTIONS

Store in a dry, well ventilated place, below 115 degrees F., away from a heat source. Keep in tightly closed container. Protect container from physical damage. Always reseal container and protective moisture barrier liner after use.

SECTION X

HMIS (Hazardous Materials Identification System) for this product is as follows:

Health Hazard	0
Flammability	0
Reactivity	0
Personal Protection	HMIS assigns choice of personal protective equipment to the customer, as the raw material supplier is unfamiliar with the condition of use.

The information contained herein is based upon data considered true and accurate. However, United Desiccants makes no warranties expressed or implied, as to the accuracy or adequacy of the information contained herein or the results to be obtained from the use thereof. This information is offered solely for the user's consideration, investigation and verification. Since the use and conditions of use of this information and the material described herein are not within the control of United Desiccants, United Desiccants assumes no responsibility for injury to the user or third persons. The material described herein is sold only pursuant to United Desiccants' Terms and Conditions of Sale, including those limiting warranties and remedies contained therein. It is the responsibility of the user to determine whether any use of the data and information is in accordance with applicable federal, state or local laws and regulations.

* No Information Available

Doc. 50

101 Christine Drive
Rio Grande Industrial Park
Belen, NM 87002
Telephone: 505-864-6691
Fax: 505-864-9296

Crystalline silica is listed by the International Agency for Research on Cancer (IARC) as a 2A: sufficient evidence in laboratory animals and limited evidence of carcinogenicity in humans.

CARCINOGENICITY

NTP? NO IARC? YES OSHA? NO

First Aid (Inhalation) - Remove to fresh air immediately. If breathing has stopped, give artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

First Aid (Ingestion) - If large amounts have been ingested, give emetics to cause vomiting. Stomach siphon may be applied as well. Milk and fatty acids should be avoided. Get medical attention immediately.

First Aid (Eyes) - Wash eyes immediately and carefully for 30 minutes with running water, lifting upper and lower eyelids occasionally. Get prompt medical attention.

First Aid (Skin) - To avoid repeated or prolonged contact with this chemical, use good hygienic practices. Wash with soap and a large amount of water. Get medical attention if irritation or inflammation develops.

SECTION VI REACTIVITY DATA

Reactivity - Is stable under normal temperatures and pressures in sealed containers. Hazardous polymerization will not occur.

SECTION VII SPILL OR LEAK PROCEDURES

Notify safety personnel of spills or leaks. Clean-up personnel need protection against inhalation of dusts or fumes. Eye protection is required. Vacuuming and/or wet methods of cleanup are preferred. Place in appropriate containers for disposal, keeping airborne particulates at a minimum. Clay is slippery when wet.

Disposal - Consult applicable local, state, and federal regulations to select the method of disposal. Recover metal components by reprocessing whenever possible.

UNITED DESICCANTS
ISO 9002 CERTIFIED

101 Christine Drive
Rio Grande Industrial Park
Belen, NM 87002
Telephone: 505-864-6691
Fax: 505-864-9296

MATERIAL SAFETY DATA SHEET
DESI PAK
Packaged Desiccant

SECTION III PHYSICAL DATA

Appearance and Odor: Gray granules. No odor.

Melting Point: N/A

Solubility in Water: Insoluble.

Bulk Density: 57-64 lbs./cu. ft.

Percent Volatile by Weight at 150 deg C: < 3.0 %.

SECTION IV FIRE EXPLOSION DATA

Fire and Explosion Hazard - Negligible fire and explosion hazard when exposed to heat or flame by reaction with incompatible substances.

Flash Point - Nonflammable.

Firefighting Media - Dry chemical, water spray, or foam. For larger fires, use water spray fog or foam.

Firefighting - Nonflammable solids, liquids or gases: Cool containers that are exposed to flames with water from the side until well after fire is out. For massive fire in enclosed area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of the tank due to fire.

SECTION V HEALTH HAZARD DATA

This material is normally packaged and contained in a bag. If the bag is open, the resulting dust is classified a nuisance dust, and may cause health hazards when inhaled, ingested or in contact with the eyes and skin. Prolonged inhalation may cause irritation to the upper respiratory tract and/or lung damage. If large amounts are ingested, intestinal disorders may occur. Contact with eye tissue may result in irritation. Prolonged or repeated contact with the skin in the absence of proper hygiene may cause irritation.

DESI PAK clay may contain a small amount of crystalline silica (quartz). Inhalation of crystalline silica in the respirable range in excess of the TLV may result in an increase in the risk of serious respiratory disease. Avoid breathing the dust. Use NIOSH/MSHA approved respirators when the TLV for crystalline silica may be exceeded.

UNITED DESICCANTS
ISO 9002 CERTIFIED

101 Christine Drive
Rio Grande Industrial Park
Belen, NM 87002
Telephone: 505-864-6691
Fax: 505-864-9296

MATERIAL SAFETY DATA SHEET
DESI PAK
Packaged Desiccant

SECTION I PRODUCT IDENTIFICATION

Trade Name and Synonyms: DESI PAK

Chemical Family: Clay Mineral

Chemical Names & Synonyms: Montmorillonite Clay Mineral
Smectite Clay Mineral
Bentonite
Calcium Aluminosilicate

Formula: $(Ca)x(Al_2\text{-}xMgx)Si_4O_{10}(OH)_2 \cdot nH_2O$

NFPA/HMIS: HEALTH - 0, FIRE - 0, REACTIVITY - 0, SPECIFIC HAZARD - SEE SECTION X

SECTION II HAZARDOUS INGREDIENTS

Hazardous Components in the Solid Mixture

COMPONENT	CAS No.	%	OSHA/PEL	ACGIH/TLV
Montmorillonite Clay Mineral Respirable Dust	1302-78-9	≥ 99	5.0 mg/m^3	5.0 mg/m^3
Silicon dioxide (Crystalline Quartz) Respirable Dust	14808-60-7	≤ 1	0.1 mg/m^3	0.1 mg/m^3

INGREDIENT HAZARD STATEMENT - Risk of cancer depends on duration and level of exposure. **This product contains less or equal to 1% crystalline quartz (CAS #14808-60-7). The quartz contained in the material is in granular form and packed in bags for use as a desiccant. Therefore, no exposure to quartz dust is anticipated under normal use of this product.** Avoid inhaling desiccant dust.

Prolonged or repeated exposure may cause lung injury. Unless otherwise noted, all values are reported as 8-hour Time Weighted Averages (TWA's) and total dust (particulates only). All ACGIH TLV's refer to the 1989-90 Standards. All OSHA PEL's refer to CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

UTP WELDING MATERIALS, INC.

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.

SECTION I IDENTITY

Product UTP 34 AWS or other spec

Manufacturer/Distributor Name **UTP WELDING MATERIALS, INC.**

Address **10535 S. WILCREST DRIVE SUITE 130 HOUSTON, TEXAS 77099**

Telephone Number **(713) 530-1555** **1-800-888-UTP1** 1-800-527-0791

Date Prepared **REVISED 04/88** Prepared by: M.ISENHART

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m^3)	ACGIH TLV(mg/m^3)	PERCENT
CORE WIRE:				
ALUMINUM	7429-90-5	N/R	TWA - 10	8.2%
TIN	7440-31-5	N/R	TWA - 2	<0.05%
COPPER	7440-50-8	N/R	N/R	BALANCE
ELECTRODE COATING:				
ALKALI-EARTH CARBONATE & FLUORIDE	471-34-1 N/R	N/R TWA - 2.5	10 TWA - 2.5	40 - 60 %
ALKALI FLUORIDES	N/R	TWA - 2.5	TWA - 2.5	10-15%
GRAPHITE	7782-42-5 N/R	TWA-2.5RESPIRABLE DUST		10-15 %
TITANIUM &	7440-32-6	15	TWA - 10	
ALUMINUM	7429-90-5	N/R	TWA - 10	8 - 13
ALKALI SILICATES	N/R	N/R	TWA - 5	7 - 10 %

***IMPORTANT!** This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by **SECTION VI.** The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point N/A	Specific Gravity(H_2O=1) N/A
Vapor Pressure(mmHg.) N/A	Melting Point N/A
Vapor Density (AIR-1) N/A	Evaporation Rate N/A

Solubility in Water:INSOLUBLE

Appearance and Odor:ROD ELECTRODE WITH GREY COATING, SOLID, NO ODOR.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point(Method Used) N/A Flammable Limits N/A LEL-N/A UEL-N/A

Extinguishing Media N/A

Special Fire Fighting Procedures N/A

Unusual Fire and Explosion Hazards N/A

IMPORTANT! (Non Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION V REACTIVITY DATA

Stability	Unstable N/A	Conditions to avoid N/A
	Stable N/A	
Incompatibility(Materials to avoid) N/A		
Hazardous Decomposition or Byproducts		See below and addendum(s)
Hazardous Polymerization	May occur N/A	Conditions to avoid N/A
	Will not occur N/A	

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in **SECTION II**. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in **SECTION II**, plus those from the base metal and coating, etc..., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m^3 which will result in a significant reduction from the 5 mg/m^3 general welding fume (NOC) level.

Gaseous reaction products many include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which works are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic) See Sec VI Threshold Limit Value See below

WELDING FUMES CAN DAMAGE LUNGS IF NOT EXHAUSTED. LIQUID WELDING SPATTERS CAN BURN THE SKIN. WEAR APPROPRIATE PROTECTIVE CLOTHING.

Carcinogenicity: See Addendum, Page 5, for products containing Nickel or Chromium

Signs and Symptoms of Exposure N/A

** **Gases and fumes generated while welding may be dangerous to your health.**
ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.

CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.

Medical Conditions Generally Aggravated by Exposure: LOCAL EFFECTS: WELDING FUMES IRRITATE EYES, LUNGS AND MUCOUS MEMBRANES. PROTECT SKIN FROM HOT-WELDING SPATTERS. OVEREXPOSURE: WELDING FUMES AND WELDING SPATTERS.

Emergency and First Aid Procedures: PROVIDE GOOD VENTILATION AT WORK LOCATION. TAKE PATIENT INTO OPEN-AIR ENVIRONMENT AFTER BREATHING WELDING FUMES. TREAT BURNS CAUSED BY WELDING SPATTERS WITH COMMERCIAL BURN OINTMENTS. IF NECESSARY, CONSULT A PHYSICIAN.

THRESHOLD LIMIT VALUE

The ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m^3. ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See **SECTIONS V** and **SECTION VI** for specific fume constituents which may modify this TLV.

EFFECTS OF OVER EXPOSURE:

Electric arc welding may create one or more of the following health hazards:

Fumes and gases can be dangerous to your health.

Arc Rays can injure eyes and burn skin.

Electric Shock can kill

Short term over exposure to welding fumes may result in discomfort such as: dizziness,nausea, or dryness or irritation of nose, throat, or eyes (see SECTION VI and VIII).

IMPORTANT! Please read attached Addendum for product containing Nickel, Chromium or Manganese.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:N/A

Waste Disposal Method: EITHER TOTALLY CONSUME OR DISPOSE OF IN AN ENVIRONMENT-ALLY SAFE MANNER.

Precautions to be taken in handling and storing: COOL AND DRY STORAGE

Other Precautions: WHEN WELDING,BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES

Respiratory Protection (specify type)	See below
Ventilation	Local Exhaust:REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
	Mechanical(general) SAME
Protective Gloves	See Below
Other Protective Clothing or Equipment	See below
Work/Hygienic Practices	See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

SECTION VIII CONTROL MEASURES

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

UTP WELDING MATERIALS, INC.
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.

SECTION I IDENTITY

Product UTP A 34N AWS or other spec ERCuMnNiAl
Manufacturer/Distributor Name UTP WELDING MATERIALS, INC.
Address 10401 GREENBOUGH STAFFORD, TEXAS 77477
Telephone Number (713) 499-1212 1-800-527-0791
Date Prepared REVISED 02/92

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m3)	ACGIH TLV(mg/m3)	PERCENT
ALUMINUM	7429-90-5	N/R	TWA - 10	7.0%
MANGANESE	7439-96-5	5 CEILING	TWA - 5	13.0%
IRON	7439-89-6	N/R	TWA - 5	2.5%
NICKEL	7440-02-0	1	TWA - 1	2.5%
COPPER	7440-50-8	N/R	N/R	BALANCE

*IMPORTANT! This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by SECTION VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A Specific Gravity(H20=1): N/A
Vapor Pressure(mmHg.): N/A Melting Point: N/A
Vapor Density (AIR-1): N/A Evaporation Rate: N/A
Solubility in Water: INSOLUBLE
Appearance and Odor: BARE, BRONZE-COLORED WIRE, SOLID, NO SPECIFIC ODOR

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point(Method Used): N/A Flammable Limits N/A LEL-N/A UEL-N/A
Extinguishing Media: N/A
Special Fire Fighting Procedures: N/A
Unusual Fire and Explosion Hazards: N/A
IMPORTANT! (Non Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

SECTION V REACTIVITY DATA

Stability: Unstable N/A Conditions to avoid N/A
Stable N/A
Incompatibility (Materials to avoid): N/A
Hazardous Decomposition or Byproducts: See below
Hazardous Polymerization: May occur N/A Conditions to avoid N/A
Will not occur N/A

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in SECTION II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in SECTION II, plus those from the base metal and coating, etc..., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m3 which will result in a significant reduction from the 5 mg/m3 general welding fume (NOC) level.

Gaseous reaction products many include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. One recommended way to determine the composition and quantity of fumes and gases to which works are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic) See Sec VI Threshold Limit Value See below
WELDING FUMES AND WELDING SPLATTERS. PRODUCT CONTAINS NICKEL CAN CAUSE CANCER IF INHALED.

Carcinogenicity: MANGANESE: Manganese affects the central nervous system. Inhalation of high concentrations of Manganese causes an influenza-like illness (metal fume fever). Symptoms are usually insidious and may include headache, restless sleep, change in personality, lack of coordination of voluntary muscles, irritability and pathologic laughter. Secondary symptoms include visual hallucinations, double vision, impaired hearing, uncontrollable impulses, mental confusion and euphoria.

Carcinogenicity (cont.)
NICKEL: The International Agency for Research on Cancer indicates nickel refining and "certain nickel compounds" were cancer-causing, but could not state with certainty which forms of nickel may be carcinogenic. The National Toxicology Program lists nickel powder, nickel subsulfide, nickel oxide, nickel carbonate, nickel carbonyl and nickelocene as substances "that may reasonably anticipated to be carcinogens." Because of this, the OSHA Hazard Communication Standard requires that everyone who manufactures or imports these substances or mixtures or alloys containing these substances must warn of a cancer hazard on their MSDS's and labels. This warning is mandated by OSHA even though studies have not demonstrated cancer risks associated with the use of nickel. Skin contact may cause allergic skin rash. Nickel is not very toxic if swallowed. Intramuscular injection and implantation of nickel powder produced localized tumors in rats and mice. Inhalation studies using animals showed no evidence of carcinogenicity.

Signs and Symptoms of Exposure: N/A
** Gases and fumes generated while welding may be dangerous to your health.
ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.
CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.
Medical Conditions Generally Aggravated by Exposure: LOCAL EFFECTS: FUMES CAN IRRITATE EYES, LUNG & MUCOUS MEMBRANES. FUMES CAN CAUSE LUNG DAMAGE. LIQUID WELDING SPLATTERS CAN CAUSE SKIN BURNS.
Emergency and First Aid Procedures: IN CASE OF FUME INHALATION, REMOVE TO FRESH AIR. BURNS CAN BE TREATED WITH COMMERCIAL OINTMENTS. IN AN EMERGENCY, CALL PHYSICIAN.

THRESHOLD LIMIT VALUE

The ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m3. ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See SECTIONS V and SECTION VI for specific fume constituents which may modify this TLV.
EFFECTS OF OVER EXPOSURE:
Electric arc welding may create one or more of the following health hazards:
Fumes and gases can be dangerous to your health.
Arc Rays can injure eyes and burn skin.
Electric Shock can kill

Short term over exposure to welding fumes may result in discomfort such as: dizziness,nausea, or dryness or irritation of nose, throat, or eyes (see SECTION VI and VIII).

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE
Steps to be taken in case material is released or spilled: N/A
Waste Disposal Method: EITHER USE UP TOTALLY OR DISPOSE OF IN AN ENVIRONMENTALLY SAFE MANNER.
Precautions to be taken in handling and storing: COOL AND DRY STORAGE
Other Precautions: WHEN WELDING,BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES
Respiratory Protection (specify type): See below
Ventilation: Local Exhaust: REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
Mechanical(general): SAME
Protective Gloves: See Below
Other Protective Clothing or Equipment: See below
Work/Hygienic Practices: See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

UTP WELDING MATERIALS, INC.
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.

SECTION I IDENTITY

Product UTP ECONOCAST 55 AWS or other spec ENiFe-Cl
Manufacturer/Distributor Name UTP WELDING MATERIALS, INC.
Address 10401 GREENBOUGH STAFFORD, TEXAS 77477
Telephone Number (713) 499-1212 1-800-527-0791
Date Prepared REVISED 02/92

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m3)	ACGIH TLV(mg/m3)	PERCENT
ELECTRODE COATING:				
EARTH ALKALI CARBONATE	471-34-1	N/R	10	40.0%
EARTH ALKALI FLUORIDE	N/R	TWA - 2.5	TWA - 2.5	7.0%
IRON OXIDE	1309-37-1	TWA - 10	TWA - 5 STEL - 10	14.0%
GRAPHITE	7782-42-5	N/R	TWA-2.5 RESPIRABLE DUST	14.0%
ALUMINUM	7429-90-5	N/R	TWA - 10	8.5%
IRON	7439-89-6	N/R	TWA - 5	9.5%
ALKALI SILICATE	N/R	N/R	TWA - 5	7.0%
CORE WIRE:				
IRON	7439-89-6	N/R	TWA - 5	60.0%
NICKEL	7440-02-0	1	TWA - 1	40.0%

*IMPORTANT! This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by SECTION VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A
Specific Gravity(H20=1) N/A
Vapor Pressure(mmHg.): N/A
Melting Point N/A
Vapor Density (AIR-1): N/A
Evaporation Rate N/A
Solubility in Water: N/A
Appearance and Odor: STICK ELECTRODE WITH BLACK COATING, SOLID, NO SPECIFIC ODOR

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point(Method Used): N/A Flammable Limits N/A LEL-N/A UEL-N/A
Extinguishing Media: N/A
Special Fire Fighting Procedures: N/A
Unusual Fire and Explosion Hazards: N/A
IMPORTANT! (Non Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION V REACTIVITY DATA

Stability:	Unstable	N/A	Conditions to avoid	N/A
	Stable	N/A		

Incompatibility (Materials to avoid): N/A

Hazardous Decomposition or Byproducts:

Hazardous	May occur	N/A	Conditions to avoid	N/A
Polymerization	Will not occur	N/A		

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in SECTION II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in SECTION II, plus those from the basemetal and coating, etc...., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m3 which will result in a significant reduction from the 5 mg/m3 general welding fume (NOC) level.

Gaseous reaction products many include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. One recommended way to determine the composition and quantity of fumes and gases to which works are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic): PRODUCT CONTAINS NICKEL, CAN CAUSE CANCER IF INHALED. WELDING FUMES CAN DEVELOP WHICH COULD CAUSE DAMAGE IF EXPOSURE OCCURS OVER A PROLONGED PERIOD OF TIME.

Carcinogenicity: NICKEL: The International Agency for Research on Cancer indicates nickel refining and "certain nickel compounds" were cancer-causing, but could not state with certainty which forms of nickel may be carcinogenic. The National Toxicology Program lists nickel powder, nickel subsulfide, nickel oxide, nickel carbonate, nickel carbonyl and nickelocene as substances "that may reasonably anticipated to be carcinogens." Because of this, the OSHA Hazard Communication Standard requires that everyone who manufactures or imports these substances or mixtures or alloys containing these substances must warn of a cancer hazard on their MSDS's and labels. This warning is mandated by OSHA even though studies have not demonstrated cancer risks associated with the use of nickel. Skin contact may cause allergic skin rash. Nickel is not very toxic if swallowed. Intramuscular injection and implantation of nickel powder produced localized tumors in rats and mice. Inhalation studies using animals showed no evidence of carcinogenicity.

Signs and Symptoms of Exposure: N/A
** Gases and fumes generated while welding may be dangerous to your health.
ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.
CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.
Medical Conditions Generally Aggravated by Exposure: IRRITATION OF MUCOUS MEMBRANES FROM WELDING FUMES, ELIMINATE WITH PROPER VENTILATION.
Emergency and First Aid Procedures: IN CASE OF FUME INHALATION REMOVE TO FRESH AIR. CALL PHYSICIAN.

THRESHOLD LIMIT VALUE

ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m3. ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See SECTIONS V and SECTION VI for specific fume constituents which may modify this TLV.
EFFECTS OF OVER EXPOSURE:
Electric arc welding may create one or more of the following health hazards:
Fumes and gases can be dangerous to your health.
Arc Rays can injure eyes and burn skin.
Electric Shock can kill
Short term over-exposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes (see SECTIONS VI AND VIII).

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE
Steps to be taken in case material is released or spilled N/A
Waste Disposal Method: MATERIAL SHOULD BE USED UP OR DISPOSE OF IN AN ENVIRONMENTALLY SAFE MANNER.
Precautions to be taken in handling and storing: COOL AND DRY STORAGE
Other Precautions: WHEN WELDING,BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES
Respiratory Protection (specify type): See below
Ventilation: Local Exhaust: REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
Mechanical(general): SAME
Protective Gloves: See Below
Other Protective Clothing or Equipment: See below
Work/Hygienic Practices: See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

R d and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

UTP WELDING MATERIALS, INC.
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.

SECTION I IDENTITY

Product UTP 63 AWS or other spec

Manufacturer/Distributor Name UTP WELDING MATERIALS, INC.

Address 10401 GREENBOUGH STAFFORD, TEXAS 77477

Telephone Number (713) 499-1212 1-800-527-0791

Date Prepared REVISED 02/92

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m3)	ACGIH TLV(mg/m3)	PERCENT
CORE WIRE:				
CHROMIUM	7440-47-3	1	TWA - 0.5	19.0%
NICKEL	7440-02-0	1	TWA - 1	8.0%
MANGANESE	7439-96-5	5 CEILING	TWA - 5	7.0%
IRON	7439-89-6	N/R	TWA - 5	BALANCE
ELECTRODE COATING:				
TITANIUM DIOXIDE	1317-80-2	15	TWA - 10	43.0%
EARTH ALKALI CARBONATE	471-34-1	N/R	10	17.0%
ALKALI FLUORIDE	N/R	TWA - 2.5	TWA - 2.5	
& SILICATE	N/R	N/R	TWA - 5	18.0%
CHROMIUM	7440-47-3	1	TWA - 0.5	6.0%
MANGANESE	7439-96-5	5 CEILING	TWA - 5	2.20%
ALKALI OXALATE	N/R	N/R	TWA - 5	6.8%
ALUMINUM	7429-90-5	N/R	TWA - 10	0.85%

*IMPORTANT! This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by SECTION VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A Specific Gravity(H2O=1): N/A

Vapor Pressure(mmHg.): N/A Melting Point: N/A

Vapor Density (AIR=1): N/A Evaporation Rate: N/A

Solubility in Water: N/A

Appearance and Odor: STICK ELECTRODE, GREY COATING, SOLID, NO SPECIFIC ODOR, COLOR CODE-GREEN

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point(Method Used): N/A Flammable Limits N/A LEL-N/A UEL-N/A

Extinguishing Media: N/A

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: N/A

IMPORTANT! (Non Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION V REACTIVITY DATA

Stability:	Unstable	N/A	Conditions to avoid	N/A
	Stable	N/A		
Incompatibility (Materials to avoid):		N/A		
Hazardous Decomposition or Byproducts:		See below		
Hazardous	May occur	N/A	Conditions to avoid	N/A
Polymerization	Will not occur	N/A		

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in SECTION II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in SECTION II, plus those from the base metal and coating, etc..., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m3 which will result in a significant reduction from the 5 mg/m3 general welding fume (NOC) level.

Gaseous reaction products many include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. One recommended way to determine the composition and quantity of fumes and gases to which works are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic) See Sec VI Threshold Limit Value See belo

PRODUCT CONTAINS NICKEL CAN CAUSE CANCER IF INHALED. HAZARDOUS WELDING FUMES WHICH CAN BE ELIMINATED THROUGH PROPER FUME EXTRACTION.

Carcinogenicity: CHROMIUM: The International Agency for Research on Cancer and The National Toxicology Program indicates there is sufficient evidence for carcinogenicity of chromium compounds both in humans and experimental animals. IARC notes that "the compounds responsible for the carcinogenic effect in humans cannot be specified." Studies with chromium metal and trivalent forms of chromium compounds have shown inadequate evidence for carcinogenicity in both animals and humans. Chromium metal is relatively nontoxic. Ferrochrome alloys have caused decreased pulmonary functions in humans. Signs and symptoms include possible histologic fibrosis of the lungs, which may progress to clinically evident pneumoconiosis.
NICKEL: The International Agency for Research on Cancer indicates nickel refining and "certain nickel compounds" were cancer-causing, but could not state with certainty which forms of nickel may be carcinogenic. The National Toxicology Program lists nickel powder, nickel subsulfide, nickel oxide, nickel carbonate, nickel carbonyl and nickelocene as substances "that may reasonably anticipated to be carcinogens." Because of this, the OSHA Hazard Communication Standard requires that everyone who manufactures or imports these substances or mixtures or alloys containing these substances must warn of a cancer hazard on their MSDS's and labels. This warning is mandated by OSHA even though studies have not demonstrated cancer risks associated with the use of nickel. Skin contact may cause allergic skin rash. Nickel is not very toxic if swallowed. Intramuscular injection and implantation of nickel powder produced localized tumors in rats and mice. Inhalation studies using animals showed no evidence of carcinogenicity.
MANGANESE: Manganese affects the central nervous system. Inhalation of high concentrations of Manganese causes an influenza-like illness (metal fume fever). Symptoms are usually insidious and may include headache, restless sleep, change in personality, lack of coordination of voluntary muscles, irritability and pathologic laughter. Secondary symptoms include visual hallucinations, double vision, impaired hearing, uncontrollable impulses, mental confusion and euphoria.

Signs and Symptoms of Exposure: N/A
** Gases and fumes generated while welding may be dangerous to your health.
ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.
CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.
Medical Conditions Generally Aggravated by Exposure: FUMES CAN IRRITATE EYES, LUNGS AND MUCOUS MEMBRANES.
Emergency and First Aid Procedures: IN CASE OF FUME INHALATION, REMOVE TO FRESH AIR. IN AN EMERGENCY CALL PHYSICIAN.

THRESHOLD LIMIT VALUE

The ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m3. ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See SECTIONS V and SECTION VI for specific fume constituents which may modify this TLV.
EFFECTS OF OVER EXPOSURE:
Electric arc welding may create one or more of the following health hazards:
Fumes and gases can be dangerous to your health.
Arc Rays can injure eyes and burn skin.
Electric Shock can kill

Short term over exposure to welding fumes may result in discomfort such as: dizziness,nausea, or dryness or irritation of nose, throat, or eyes (see SECTION VI and VIII).

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled: N/A
Waste Disposal Method: MATERIAL SHOULD BE USED UP OR DISPOSE OF IN AN ENVIRONMENTALLY SAFE MANNER.
Precautions to be taken in handling and storing: COOL AND DRY STORAGE
Other Precautions: WHEN WELDING,BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES

Respiratory Protection (specify type): See below
Ventilation: Local Exhaust: REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
Mechanical(general): SAME
Protective Gloves: See Below
Other Protective Clothing or Equipment: See below
Work/Hygienic Practices: See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

UTP WELDING MATERIALS, INC.
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.

SECTION I IDENTITY

Product UTP 85FN AWS or other spec ENiFe-Cl
Manufacturer/Distributor Name UTP WELDING MATERIALS, INC.
Address 10401 GREENBOUGH STAFFORD, TEXAS 77477
Telephone Number (713) 499-1212 1-800-527-0791
Date Prepared REVISED 02/92

SECTION II HAZARDOUS INGREDIENTS/COMPONENTS

Chemical Identity	CAS	OSHA PEL(mg/m3)	ACGIH TLV(mg/m3)	PERCENT
CORE WIRE:				
IRON	7439-89-6	N/R	TWA - 5	60.0%
NICKEL	7440-02-0	1	TWA - 1	40.0%
ELECTRODE COATING:				
EARTH ALKALI CARBONATE	471-34-1	N/R	10	40.0%
EARTH ALKALI FLUORIDE	N/R	TWA - 2.5	TWA - 2.5	7.0%
IRON OXIDE	1309-37-1	TWA - 10	TWA - 5 STEL - 10	14.0%
GRAPHITE	7782-42-5	N/R	TWA-2.5 RESPIRABLE DUST	14.0%
ALUMINUM	7429-90-5	N/R	TWA - 10	8.5%
IRON	7439-89-6	N/R	TWA - 5	9.5%
ALKALI SILICATE	N/R	N/R	TWA - 5	7.0%

*IMPORTANT! This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by SECTION VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 2265 and does not necessarily imply the existence of any hazard.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: N/A Specific Gravity(H2O=1): N/A
Vapor Pressure(mmHg.): N/A Melting Point: N/A
Vapor Density(AIR=1): [illegible] Evaporation Rate: N/A
Solubility in Water: [illegible]
Appearance and Odor: [illegible] ELECTRODE WITH BLACK COATING, [illegible] SOLID, NO SPECIFIC ODOR

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): N/A Flammable Limits N/A LEL-N/A UEL-N/A
Extinguishing Media: [illegible]
Special Fire Fighting Procedures: N/A
Unusual Fire and Explosion Hazards: N/A
IMPORTANT: (Non-Flammable) Welding arc and sparks can ignite combustibles. Refer to American National Standard Z49.1 for fire prevention and protection information during the use of welding and allied procedures.

WARNING: Welding with these products produces chemicals which are known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION V REACTIVITY DATA

Stability:	Unstable	N/A	Conditions to avoid	N/A
	Stable	N/A		
Incompatibility (Materials to avoid):		N/A		
Hazardous Decomposition or Byproducts:				
Hazardous	May occur	N/A	Conditions to avoid	N/A
Polymerization	Will not occur	N/A		

HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in SECTION II. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in SECTION II, plus those from the basemetal and coating, etc..., as noted above.

Reasonably expect fume constituents of this product could include: (see examples below)

Example for Carbon dioxide shielded flux-cored electrode (AWS 5.20 E70-T-1): Reasonably expected fume constituents of this product could include: primarily oxides of Iron; secondarily complex oxides of Manganese, Silicon, Titanium and Sodium.

Example for Stainless Steel covered electrodes (AWS 5.4): Reasonably expected fume constituents of this product would include: primarily fluorides and complex oxides of Iron and Silicon, secondarily complex oxides of Manganese.

The present OSHA TLV for hexavalent Chromium (Cr VI) is 0.05 mg/m3 which will result in a significant reduction from the 5 mg/m3 general welding fume (NOC) level.

Gaseous reaction products may include Carbon monoxide and Carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the welder's helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1-78, available from the American Welding Society, 2501 N.W. 7th Street, Miami, FL 33125.

SECTION VI HEALTH HAZARD DATA

Route(s) of entry: Inhalation? ** Skin? UNLIKELY Ingestion? UNLIKELY

Health Hazards (Acute and Chronic) See Sec VI Threshold Limit Value See below

WELDING FUMES MAY DEVELOP WHICH COULD BE HAZARDOUS IN CASE OF PROLONGED EXPOSURE. FUMES CAN BE ELIMINATED THROUGH EXTRACTION. PRODUCT CONTAINS NICKEL CAN CAUSE CANCER IF INHALED.

Carcinogenicity: NICKEL: The International Agency for Research on Cancer indicates nickel refining and "certain nickel compounds" were cancer-causing, but could not state with certainty which forms of nickel may be carcinogenic. The National Toxicology Program lists nickel powder, nickel subsulfide, nickel oxide, nickel carbonate, nickel carbonyl and nickelocene as substances "that may reasonably anticipated to be carcinogens." Because of this, the OSHA Hazard Communication Standard requires that everyone who manufactures or imports these substances or mixtures or alloys containing these substances must warn of a cancer hazard on their MSDS's and labels. This warning is mandated by OSHA even though studies have not demonstrated cancer risks associated with the use of nickel. Skin contact may cause allergic skin rash. Nickel is not very toxic if swallowed. Intramuscular injection and implantation of nickel powder produced localized tumors in rats and mice. Inhalation studies using animals showed no evidence of carcinogenicity.

Signs and Symptoms of Exposure: N/A

** Gases and fumes generated while welding may be dangerous to your health.

ACUTE: Short-term exposure may result in discomfort such as dryness or irritation in the nose or throat, irritation of eyes, dizziness or nausea.

CHRONIC: Long-term exposure can lead to siderosis (Iron deposits in the lungs) and may effect pulmonary functions.

Medical Conditions Generally Aggravated by Exposure: LOCAL EFFECTS: FUMES CAN IRRITATE EYES, LUNGS & MUCOUS MEMBRANES. LIQUID WELDING SPATTERS CAN CAUSE SKIN BURNS. OVEREXPOSURE: PROLONGED EXPOSURE TO FUMES CAN CAUSE LUNG DAMAGE.

Emergency and First Aid Procedures: IN CASE OF FUME INHALATION, REMOVE TO FRESH AIR. SKIN BURNS CAN BE TREATED WITH COMMERCIAL OINTMENTS. IN AN EMERGENCY MEDICAL HELP IS ADVISED.

THRESHOLD LIMIT VALUE

The ACGIH-1980 (or latest data) recommended general limit for welding fume NOC- (not otherwise classified) is 5 mg/m3. ACGIH-1979 preface states, "The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations. See SECTIONS V and SECTION VI for specific fume constituents which may modify this TLV.

EFFECTS OF OVER EXPOSURE:

Electric arc welding may create one or more of the following health hazards:

Fumes and gases can be dangerous to your health.
Arc Rays can injure eyes and burn skin.
Electric Shock can kill

Short term over-exposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes see SECTIONS VI AND VIII).

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SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled N/A

Waste Disposal Method: MATERIAL SHOULD BE USED UP OR DISPOSE OF IN AN ENVIRONMENTALLY SAFE MANNER.

Precautions to be taken in handling and storing: COOL AND DRY STORAGE

Other Precautions: WHEN WELDING,BRAZING, OR SOLDERING: WELDING ARC OR TORCH FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE PRODUCT.

SECTION VIII CONTROL MEASURES
Respiratory Protection (specify type): See below
Ventilation: Local Exhaust: REQUIRED IN SEMI-OPEN OR POORLY VENTILATED SPACES
Mechanical(general): SAME
Protective Gloves: See Below
Other Protective Clothing or Equipment: See below
Work/Hygienic Practices: See Below

SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard, 2501 N.W. 7th Street, Miami, FL 33125 and OSHA Publication 2206 (29CFR1910), U. S. Government Printing office, Washington, DC 20402 for more detail on many of the following.

VENTILATION

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

RESPIRATORY PROTECTION

Use respirable fumes respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION

Wear helmet or use face shield with filter lens shade number (10) or darker. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING

Wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and well as dark substantial clothing. Train the welder not to touch live electrical parts.

001 10/22/93 ISOPROPANOL, ANHYDROUS

PRODUCT NAME:
ISOPROPANOL, ANHYDROUS

DS #: UZC0110F

02/24/93 EFFECTIVE DATE

I. IDENTIFICATION

PRODUCT NAME: ISOPROPANOL, ANHYDROUS

CHEMICAL NAME: Isopropyl Alcohol

CHEMICAL FAMILY: Alcohols

FORMULA: (CH3)2 CHOH

MOLECULAR WEIGHT: 60.10

SYNONYMS: 2-Propanol; dimethyl carbinol

CAS # AND NAME:
67-63-0
2-Propanol

II. PHYSICAL DATA (Determined on typical material)

BOILING POINT, 760 mm Hg: 82.26 C 180.07 F

SPECIFIC GRAVITY(H2O = 1): 0.7864 AT 20/20 C

FREEZING POINT: -88.5 C -127.3 F

VAPOR PRESSURE AT 20'C: 33 mmHg

VAPOR DENSITY (air = 1): 2.07

EVAPORATION RATE:
(Butyl Acetate = 1): 2.88

SOLUBILITY IN WATER by wt: Complete
AT 20 C

APPEARANCE: Transparent colorless

ODOR: Characteristic

PHYSICAL STATE: Liquid

PERCENT VOLATILES (by weight): 100

III. INGREDIENTS

%	MATERIAL	CAS#	EXPOSURE LIMIT
~100	Isopropanol	67-63-0	See Section V

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method(s)): 53 F 12 C
63 F 17 C
Tag Open Cup ASTM D 1310

AMMABLE LIMITS IN AIR, by volume:

LOWER: 2.0
UPPER: 12.7 A 200 F

EXTINGUISHING MEDIA:
Apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

SPECIAL FIRE FIGHTING PROCEDURES:
Use water spray to cool fire-exposed containers and structures.
Use water spray to disperse vapors; re-ignition is possible.
Use self-contained breathing apparatus and protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point.
Vapors from this material may settle in low or confined areas or travel a long distance to an ignition source and flash back explosively.
This material may produce a floating fire hazard.

V. HEALTH HAZARD DATA

V AND SOURCE:
sopropanol: 400 ppm TWA, OSHA & ACGIH
500 ppm STEL, OSHA & ACGIH

EFFECTS OF SINGLE OVEREXPOSURE:

SWALLOWING:
Slightly toxic. May cause abdominal discomfort, nausea, vomiting and diarrhea.
Loss of consciousness may occur.
Drowsiness may occur.

SKIN ABSORPTION:
Exposure to small quantities is not expected to cause adverse health effects.
Widespread or prolonged exposure may result in the absorption of harmful amounts of material, particularly in infants, leading to signs and symptoms as described for swallowing.

INHALATION:
Vapor causes irritation of the respiratory tract, with coughing and chest discomfort.
High concentrations of vapor may cause headache and drowsiness.

SKIN CONTACT:
May cause minor irritation with itching and possible slight local redness.
Prolonged or repeated contact may cause defatting and drying of the skin.

-VE CONTACT:
uses irritation, experienced as stinging and discomfort or pain.
orneal injury may occur.

EFFECTS OF REPEATED OVEREXPOSURE:
No adverse effects anticipated from available information.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

Skin contact may aggravate an existing dermatitis.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:
None currently known.

OTHER EFFECTS OF OVEREXPOSURE:
None currently known.

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING:
If patient is fully conscious, give two glasses of water. Induce vomiting. Obtain medical attention.

SKIN:
Remove contaminated clothing. Wash skin with soap and water. If irritation persists or if contact has been prolonged, obtain medical attention.

INHALATION:
Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.

EYES:
Immediately flush eyes with water and continue washing for several minutes. Obtain medical attention.

NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

VI. REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID:
None known.

INCOMPATIBILITY (materials to avoid):
Strong oxidizing agents.
Halogens.
Strong inorganic acids.
Aldehydes.
Halogen compounds.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:
Burning can produce the following combustion products:
Carbon monoxide and/or carbon dioxide.
Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.

HAZARDOUS POLYMERIZATION: Will Not Occur

CONDITIONS TO AVOID:
None known.

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Extinguish and do not turn on any ignition source until the area is determined to be free from fire or explosion hazard.
Wear suitable protective equipment.
Avoid contact with eyes.

Small spills can be flushed with large amounts of water; larger spills should be collected for disposal.

WASTE DISPOSAL METHOD:
Incinerate in a furnace where permitted under Federal, State, and local regulations.
At very low concentrations in water, this product is biodegradable in a biological wastewater treatment plant.

VIII. SPECIAL PROTECTION

RESPIRATORY PROTECTION (specify type):
Use self-contained breathing apparatus in high vapor concentrations.

VENTILATION:
General (mechanical) room ventilation is expected to be satisfactory where this product is stored and handled in closed equipment.
Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

PROTECTIVE GLOVES:
Plastic
Rubber

EYE PROTECTION:
Monogoggles

OTHER PROTECTIVE EQUIPMENT:
Eye Bath, Safety Shower

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
WARNING! Flammable.
Causes eye irritation.
Keep away from heat, sparks, and flame.
Avoid contact with eyes.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.
FOR INDUSTRY USE ONLY

OTHER PRECAUTIONS:
PROCESS HAZARD: Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.
Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapors."
TRANSFER HAZARD: Vapors of this product may be ignited by static sparks. Use proper bonding and grounding during liquid transfer as described in National Fire Protection Association document NFPA 77.

X. REGULATORY INFORMATION

STATUS ON SUBSTANCE LISTS:
The concentrations shown are maximum or ceiling levels (weight %) to be used for calculations for regulations. Trade Secrets are indicated by "TS".

FEDERAL EPA

Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of antities of Hazardous Substances equal to or greater than the reportable antities (RQs) in 40 CFR 302.4.

Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 311 and 312).

Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material.

Components present in this product at a level which could require reporting under the statute are:

NONE

CA INVENTORY STATUS:

The ingredients of this product are on the TSCA inventory.

STATE RIGHT-TO-KNOW

CALIFORNIA Proposition 65
This product does not contain materials which the State of California has found to cause cancer, birth defects, or other reproductive harm.

MASSACHUSETTS 105 CMR 670.000 Right-To-Know, Substance List (MSL)
Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products.

Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS SUBSTANCES (=> 1%)

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Isopropanol	67-63-0	100

PENNSYLVANIA Right-To-Know, Hazardous Substance List
ardous Substances and Special Hazardous Substances on the List must be entified when present in products.

Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS SUBSTANCES (=> 1%)

CHEMICAL	CAS NUMBER	UPPER BOUND CONCENTRATION %
Isopropanol	67-63-0	100

CALIFORNIA SCAQMD RULE 443.1 VOC'S:
VOC 785 g/l; Vapor Pressure 33 mm Hg A 20 C

OTHER REGULATORY INFORMATION:
None
REVISED SECTIONS
Section V: HEALTH HAZARD DATA

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

** VAN WATERS & ROGERS INC. ("VW&R") 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 DAMAGES.**

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, VW&R MAKES NO REPRESENTATIONS AS TO ITS ACCURACY OR SUFFICIENCY. CONDITIONS OF USE ARE BEYOND VW&RS 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 * * *

Van Waters & Rogers Inc.
** Material Safety Data Sheet **

Date:	10/28/97	Time:	12:17:38
To:	CLAUDIA WELCH GENERAL ELECTRIC PLANT	Fax:	1520-889-3341
From:	ABEL SOTO	Phone:	
Re:	MSDS - ISOPROPANOL, ANHYDROUS		

REMARKS:

Fax Cover Sheet

Including this cover sheet, you should receive 7 pages.

For emergency assistance involving chemicals,
call CHEMTREC - (800) 424-9300

Van Waters & Rogers, subsidiary of UNIVAR
6100 Carillon Point, Kirkland, WA 98033 206-889-3400

MATERIAL SAFETY DATA SHEET

Weld-Aid Products

8903

14650 Dequindre
Detroit, Michigan 48212
(313) 883-6977

REVISED DATE: 1/86
PRODUCT NAME: Nozzle Kleen
HAZARDOUS MATERIAL DESC: None
CHEMICAL FAMILY: Halogenated Hydrocarbons

PRODUCT CODE: 007020
DUNS NO: 00-653-3327

SECTION 1 - INGREDIENTS

	CHEMICAL NAME(S)	CAS REGISTRY	%
1)	Trichloroethane	71-55-6	
2)	Polysolixanes	NA	

PHYSICAL DATA:

BOILING POINT: < 165° F
SPECIFIC GRAVITY: NA
VAPOR PRESSURE: NA
SOLUBILITY: Negligible
EVAPORATION RATE: 0.4
OTHER:
APPEARANCE AND ODOR: Clear, colorless, mildly sweet odor

PH: NA
% SOLID BY WT: NA
VAPOR DENSITY: NA
VOLATILITY BY VOL: NA
MATERIAL IS: Liquid

SECTION 2 - FIRE AND EXPLOSION DATA

FLASH POINT: None
METHOD USED: NA
EXTINGUISHING MEDIA: Water CO_2 Dry Chemical

FLAMMABLE LIMITS:
LEL:
UEL:

SPECIAL FIRE FIGHTING EQUIPMENT: Self-contained breathing apparatus
UNUSUAL FIRE AND EXPLOSION HAZARDS: May release Hydrogen Chloride or small amounts of phosgene. Product is in pressurized cans and may explode with heat.

SECTION 3 - REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY: Strong alkalies, oxidizers, reactive metals
HAZARDOUS DECOMPOSITION PRODUCTS: Use as directed - no decomposition. Accumulation of solvent may thermally decompose.
HAZARDOUS POLYMERIZATION: Will not occur

SECTION 4 - SPILL, LEAK AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): For spills which would produce exposure levels above TLV 350 ppm (8 hour average) - Evacuate the area, ventilate and avoid breathing vapors. Clean up with absorbent material and place in containers for disposal.
DISPOSAL METHODS: Recovered liquids may be sent to a licensed reclaimer or incineration facility. Consult federal, state or local disposal authorities for approved procedures.

SECTION 5 - EFFECTS OF OVEREXPOSURE

INGESTION: Single dose toxicity is low to moderate. If vomiting occurs, 1,1,1 trichloroethane can be aspirated into the lungs, which can cause chemcial pneumonia and systematic effects.
EYE CONTACT: Liquid can cause slight temporary irritation with slight temporary corneal injury. Vapors can irritate eyes.
SKIN ABSORPTION: Prolonged or repeated skin contact can cause irritation, defatting of skin, and dermatitis. Absorption of liquid through intact skin possible, resulting in systematic effects, but unlikely route of significant exposure.
INHALATION: Major throat irritation at levels above 1,000 ppm. Unconsciousness and death possible at levels above 10,000 ppm. Blood pressure depression, cardiac sensitization, and ventricular arrhythmia can result from the exposure to near-anesthetic levels.
THRESHOLD LIMIT VALUE: 350 ppm.

SECTION 6 - FIRST AID PROCEDURES

EYES: Flush eyes immediately with water for at least 15 minutes. If irritation persists, call a physician.
SKIN: Remove contaminated clothing and shoes. Wash with soap and water. Wash contaminated clothing before reuse.
INHALATION: Remove to fresh air. If breathing has stopped, administer artificial respiration. Call a physician.
INGESTION: Do not induce vomiting. Contact physician or emergency medical facility immediately.
NOTE TO PHYSICIAN: EYES: Same as above SKIN: Same as above LUNGS: Same as above ORAL: Same as above GENERAL: Adrenaline should never be given to persons overexposed to 1,1,1 trichloroethane.

P.011/014
TO TUCSON
FROM 057 HQ TECHNOLOGY
SEP-29-1993 15:51

WD-40®

MATERIAL SAFETY DATA SHEET

NFPA

PRODUCT IDENTIFICATION

Manufacturer: WD-40 Company

Address: 1061 Cudahy Place (92110)
P.O. Box 80607
San Diego, California
92138-9021

Telephone:
Emergency Only: 1 (800) 424-9300 (CHEMTREC)
Information: (619) 275-1400
Chemical Name: Organic Mixture
Trade Name: WD-40 Aerosol

HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	%	Exposure Limit ACGIH/OSHA
ohatic Petroleum Distillates	8052-41-3	50	100 ppm PEL
'0 Hydrocarbon Propellant	68476-85-7	25	1000 ppm PEL
troleum Base Oil	64742-65-0	> 15	5 mg/M³ TWA (mist)
n-hazardous Ingredients		< 10	

PHYSICAL DATA

ling Point:	NA	Evaporation Rate:	Not determined
or Density (air = 1):	Greater than 1	Vapor Pressure:	55±5 PSI @ 70°F
ubility in Water:	Insoluble	Appearance:	Light amber
cific Gravity (H_2O = 1):	.790 @ 70°F	Odor:	Characteristic odor
cent Volatile (volume)	60%		

FIRE AND EXPLOSION

sh Point:	NA to aerosol cans
mmable Limits:	(propellant portion) [Lel] 1.8% [Uel] 9.5%
nguishing Media:	CO_2, Dry Chemical, Foam
cial Fire Fighting Procedures:	None
sual Fire and Explosion Hazards:	EXTREMELY FLAMMABLE—U.F.C. level 3 aerosol

HEALTH HAZARD / ROUTE(S) OF ENTRY

shold Limit Value
phatic Petroleum Distillates (Stoddard solvent) lowest TLV (ACGIH (00 ppm.)

ptoms of Overexposure
alation (Breathing): May cause anesthesia, headache, dizziness, nausea and upper respiratory irritation
in Contact: May cause drying of skin and or irritation.
e Contact: May cause irritation, tearing and redness.
estion (Swallowed): May cause irritation, nausea, vomiting and diarrhea.

Aid Emergency Procedures
estion (Swallowed): Do not induce vomiting, seek medical attention.
e Contact: Immediately flush eyes with large amounts of water for 15 minutes.
n Contact: Wash with soap and water.
alation (Breathing): Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

GER
iration Hazard: If swallowed can enter lungs and may cause chemical pneumonitis. Do not induce vomiting. Call Physician immediately

ected Cancer Agent
____ No X The components in this mixture have been found to be noncarcinogenic by NTP, IARC and OSHA.

VI. REACTIVITY DATA

Stability.	Stable X	Unstable ____
Conditions to avoid:	NA	
Incompatability.	Strong oxidizing materials	
Hazardous decomposition products:	Thermal decomposition may yield carbon monoxide and/or carbon dioxide	
Hazardous polymerization:	May occur ____	Will not occur X

VII. SPILL OR LEAK PROCEDURES

Spill Response Procedures
Spill unlikely from aerosol cans. Leaking cans should be placed in plastic bag or open pail until pressure has dissipated.

Waste Disposal Method
Empty aerosol cans should not be punctured or incinerated; bury in land fill. Liquid should be incinerated or buried in land fill. Dispose of in accordance with local, state and federal regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation:	Sufficient to keep solvent vapor less than TLV.
Respiratory Protection:	Advised when concentrations exceed TLV.
Protective Gloves:	Advised to prevent possible skin irritation.
Eye Protection:	Approved eye protection to safeguard against potential eye contact, irritation or injury.
Other Protective Equipment:	None required.

IX. SPECIAL PRECAUTIONS

Keep from sources of ignition. Avoid excessive inhalation of spray particles. do not take internally. Do not puncture, incinerate or store container above 120°F. Exposure to heat may cause bursting. Keep from children.

X. TRANSPORTATION DATA

Domestic Surface

Description:	Consumer Commodity
Hazard Class:	ORM-D
ID No.:	NONE
Label Required:	Consumer Commodity (ORM-D)

Domestic Air

Description:	Consumer Commodity (Flammable Gas-Aerosol products)
Hazard Class:	ORM-D
ID No:	NONE
Label Required:	Consumer Commodity (ORM-D-AIR)

XI. REGULATORY INFORMATION

All ingredients for this product are listed on the TSCA inventory

SARA Title III chemicals:	None
California Prop 65 chemicals:	None
CERCLA reportable quantity:	None
RCRA hazardous waste no:	NA

SIGNATURE: R. Miles TITLE: Technical Director

REVISION DATE: August 1992 SUPERSEDES: March 1990

NA = Not applicable NDA = No data available < = Less than > = More than

We believe the statements, technical information and recommendations contained herein are reliable. However, the data is provided without warranty, expressed or implied. It is the users responsibility both to determine safe conditions for use of this product and assume loss, damage or expense, direct or consequential, arising from its use. Before using product, read label.

MSDS-A

P.012/014
TO TUCSON
FROM HQ TECHNOLOGY 857
SEP-29-1993 15:52

WD-40®

MATERIAL SAFETY DATA SHEET

NFPA: Fire 2, Reactivity 0, Health 2, Special

I. PRODUCT IDENTIFICATION

Manufacturer:	WD-40 Company	Telephone:	
		Emergency Only:	1 (800) 424-9300 (CHEMTREC)
Address:	1061 Cudahy Place (92110) P.O. Box 80607 San Diego, California 92138-9021	Information:	(619) 275-1400
		Chemical Name:	Organic Mixture
		Trade Name:	WD-40 Bulk Liquid

II. HAZARDOUS INGREDIENTS

Chemical Name	CAS Number	%	Exposure Limit ACGIH/OSHA
Aliphatic Petroleum Distillates	8052-41-3	70	100 ppm PEL
Petroleum Base Oil	64742-65-0	> 20	5 mg/M³ TWA (mist)
Non-hazardous Ingredients		< 10	

III. PHYSICAL DATA

Boiling Point:	300°F (minimum)	Evaporation Rate:	Not determined
Vapor Density (air = 1):	Greater than 1	Vapor Pressure:	Not determined
Solubility in Water:	Insoluble	Appearance:	Cloudy light amber
Specific Gravity (H_2O = 1):	.800 @ 70°F	Odor:	Characteristic odor
Percent Volatile (volume):	74%	VOC:	586 grams per liter

IV. FIRE AND EXPLOSION

Flash Point:	Tag Open Cup 110°F (minimum)
Flammable Limits:	(solvent portion) [Lel] 1.0% [Uel] 6.0%
Extinguishing Media:	CO_2, Dry Chemical, Foam
Special Fire Fighting Procedures:	None
Unusual Fire and Explosion Hazards:	None

V. HEALTH HAZARD / ROUTE(S) OF ENTRY

Threshold Limit Value

Aliphatic Petroleum Distillates (Stoddard solvent) lowest TLV (ACGIH 100 ppm.)

Symptoms of Overexposure

Inhalation (Breathing): May cause anesthesia, headache, dizziness, nausea and upper respiratory irritation.
Skin Contact: May cause drying of skin and or irritation.
Eye Contact: May cause irritation, tearing and redness.
Ingestion (Swallowed): May cause irritation, nausea, vomiting and diarrhea.

First Aid Emergency Procedures

Ingestion (Swallowed): Do not induce vomiting, seek medical attention.
Eye Contact: Immediately flush eyes with large amounts of water for 15 minutes.
Skin Contact: Wash with soap and water.
Inhalation (Breathing): Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

DANGER!

Aspiration Hazard: If swallowed can enter lungs and may cause chemical pneumonitis. Do not induce vomiting. Call Physician immediately

Suspected Cancer Agent

Yes_____ No__X__ The components in this mixture have been found to be noncarcinogenic by NTP, IARC and OSHA.

VI. REACTIVITY DATA

Stability:	Stable__X__	Unstable
Conditions to avoid:	NA	
Incompatability:	Strong oxidizing materials	
Hazardous decomposition products:	Thermal decomposition may yield carbon monoxide and/or carbon dioxide.	
Hazardous polymerization:	May occur_____	Will not occur__X__

VII. SPILL OR LEAK PROCEDURES

Spill Response Procedures

Absorb small quantities with sand, earth, sawdust. Large quantities pump into tank.

Waste Disposal Method

Incinerate liquid, bury saturated absorbent in land fill. Dispose of in accordance with local, state and federal regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation:	Sufficient to keep solvent vapor less than TLV.
Respiratory Protection:	Advised when concentrations exceed TLV.
Protective Gloves:	Advised to prevent possible skin irritation.
Eye Protection:	Approved eye protection to safeguard against potential eye contact, irritation or injury.
Other Protective Equipment:	None required.

IX. SPECIAL PRECAUTIONS

Keep from open flame, do not take internally. Avoid excessive inhalation of spray particles. Keep from children

X. TRANSPORTATION DATA

Domestic Surface

Description:	Petroleum Distillate Mixture
Hazard Class:	Combustible Liquid
ID No.:	UN 1268
Label Required:	NONE, for containers less than 100 Gallons

Domestic Air

Description:	Petroleum Distillate Mixture
Hazard Class:	Combustible Liquid
Label Required:	NONE, for containers less than 110 Gallons

XI. REGULATORY INFORMATION

All ingredients for this product are listed on the TSCA Inventory.

SARA Title III chemicals:	None
California Prop 65 chemicals:	None
CERCLA reportable quantity:	None
RCRA hazardous waste no:	NA

SIGNATURE: R. Miles TITLE: Technical Director

REVISION DATE: August 1992 SUPERSEDES: March 1990

NA = Not applicable NDA = No data available < = Less than > = More than

We believe the statements, technical information and recommendations contained herein are reliable. However, the data is provided without warranty expressed or implied. It is the users responsibility both to determine safe conditions for use of this product and assume risk. Damage or injury, direct or consequential, arising from its use. Before using product, read label

MSDS

WD-40® Technical Data.

Physical Characteristics

APPEARANCE	Clear or slightly cloudy
COLOR	Light amber
ODOR	Very slight characteristic pleasant odor
SPECIFIC GRAVITY	.800 ± .020 at 72° F.
VISCOSITY	27.5 ± 1.0 sec. Zahn # 1 at 72° F.
FLASH POINT (MINIMUM)	110°F. TOC
PERCENT NON-VOLATILE (MINIMUM)	22% by weight
PERCENT VOLATILE (MAXIMUM)	78% by weight aliphatic petroleum distillate
POUR POINT	Less than -100° F
LOW TEMPERATURE STABILITY	Excellent
COVERAGE	600 to 1000 sq. ft. per gal.
BOILING POINT (INITIAL)	300°F (minimum)
WEIGHT, applied coating	3.4×10^{-4} lbs./sq. ft.
THICKNESS	.0001 to .0003 inch
OPERATING TEMPERATURE	-60°F to 300°F

Properties

CORROSION PROTECTION:
(on freshly sanded mild steel panels)

EXPOSURE	RESULTS
Humidity (JAN-H-792)	No rust after 1000 hours
Salt Spray (FED STD 151)	No rust after 50 hours
Salt Spray (FED STD 151)	Rust beginning after 100 hours

Under actual conditions the duration of protection obtained using WD-40 will vary with the type of material being protected and the conditions of exposure. Generally, on mild steel the protection under various conditions will be approximately as follows:

1. Covered or indoor storage 1 year or longer
2. Protected exterior storage 6 months to 1 year
3. Normal exterior exposure 30 to 60 days
4. Severe exterior exposure 15 to 30 days (on or very near the beach, subject to high humidity, salt spray and salt fog)

If longer protection is desired, WD-40 should be lightly reapplied when necessary.

LUBRICATION: Dynamic coefficient of friction

BEARING PRESSURE	COEFFICIENT	TEST
100 psi	0.112	Heat treated 4340 steel with normal blue oxide film against itself lubricated with WD-40
1000 psi	0.114	
2000 psi	0.129	
3000 psi	0.136	
4000 psi	0.145	

ELECTRICAL: Dielectric strength ASTM D-877 12,000 V. per 0.100 in.

Contact resistance ASTM B-182 modified

	BARE CONTACTS	WD-40 TREATED CONTACTS	CONTACT RESISTANCE OF FILM
before cycling	0.0066	0.0083 ohm	0.0017 ohm
after 5 cycles	0.0067	0.0065 ohm	0.0018 ohm
after 100 cycles	0.0069	0.0086 ohm	0.0017 ohm
after 1000 cycles	0.0074	0.0085 ohm	0.0011 ohm
after 20,000 cycles	0.0083	0.0098 ohm	0.0016 ohm

Effect on Materials

GENERAL: Nearly all materials react to WD-40 as they would to high grade aliphatic petroleum spirits with the same exposure, i.e., spray, quick dip or prolonged immersion. *WD-40 contains no silicone, teflon or chlorofluorocarbons.*

RUBBER: No visible effects on surfaces of various types of rubber sprayed with WD-40. Certain types of rubber will swell upon prolonged immersion in WD-40.

HIGH STRENGTH STEELS (for hydrogen embrittlement): Certified SAFE according to the Lawrence Hydrogen Effusion Test.

FABRICS: The following fabrics were exposed to WD-40 with no effect, except slight staining which was readily removed with naphtha or dry cleaning solvent: Nylon, Orlon, Wool, Dacron, Cotton.

PAINTED SURFACES: Many types of paint on various surfaces have been exposed to WD-40 with no effect. Wax polishes and certain wax coatings may be softened by WD-40.

PLASTICS: The following plastics were immersed in WD-40 for 168 hours with no visible effects:

Polyethylene	Formica	Epoxy	Delrin
Polypropylene	Acrylic	Vinyl	
Teflon	Polyester	Nylon	

Clear polycarbonate and polystyrene may stress craze or crack in contact with WD-40.

WD-40 and the Environment

WD-40 is a positive contributor to the preservation of the environment. Here are a few facts about WD-40 and the environment:

- WD-40 does not contain Chlorofluorocarbons (CFC's), HCFC's, Halon's or 1,1,1, Trichlorethane (Methyl Chloroform); chemicals that are alleged to contribute to the depletion of the stratospheric ozone layer.
- WD-40 contains no known cancer causing chemicals.
- Aerosol containers are sealed so their contents can't leak, spill or become contaminated.
- WD-40 cans contain recycled steel and when empty can be recycled again.
- WD-40 cans are shipped to our customers in recycled corrugated cartons.
- WD-40 Company uses recycled paper whenever possible in our advertising materials.
- In June, 1991, WD-40 replaced "styrofoam peanuts" foam used for packaging with eco-foam made of 95% cornstarch.
- By extending the usage of equipment and postponing its disposal, we save natural resources and energy while reducing the generation of solid waste.

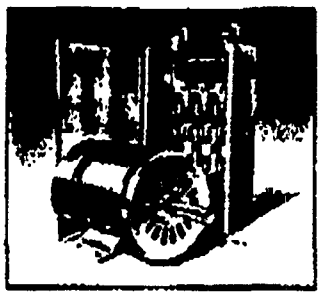
USDA APPROVED (H-2 Classification)

DANGER: COMBUSTIBLE. HARMFUL OR FATAL IF SWALLOWED. Contains petroleum distillates. If swallowed, do not induce vomiting. Call physician immediately. Use in ventilated area. Keep from children.

WD-40 COMPANY, 1061 Cudahy Place, San Diego, California 92110
(619) 275-1400 FAX (619) 275-5823

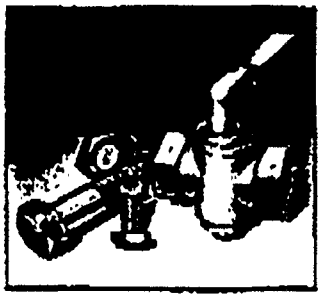
SEP-29-1993 15:53 FROM 057 HQ TECHNOLOGY TO TUCSON P.013/014

WD-40's Five Basic Functions.



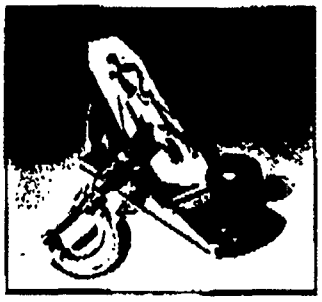
Displaces Moisture.

WD-40® is formulated for ultra-high surface attraction to metal. It completely covers surfaces, including microscopic irregularities, even in the presence of moisture. In fact, WD-40 goes under surface moisture and establishes a protective barrier between the moisture and the parent metal. WD-40 is a non-conductor of electricity and quickly eliminates moisture-induced short circuits.



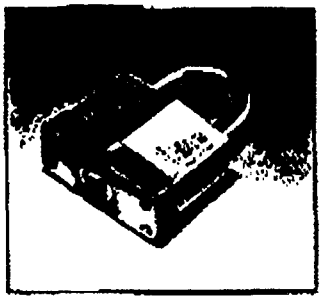
Penetrates.

WD-40's ultra-high surface attraction results in a super penetrating action that loosens rust-to-metal bonds and frees stuck, frozen, or rusted metal parts. The lubricating properties of WD-40 then keep these parts working freely.



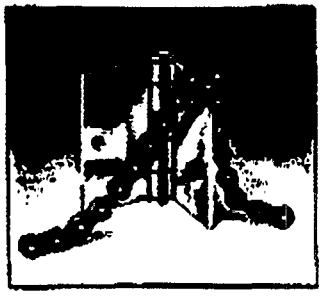
Protects.

WD-40 deposits corrosion-resistant ingredients over the entire surface area, including microscopic irregularities. This protective barrier shields against moisture and other corrosive elements. WD-40's moisture-displacement capability also precludes the possibility of a small moisture pocket causing future problems.



Cleans.

WD-40's ultra-high surface attraction enables it to get under dirt, grime, caked grease, and oil to clean the surface at the same time it forms a corrosion-resistant barrier. It also dissolves most adhesives, allowing for the easy removal of labels and excess bonding materials.



Lubricates.

WD-40's ultra-high surface attraction assures the lubricating ingredients in WD-40 will be widely dispersed and tenaciously held to all moving parts. WD-40 contains no silicone or other additives that attract dust and dirt causing a buildup of gummy, greasy residues.

SEP-29-1993 15:54 FROM 057 HQ TECHNOLOGY TO TUCSON P.014/014

MATERIAL SAFETY DATA SHEET: ARC-CUT ELECTRODE PAGE : 1

(M -332533-EG208161-163-MW)	DATE OF ISSUE 07/09/97	SUPERSEDES 04/11/91

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS	TRADE NAME & SYNONYMS
PREMIUM CARBON ARC ELECTRODE	ARC-CUT ELECTRODE

CHEMICAL FAMILY :	FORMULA
METAL WORKING ELECTRODE	X <--MIXTURE

MANUFACTURE'S NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 152170
IRVING, TEXAS 75015

PREPARED BY:	PRODUCT CODE NUMBER	EMERGENCY TELEPHONE NUMBER
B ABBOTT/CHEMIST	163-MW	972-438-1381

SECTION II - HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS

CHEMICAL NAME (INGREDIENTS) :			
COPPER (FUME) HAZARD----->IRRITANT STEL(TWA)*->NA	TLV--->1 MG/M3 1. CAS#-->7440-50-8	PEL--->1 MG/M3 2.	
GRAPHITE (CARBON) HAZARD----->IRRITANT STEL(TWA)*->	TLV--->2.5 MG/M3* CAS#-->7782-42-5	PEL--->2.5 MG/M3	
* RESPIRABLE DUST HAZARD----->IRRITANT STEL(TWA)*->	TLV--->2.5 MG/M3* CAS#-->	PEL--->	

SECTION III - PHYSICAL DATA

BOILING PT. (F)	N/A	SPEC. GRAVITY (H2O=1)	7.2

MATERIAL SAFETY DATA SHEET: ARC-CUT ELECTRODE PAGE : 2

(CONTINUED) - SECTION III - PHYSICAL DATA

VAPOR PR. (MM HG)	N/A	COLOR	COPPER
VAPOR DENSITY	N/A	ODOR	NONE
PH. @ 100%	N/A	CLARITY	OPAQUE
% VOLATILE BY VOL	0%	EVAPORATION RATE (BU A/C = 1)	N/A
H2O SOLUBILITY	NEGLIGIBLE		
VISCOSITY	SOLID		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT: N/A	FLAMMABLE LIMITS	LEL N/A	UEL N/A

EXTINGUISHING MEDIA "ALCOHOL" <--FOAM <--FOAM <--CO2 DRY <--CHEMICAL WATER <--SPRAY <--OTHER

SPECIAL FIRE FIGHTING PROCEDURES
SEE AMERICAN NATIONAL STANDARD Z49.1, SAFETY IN WELDING AND CUTTING, PUBLISHED BY THE AMERICAN WELDING SOCIETY AND OSHA PUBLICATION 2206(29C.F.R. 1926-1910)

UNUSUAL FIRE AND EXPLOSION HAZARDS
NON-FLAMMABLE: WELDING ARC AND SPARK CAN IGNITE COMBUSTIBLES.

NFPA HAZARD RATING (0=INSIGNIFICANT;1=SLIGHT;2=MODERATE;3=HIGH;4=EXTREME):
2 <--HEALTH 0 <--FLAMMABILITY 0 <--REACTIVITY <--SPECIAL

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:
GENERALLY ESTABLISHED FOR WELDING FUME AT 5 MG/M3. MAY BE LOWER FOR SOME CONSTITUENTS.

(CONTINUED) - SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE :

- ACUTE - (SHORT TERM EXPOSURE)

FUMES AND GASES CAN BE DANGEROUS TO YOUR HEALTH. SHORT TERM OVEREXPOSURE TO WELDING FUMES MAY RESULT IN DISCOMFORT, SUCH AS DIZZINESS, NAUSEA, OR DRYNESS OR IRRITATION TO NOSE, THROAT OR EYES.

INHALATION OF COPPER METAL DUST OR FUME MAY CAUSE "METAL FUME FEVER" WITH ITS FLU-LIKE SYMPTOMS.

EYE EXPOSURE MAY CAUSE IRRITATION, REDNESS, TEARING, OR BLURRED VISION.

ARC RAYS MAY INJURE EYES OR SKIN. ELECTRIC SHOCK CAN KILL.

- CHRONIC - (LONG TERM EXPOSURE)

LONG TERM OVEREXPOSURE MAY LEAD TO SIDEROSIS (IRON DEPOSITS IN LUNG) AND IS BELIEVED BY SOME INVESTIGATORS TO AFFECT PULMONARY FUNCTION.

EXCESSIVE EXPOSURE TO COPPER FUME MAY CAUSE WILSON'S DISEASE IN SOME INDIVIDUALS WITH A RARE INHERITED METABOLIC DISORDER CHARACTERIZED BY RETENTION OF COPPER IN THE LIVER, BRAIN, KIDNEY AND CORNEAS. WILSON'S DISEASE, IF UNTREATED CAN RESULT IN LIVER FAILURE.

PRIMARY ROUTE OF ENTRY: <-- INHALATION <-- INGESTION X<-- ABSORPTION

EMERGENCY & FIRST AID PROCEDURES

INHALATION :

REMOVE FROM EXPOSURE AREA AND CALL FOR MEDICAL AID. ADMINISTER RESPIRATION. IF NO DETECTABLE PULSE, BEGIN EXTERNAL HEART MASSAGE. EMPLOY FIRST AID TECHNIQUES RECOMMENDED BY THE AMERICAN RED CROSS. IN CASE OF ELECTRICAL SHOCK, TURN OFF POWER PRIOR TO REMOVAL FROM EXPOSURE AREA AND ADMINISTER FIRST AID

EYE CONTACT:

FLUSH EYES WITH WATER FOR 15 MINUTES. SEE A PHYSICIAN IF IRRITATION DEVELOPS.

SKIN CONTACT:

REMOVE CONTAMINATED CLOTHING. WASH SKIN WITH SOAP AND WATER.

INGESTION :

DO NOT INDUCE VOMITING. SEE A PHYSICIAN.

NOTES TO PHYSICIAN :

N/A

SECTION VI - TOXICITY INFORMATION

PRODUCT CONTAINS CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN BY:

IARC	NTP	OSHA	ACGIH	OTHER
<--YES	<--YES	<--YES	<--YES	<--YES
X<--NO	X<--NO	X<--NO	X<--NO	X<--NO

WELDING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY. THE COMPOSITION AND QUANTITY ARE DEPENDENT UPON THE METAL BEING WELDED, THE PROCESS, THE PROCEDURES, AND THE ELECTRODE BEING USED. OTHER CONDITIONS WHICH INFLUENCE THE AMOUNT AND TYPE OF FUME TO WHICH WORKERS MAY BE EXPOSED INCLUDE COATINGS ON THE METAL BEING WELDED, THE NUMBER OF WELDERS AND THE VOLUME OF THE WORK AREA, THE QUALITY AND AMOUNT OF VENTILATION, THE POSITION OF THE OPERATOR'S HEAD IN RELATION TO THE FUME PLUME, AS WELL AS THE PRESENCE OF CONTAMINANTS IN THE ATMOSPHERE.

WHEN THE FILLER METAL IS CONSUMED, THE FUME AND GAS DECOMPOSITION PRODUCTS GENERATED ARE DIFFERENT FROM THE PRODUCT INGREDIENTS LISTED IN SECTION II. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM THE VOLATILIZATION, REACTION OR OXIDATION OF THE PRODUCT, PLUS THOSE FROM THE METAL BEING WELDED, THE COATINGS, ETC, AS LISTED ABOVE.

SECTION VII - REACTIVITY DATA

STABILITY	X <--STABLE <--UNSTABLE	CONDITIONS TO AVOID

REFER TO REFERENCES FOR FURTHER INFORMATION SECTION XII.

INCOMPATABILITY (MATERIALS TO AVOID) :

N/A

HAZARDOUS DECOMPOSITION PRODUCTS

REFER TO REFERENCES FOR FURTHER INFORMATION SECTION XII.

HAZARDOUS POLYMERIZATION	WILL NOT <--OCCUR	MAY <--OCCUR	CONDITIONS TO AVOID
	N/A		

SECTION VIII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
PICK UP MATERIAL AND CLEAN UP RESIDUE WITH SOAP AND WATER.

WASTE DISPOSAL METHOD(S):
PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT RESIDUE, DISPOSABLE CONTAINER, OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

NEUTRALIZING AGENT :
N/A

SECTION IX - SPECIAL PROTECTION INFORMATION

REQUIRED VENTILATION :

USE ENOUGH VENTILATION, LOCAL EXHAUST AT THE ARC, OR BOTH TO KEEP THE FUMES AND GASES BELOW THE TLV'S IN THE WORKER'S BREATHING ZONE AND THE GENERAL AREA. TRAIN THE WELDOR TO KEEP HIS HEAD OUT OF THE FUMES.

RESPIRATORY PROTECTION :
WELDING FUME RESPIRATOR OR AIRLINE RESPIRATOR FOR CONFINED SPACE WHERE FUME EXPOSURES ARE ABOVE TLV.

GLOVE PROTECTION :
LEATHER WELDER'S GLOVES

EYE PROTECTION :
SHADED LENS - #10 OR DARKER

OTHER PROTECTION :
WELDER'S HELMET AND NON-FLAMMABLE CLOTHING TO PROTECT ALL SKIN AREAS FROM ARC RAYS

SECTION X - STORAGE AND HANDLING INFORMATION

STORAGE TEMPERATURE INDOOR HEATED REFRIGERATED OUTDOOR
MAX: 100 F. MIN: 35 F.

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING
NONE

OTHER PRECAUTIONS
IN USE, WELDING ARC AND SPARK MAY IGNITE COMBUSTIBLES.

SECTION XI - REGULATORY INFORMATION

CHEMICAL NAME	C.A.S NUMBER	UPPER % LIMIT
COPPER	7440-50-8	10

THOSE INGREDIENTS LISTED ABOVE ARE SUBJECT TO THE REPORTING REQUIRMENTS OF 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.
IF UE (USE EXEMPTION) APPEARS UNDER UPPER % LIMIT, END USERS ARE EXEMPT FROM NOTIFICATION BECAUSE THE PRODUCT IS USED AND LABELED FOR ROUTINE JANITORIAL WORK, OR THE PRODUCT IS USED AND LABELED FOR FACILITY GROUNDS MAINTENANCE (SUCH AS FERTILIZERS AND HERBICIDES), OR THE PRODUCT IS USED AND LABELED FOR MAINTAINING MOTOR VEHICLES.

CALIFORNIA PROPOSITION 65

WARNING: THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE (1)CANCER OR (2)BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM:
NONE

SECTION XII - TRANSPORTATION * (FOR FUTURE USE)

LABELS ¦ LIMITED QTY

(CONTINUED) - SECTION XII - TRANSPORTATION * (FOR FUTURE USE)

UNIT CONTAINER	
DOT SPS CONTAINER	NET EXPLOSIVE WT.
AEROSOL PROPELLANT(S)	

SECTION XIII - REFERENCES

1. THRESHOLD LIMIT VALUES AND BIOLOGICAL EXPOSURE INDICES FOR 1989-1990 - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS.
2. AIR CONTAMINANTS - PERMISSIBLE LIMITS, CFR 29 (1910.1000) - U.S.DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

* SHORT TERM EXPOSURE LIMIT (TWA) LISTED AS FINAL RULE LIMITS PUBLISHED IN THE FEDERAL REGISTER/VOL. 54 NO. 12, 1-19-89

THE INFORMATION CONTAINED HERIN IS BASED ON DATA CONSIDERED ACCURATE IN LIGHT OF CURRENT FORMULATION. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

X-ERGON, A PARTSMASTER CO., DIV OF NCH ASSUMES NO RESPONSIBILTY FOR PERSONAL INJURY OR PROPERTY DAMAGE CAUSED BY THE USE, STORAGE OR DISPOSAL OF THE PRODUCT IN A MANNER NOT RECOMMENDED ON THE PRODUCT LABEL. USERS ASSUME ALL RISKS ASSOCIATED WITH SUCH UNRECOMMENDED USE, STORAGE, OR DISPOSAL OF THE PRODUCT.

O.S.H.A MSDS ENCLOSED
RETENTION REQUIRED BY LAW

GE APPARATUS
1401 E VALENCIA
WELD SHOP

TUCSON
AZ 85706

85706-6017 04

IMPORTANT DOCUMENT ENCLOSED
O.S.H.A. INFORMATION

BILL OF LADING NUMBER: M
ORDER NUMBER : 332533

MATERIAL SAFETY DATA SHEET: CAST WELD HPM ELECTRODE PAGE : 1

(M -330541-EG208161-130-CW)	DATE OF ISSUE 06/24/97	SUPERSEDES 04/11/91

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS	TRADE NAME & SYNONYMS
MACHINABLE CAST IRON	CAST WELD HPM ELECTRODE

CHEMICAL FAMILY :	FORMULA
WELDING ELECTRODE	X <--MIXTURE

MANUFACTURE'S NAME:
X-ERGON, A PARTSMASTER CO., DIV OF NCH

ADDRESS (NUMBER, STREET, CITY, STATE & ZIP CODE)
BOX 152170
IRVING, TEXAS 75015

PREPARED BY:	PRODUCT CODE NUMBER	EMERGENCY TELEPHONE NUMBER
B ABBOTT/CHEMIST	130-CW	972-438-1381

SECTION II - HAZARDOUS INGREDIENTS

THE HAZARDS PRESENTED BELOW ARE THOSE OF THE INDIVIDUAL COMPONENTS

CHEMICAL NAME (INGREDIENTS) :			
NICKEL(SEE SECTION VI) HAZARD----->CARC.** STEL(TWA)*->	TLV--->1 MG/M3 1. CAS#-->7440-02-0	PEL--->1 MG/M3 2.	
BARIUM FLOURIDE HAZARD----->IRRITANT STEL(TWA)*->	TLV--->0.5 MG/M3 CAS#-->7787-32-8	PEL--->0.5 MG/M3	
CALCIUM CARBONATE HAZARD----->IRRITANT STEL(TWA)*->NA	TLV--->10MG/M3 CAS#-->1317-65-3	PEL--->5MG/M3	
CARBON HAZARD----->IRRITANT STEL(TWA)*->	TLV--->3.5 MG/M3 CAS#-->7440-44-0	PEL--->3.5 MG/M3	
COPPER HAZARD----->IRRITANT STEL(TWA)*->NA	TLV--->1MG/M3 CAS#-->7440-50-8	PEL--->1MG/M3	

6/22/05

MATERIAL SAFETY DATA SHEET: CAST WELD HPM ELECTRODE PAGE : 2

(CONTINUED) - SECTION II - HAZARDOUS INGREDIENTS

SILICON DIOXIDE HAZARD----->IRRITANT STEL(TWA)*->	TLV--->0.1MG/M3 CAS#-->60676-86-0	PEL--->0.1MG/M3	
MANGANESE (SEE SECT.VI) HAZARD----->IRRITANT STEL(TWA)*->	TLV--->5 MG/M3 CAS#-->7439-96-5	PEL--->5 MG/M3	

SECTION III - PHYSICAL DATA

BOILING PT. (F)	N/A	SPEC. GRAVITY (H2O=1)	4-6
VAPOR PR. (MM HG)	N/A	COLOR	CHARCOAL
VAPOR DENSITY	N/A	ODOR	NONE
PH. @ 100%	N/A	CLARITY	OPAQUE
% VOLATILE BY VOL	0%	EVAPORATION RATE (BU A/C = 1)	N/A
H2O SOLUBILITY	INSOLUBLE		
VISCOSITY	SOLID METAL		

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT: N/A	FLAMMABLE LIMITS	LEL	UEL
N/A		N/A	N/A

EXTINGUISHING MEDIA "ALCOHOL" DRY WATER
X <--FOAM X <--FOAM X <--CO2 X <--CHEMICAL X <--SPRAY X <--OTHER

SPECIAL FIRE FIGHTING PROCEDURES
SEE AMERICAN NATIONAL STANDARD Z49.1, SAFETY IN WELDING AND CUTTING, PUBLISHED BY THE AMERICAN WELDING SOCIETY AND OSHA PUBLICATION 2206 (29 CFR 192-1910)

UNUSUAL FIRE AND EXPLOSION HAZARDS

(CONTINUED) - SECTION IV - FIRE AND EXPLOSION HAZARD

NON-FLAMMABLE.

NFPA HAZARD RATING (0=INSIGNIFICANT;1=SLIGHT;2=MODERATE;3=HIGH;4=EXTREME):
2 <--HEALTH 0 <--FLAMMABILITY 0 <--REACTIVITY W*<--SPECIAL

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:

NOT ESTABLISHED FOR MIXTURES SEE SECTION II.

EFFECTS OF OVEREXPOSURE :

- ACUTE - (SHORT TERM EXPOSURE)

FUMES AND GASES CAN BE DANGEROUS TO YOUR HEALTH. SHORT TERM OVEREXPOSURE TO WELDING FUMES MAY RESULT IN DISCOMFORT, SUCH AS DIZZINESS, NAUSEA, OR DRYNESS OR IRRITATION OF NOSE, THROAT, OR EYES.

INHALATION OF MANGANESE FUMES CAN CAUSE DROWSINESS, SPASTIC GAIT, PARALYSIS AND OTHER NEUROLOGICAL PROBLEMS RESEMBLING PARKINSON'S. EXCESSIVE INHALATION MAY CAUSE "METAL FUME FEVER" WITH ITS FLU-LIKE SYMPTOMS.

EYE EXPOSURE MAY CAUSE IRRITATION, REDNESS, TEARING AND BLURRED VISION. WELDING ARC RAYS CAN INJURE EYES AND BURN SKIN. ELECTRIC SHOCK CAN KILL.

- CHRONIC - (LONG TERM EXPOSURE)

LONG TERM OVEREXPOSURE MAY LEAD TO SIDEROSIS (IRON DEPOSITS IN THE LUNG) AND IS BELIEVED BY SOME INVESTIGATORS TO AFFECT PULMONARY FUNCTION.

EXCESSIVE INHALATION OF FUMES CAN INHIBIT LUNG CAPACITY.

PRIMARY ROUTE OF ENTRY: X<-- INHALATION <-- INGESTION <-- ABSORPTION

EMERGENCY & FIRST AID PROCEDURES

INHALATION :

REMOVE FROM EXPOSURE AREA AND CALL FOR MEDICAL AID. ADMINISTER RESPIRATION. IF NO DETECTABLE PULSE, BEGIN EXTERNAL HEART MASSAGE. EMPLOY FIRST AID TECHNIQUES RECOMMENDED BY THE AMERICAN RED CROSS. IN CASE OF ELECTRICAL SHOCK, TURN OFF POWER PRIOR TO REMOVAL FROM EXPOSURE AREA AND ADMINISTER AID.

(CONTINUED) - SECTION V - HEALTH HAZARD DATA

EYE CONTACT:

FLUSH WITH WATER FOR AT LEAST 15 MINUTES.

SKIN CONTACT:

REMOVE CONTAMINATED CLOTHING. WASH SKIN WITH SOAP AND WATER.

INGESTION :

DO NOT INDUCE VOMITING. OBTAIN MEDICAL ATTENTION.

NOTES TO PHYSICIAN :

N/A

SECTION VI - TOXICITY INFORMATION

PRODUCT CONTAINS CHEMICAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN BY:

IARC	X<--YES	NTP	X<--YES	OSHA	<--YES	ACGIH	X<--YES	OTHER	X<--YES
	<--NO	NTP	<--NO	OSHA	X<--NO	ACGIH	<--NO	OTHER	<--NO

THE U.S. NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER AND CALIFORNIA PROPOSITION 65 HAVE LISTED NICKEL AND NICKEL COMPOUNDS AS CARCINOGENIC TO HUMANS.

EXCESSIVE INHALATION OF MANGANESE FUMES CAN CAUSE MANGANESE POISONING. SEE SECTION V FOR MORE INFORMATION.

ALTHOUGH SILICATES ARE GENERALLY CONSIDERED TO HAVE LOW SYSTEM TOXICITY, THEY MAY HAVE A CORROSIVE EFFECT ON THE MUCOUS MEMEBRANE DUE TO THEIR ALKALINE NATURE.

WELDING FUMES CANNOT BE CLASSIFIED SIMPLY. THEIR COMPOSITION AND QUANTITY ARE DEPENDENT NOT ONLY ON THE FILLER METAL, BUT ALSO ON THE ALLOY BEING WELDED, THE PROCESS AND PROCEDURES USED IN WELDING, AND THE TYPE AND AMOUNT OF VENTILATION AVAILABLE IN THE WORK SPACE. MOST WELDING, EVEN WITH THE MO MOST PRIMITIVE VENTILATION, DOES NOT PRODUCT FUME EXPOSURES INSIDE THE WELD ING HOOD GREATER THAN 5 MG/M3.

SECTION VII - REACTIVITY DATA

STABILITY	X <--STABLE	<--UNSTABLE	CONDITIONS TO AVOID

N/A

(CONTINUED) - SECTION VII - REACTIVITY DATA

INCOMPATABILITY (MATERIALS TO AVOID) :
NONE

HAZARDOUS DECOMPOSITION PRODUCTS
N/A

	WILL NOT <--OCCUR	MAY <--OCCUR	CONDITIONS TO AVOID
HAZARDOUS POLYMERIZATION	X		N/A

SECTION VIII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
PICK UP PRODUCT. SWEEP AREA.

WASTE DISPOSAL METHOD(S):
PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENTS. DISCARD ANY PRODUCT, RESIDUE, DISPOSABLES, CONTAINER, OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

NEUTRALIZING AGENT :
N/A

SECTION IX - SPECIAL PROTECTION INFORMATION

REQUIRED VENTILATION :

USE ENOUGH VENTILATION, LOCAL EXHAUST AT THE ARC, OR BOTH TO KEEP THE FUMES AND GASES BELOW THE TLV'S IN THE WORKERS BREATHING ZONE AND THE GENERAL AREA. TRAIN THE WELDER TO KEEP HIS HEAD OUT OF THE FUMES.

(CONTINUED) - SECTION IX - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION :
WELD FUME RESPIRATOR OR AIRLINE RESPIRATOR FOR CONFINED SPACE OR WHERE EXPOSURES ARE ABOVE TLV.

GLOVE PROTECTION :
WELDER'S PROTECTIVE GLOVES.

EYE PROTECTION :
UP TO 5/32" DIA. USE #10 LENS; FOR 3/16" DIA. USE #12 LENS.

OTHER PROTECTION :
PROTECTIVE CLOTHING TO COVER ALL EXPOSED SKIN AREA

SECTION X - STORAGE AND HANDLING INFORMATION

STORAGE TEMPERATURE MAX: N/A MIN: N/A	INDOOR	HEATED	REFRIGERATED	OUTDOOR

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING
NONE

OTHER PRECAUTIONS
IN USE OF PRODUCT, WELDING ARC OR SPARKS COULD COULD CAUSE IGNITION OF COMBUSTIBLES.

SECTION XI - REGULATORY INFORMATION

CHEMICAL NAME	C.A.S NUMBER	UPPER % LIMIT
NICKEL	7440-02-0	100%

(CONTINUED) - SECTION XI - REGULATORY INFORMATION

COPPER	7440-50-8	10%
MANGANESE	7439-96-5	10%

THOSE INGREDIENTS LISTED ABOVE ARE SUBJECT TO THE REPORTING REQUIRMENTS OF 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.

IF UE (USE EXEMPTION) APPEARS UNDER UPPER % LIMIT, END USERS ARE EXEMPT FROM NOTIFICATION BECAUSE THE PRODUCT IS USED AND LABELED FOR ROUTINE JANITORIAL WORK, OR THE PRODUCT IS USED AND LABELED FOR FACILITY GROUNDS MAINTENANCE (SUCH AS FERTILIZERS AND HERBICIDES), OR THE PRODUCT IS USED AND LABELED FOR MAINTAINING MOTOR VEHICLES.

CALIFORNIA PROPOSITION 65

WARNING: THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE (1)CANCER OR (2)BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM:

NONE

SECTION XII - TRANSPORTATION * (FOR FUTURE USE)

LABELS	LIMITED QTY
UNIT CONTAINER	
DOT SPS CONTAINER	NET EXPLOSIVE WT.
AEROSOL PROPELLANT(S)	

SECTION XIII - REFERENCES

MANUFACTURER'S MATERIAL SAFETY DATA SHEET.

1. THRESHOLD LIMIT VALUES AND BILOGICAL EXPOSURE LIMITS FOR 1989-1990, AMERICAN CONFERENCE OF GOVERNEMNTAL INDUSTRIAL HYGEINISTS
2. OSHA HAZARDOUS INGREDIENTS LISTINGS
3. CALIFORNIA PROPOSITION 65.

(CONTINUED) - SECTION XIII - REFERENCES

W* DO NOT USE WATER ON MOLTEN METAL BECAUSE HAZARDOUS METAL FUMES MAY BE FORMED. USE WATER ON METAL TO KEEP IT COOL IN FIRE SITUATIONS.

* SHORT TERM EXPOSURE LIMIT (TWA) LISTED AS FINAL RULE LIMITS PUBLISHED IN THE FEDERAL REGISTER/VOL. 54 NO. 12, 1-19-89

THE INFORMATION CONTAINED HERIN IS BASED ON DATA CONSIDERED ACCURATE IN LIGHT OF CURRENT FORMULATION. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

X-ERGON, A PARTSMASTER CO., DIV OF NCH ASSUMES NO RESPONSIBILTY FOR PERSONAL INJURY OR PROPERTY DAMAGE CAUSED BY THE USE, STORAGE OR DISPOSAL OF THE PRODUCT IN A MANNER NOT RECOMMENDED ON THE PRODUCT LABEL. USERS ASSUME ALL RISKS ASSOCIATED WITH SUCH UNRECOMMENDED USE, STORAGE, OR DISPOSAL OF THE PRODUCT.

XEROX

Material Safety Data Sheet

MSDS No.: A-0059
Date: 12/15/86
Revision: 12/17/91

143

Manufacturer:	Xerox Corporation Rochester, N.Y. 14644	**Emergency Tel. No. :** **Information Tel. No. :** **Transportation Emergency Telephone No.:**	(716) 422-2177 (800) 828-6571 (716) 422-1230

Section I - Product Identification

Trade Names/Synonyms: 5018 /5028 /5034 Black Dry Ink /Black Toner /Copy Ctg.

Part No. : 6R136, 6R244, 6R255, 13R9, 13R13, 13R18, 6R261; XCI: 6R527, 13R511, 13R505; RX: 13R34; XLA: 13R35; FX: 13R31

Chemical Name: None

Ingredients	CAS No.
Styrene/butadiene copolymer (50-75%)	9003-55-8
Steel powder (20-30%)	7439-89-6
Iron oxide (10-15%)	1309-37-1
Rosin acid (<5%)	8050-09-7
Carbon black (<5%)	1333-86-4
Quaternary ammonium salt (<2%)	3843-16-1

Section II - Emergency and First Aid

Eyes: Flush with water.
Skin: Wash with soap and water.
Inhalation: Remove from exposure.
Ingestion: Dilute stomach contents with several glasses of water.
Primary Route of Entry: Inhalation
Symptoms of Overexposure: Minimal respiratory tract irritation may occur as with exposure to large amounts of any non-toxic dust.
Medical Conditions Generally Aggravated by Exposure: None when used as described by product literature.
Additional Information: See Sections V and VII. Further information on file in Poisindex.

Section III - Toxicology and Health Information

This material has been evaluated by Xerox Corporation.

Oral LD_{50}: >10 g/kg (Rats) practically non-toxic.
Dermal LD_{50}: >2 g/kg (Rabbits) practically non-toxic.
Inhalation LC_{50}: >5 mg/l (Rats, 4 hr exposure) practically non-toxic.[1] >20 mg/l (calculated 1 hr exposure) non-poisonous, DOT.[1]
Eye Irritation: Not an irritant.
Skin Sensitization: Not a sensitizer.
Skin Irritation: Not an irritant.
Human Patch: Non-irritating, non-sensitizing
Mutagenicity: No mutagenicity detected in Ames, Micronucleus, CHO/HGPRT, and Yeast Mitotic Recombination Assays.
Carcinogens: None present
Aquatic LC_{50}: >500 mg/l (Fathead Minnows) non-toxic.

TLV: 10 mg/m³ (Total Dust)
PEL: 15 mg/m³ (Total Dust)
5 mg/m³ (Respirable Dust)
STEL: None established
Ceiling: None established
XEL[2]: 2.5 mg/m³ (Total Dust)
0.4 mg/m³ (Respirable Dust)

Additional Information: Some of the information reported above is test data of similar products. In a Xerox sponsored chronic inhalation study in rats using a special test toner, there were no lung changes at all in the lowest exposure level (1 mg/m³), the most relevant level to potential human exposures. A very slight degree of fibrosis was noted in 25 % of the animals at the middle exposure level (4 mg/m³) while a slight degree of fibrosis was observed at the highest exposure level (16 mg/m³) in all animals. These findings are attributed to "lung overloading," a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. The special test toner was ten times more respirable than commercially available Xerox toner to comply with EPA testing protocol and would not function properly in Xerox equipment.

[1]Based on testing similar Xerographic toner materials [2]XEL: Xerox Exposure Level

Section IV - Physical Data

Appearance/Odor:	Black powder / faint odor	**Softening Range:**	85°C to 100°C
Boiling Point:	N.A.	**Melting Point:**	N.A.
Solubility in Water:	Negligible	**Specific Gravity ($H_2O=1$):**	~1
Evaporation Rate:	N.A.	**Vapor Pressure (mm Hg):**	N.A.
Vapor Density (Air=1):	N.A.	**pH=**	N.A.
Volatile	N.A.%(Wgt.) N.A.%(Vol.)		

Section V - Fire and Explosion Data

Flash Point (Method Used): N.A.

Flammable Limits LEL: N.A. UEL: N.A.

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

Special Fire Fighting Procedures: Avoid inhalation of smoke. Wear protective clothing and self-contained breathing apparatus.

Fire and Explosion Hazards: Toner is a combustible powder. Like most organic materials in powder form, when dispersed in air, it can form explosive mixtures.

Section VI - Reactivity Data

Stability:	**Unstable**		**Hazardous Polymerization:**	**May Occur**	
	Stable	X		**Will Not Occur**	X

Hazardous Decomposition Products: Products of combustion may be toxic. Avoid breathing smoke.

Incompatibility (Materials to Avoid): None known

Section VII - Special Protection Information

Respiratory Protection:	None required when used as intended in Xerox equipment.
Eye Protection:	None required when used as intended in Xerox equipment.
Protective Gloves:	None required when used as intended in Xerox equipment.
Other:	For use other than normal customer - operating procedures (such as in bulk toner processing facilities), goggles and respirators may be required. For more information, contact Xerox.

Section VIII - Special Precautions

Handling and Storage: None

Conditions to Avoid: Avoid prolonged inhalation of excessive dust.

Section IX - Spill, Leak, and Disposal Procedures

For Spills or Leakage: Sweep up or vacuum spilled toner and carefully transfer into a sealable waste container. Sweep slowly to minimize generation of dust during clean-up. If a vacuum is used, the motor must be rated as dust tight. A conductive hose bonded to the machine should be used to reduce static buildup (See Section V). Residue can be removed with soap and cold water. Garments may be washed or dry cleaned, after removal of loose toner.

Waste Disposal Method: When disposed, this material is not a hazardous waste according to Federal Regulation 40 CFR 261. However, State and Local requirements may be more restrictive. Therefore, consultation with the appropriate State and Local waste disposal authorities is advised. Incinerate only in a closed container.

Section X - Transportation Information

DOT Proper Shipping Name: Not Regulated

Hazard Classification: N. A. **ID Number:** N. A.

XEROX

Material Safety Data Sheet

MSDS No.: B-0237B
Date: 9/22/86
Revision: 12/5/91

Manufacturer:	Xerox Corporation Rochester, N.Y. 14644	Emergency Tel. No. : Information Tel. No. : Transportation Emergency Telephone No.:	(716) 422-2177 (800) 828-6571 (716) 422-1230

Section I - Product Identification

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Trade Names/Synonyms:	1065/5018/5028/5034/ 5046/5047/5065 Developer	Part No. :	5R167, 5R168, 5R416, 5R524; RX: 5R90094, 502S30836, 502S30837, 502S62463, 502S62464, 502S62465, 502S62500, 5R422, Contained in 13R7 13R9
Chemical Name:	None		

Ingredients	CAS No.
Carrier (>95%):	
Steel powder (>99%)	7439-89-6
Fluoropolymer (<1%)	24937-97-1
Toner (<5%):	
Styrene/butadiene copolymer (75-80%)	9003-55-8
Iron oxide (15-20%)	1309-37-1
Rosin acid (<5%)	8050-09-7
Carbon black (<5%)	1333-86-4

Section II - Emergency and First Aid

Eyes:	Flush with water.
Skin:	Wash with soap and water.
Inhalation:	Remove from exposure.
Ingestion:	Dilute stomach contents with several glasses of water.
Primary Route of Entry:	Inhalation
Symptoms of Overexposure:	Minimal respiratory tract irritation may occur as with exposure to large amounts of any non-toxic dust.
Medical Conditions Generally Aggravated by Exposure:	None when used as described by product literature.
Additional Information:	See Sections V and VII. Further information on file in Poisindex.

Section III - Toxicology and Health Information

This material has been evaluated by Xerox Corporation.

Oral LD_{50}:	>10 g/kg (Rats) practically non-toxic.
Dermal LD_{50}:	>2 g/kg (Rabbits) practically non-toxic.
Inhalation LC_{50}:	>5 mg/l (Rats, 4 hr exposure) practically non-toxic.[1] >20 mg/l (calculated 1 hr exposure) non-poisonous, DOT.[1]
Eye Irritation:	Not an irritant.
Skin Sensitization:	Not a sensitizer.
Skin Irritation:	Not an irritant.
Human Patch:	Non-irritating, non-sensitizing
Mutagenicity:	No mutagenicity detected in Ames, Micronucleus, CHO/HGPRT, and Yeast Mitotic Recombination Assays.
Carcinogens:	None present
Aquatic LC_{50}:	>500 mg/l (Fathead Minnows) non-toxic.

TLV:	10 mg/m³ (Total Dust)
PEL:	15 mg/m³ (Total Dust) 5 mg/m³ (Respirable Dust)
STEL:	None established
Ceiling:	None established
XEL[2]:	2.5 mg/m³ (Total Dust) 0.4 mg/m³ (Respirable Dust)

Additional Information: The information noted above is toxicity data for toner. In a Xerox sponsored chronic inhalation study in rats using a special test toner, there were no lung changes at all in the lowest exposure level (1 mg/m³), the most relevant level to potential human exposures. A very slight degree of fibrosis was noted in 25 % of the animals at the middle exposure level (4 mg/m³) while a slight degree of fibrosis was observed at the highest exposure level (16 mg/m³) in all animals. These findings are attributed to "lung overloading," a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. The special test toner was ten times more respirable than commercially available Xerox toner to comply with EPA testing protocol and would not function properly in Xerox equipment.

[1]Based on testing similar Xerographic toner materials [2]XEL - Xerox Exposure Limit

Section IV - Physical Data

Appearance/Odor:	Black granular / faint odor	**Softening Range:**	N.A.
Boiling Point:	N.A.	**Melting Point:**	N.A.
Solubility in Water:	N.A.	**Specific Gravity ($H_2O=1$):**	~5
Evaporation Rate:	N.A.	**Vapor Pressure (mm Hg):**	N.A.
Vapor Density (Air=1):	N.A.	**pH=**	N.A.

Volatile N.A. %(Wgt.) N.A. %(Vol.)

Section V - Fire and Explosion Data

Flash Point (Method Used): N.A.

Flammable Limits **LEL:** N.A. **UEL:** N.A.

Extinguishing Media: Water, foam, dry chemical.

Special Fire Fighting Procedures: Avoid inhalation of smoke. Wear protective clothing and self-contained breathing apparatus.

Fire and Explosion Hazards: None

Section VI - Reactivity Data

Stability:			**Hazardous Polymerization:**		
	Unstable			**May Occur**	
	Stable	X		**Will Not Occur**	X

Hazardous Decomposition Products: Products of combustion may be toxic. Avoid breathing smoke.

Incompatibility (Materials to Avoid): None

Section VII - Special Protection Information

Respiratory Protection: None required when used as intended in Xerox equipment.
Eye Protection: None required when used as intended in Xerox equipment.
Protective Gloves: None required when used as intended in Xerox equipment.
Other: For use other than normal customer - operating procedures (such as in bulk toner processing facilities), goggles and respirators may be required. For more information, contact Xerox.

Section VIII - Special Precautions

Handling and Storage: None

Conditions to Avoid: Avoid prolonged inhalation of excessive dust.

Section IX - Spill, Leak, and Disposal Procedures

For Spills or Leakage: If spilled, sweep up or vacuum.

Waste Disposal Method: When disposed, this material is not a hazardous waste according to Federal Regulation 40 CFR 261. However, State and Local requirements may be more restrictive. Therefore, consultation with the appropriate State and Local waste disposal authorities is advised.

Section X - Transportation Information

DOT Proper Shipping Name: Not Regulated
Hazard Classification: N. A. **ID Number:** N. A.

XEROX

Material Safety Data Sheet

MSDS No.: D-0449
Date: 1/7/87
Revision: 4/15/91

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Manufacturer:	Xerox Corporation Rochester, N.Y. 14644	**Emergency Tel. No. :** **Information Tel. No. :** **Transportation Emergency Telephone No.:**	(716) 422-2177 (800) 828-6571 (716) 422-1230

Section I - Product Identification

Trade Names/Synonyms: 5018/5028/5034/5100 Fuser Web Assembly (with lubricating oil)

Part No. : 5K1770, 5K1580, 4R64, 5E2260, 8R3692

Chemical Name: Polydimethylsiloxane

Ingredients	CAS No.
Polydimethylsiloxane Oil	63148-62-9

Section II - Emergency and First Aid

Eyes: Flush eyes thoroughly with water.
Skin: Wash with soap and water.
Inhalation: Remove from exposure.
Ingestion: Dilute stomach contents with several glasses of water.
Primary Route of Entry: Inhalation
Symptoms of Overexposure: May cause minimal irritation of respiratory passages on continuous exposure to high concentrations.
Medical Conditions Generally Aggravated by Exposure: None when used as described by product literature.
Additional Information: See Sections V through VII. Further information on file in Poisindex.

Section III - Toxicology and Health Information

This material has been evaluated by Xerox Corporation.

Oral LD_{50}: >35 g/kg (Rats) practically non-toxic.
Dermal LD_{50}: >3 g/kg (Rabbits) practically non-toxic.
Inhalation LC_{50}: >11 mg/l (Rats) practically non-toxic.[1]
Eye Irritation: Not an irritant.
Skin Sensitization: Not a sensitizer.
Skin Irritation: Not an irritant.
Human Patch: Non-irritating, non-sensitizing
Mutagenicity: No mutagenicity detected in Ames, UDS, and Dominant Lethal Assays.
Carcinogens: None present
Aquatic LC_{50}: >500 mg/l (Fathead Minnows) non-toxic.
Additional Information: None

TLV: N.A.
PEL: N.A.
XEL[2]: N.A.

[1]Not tested to the highest dose or concentration. [2]XEL - Xerox Exposure Limit

Section IV - Physical Data

Appearance/Odor:	Clear liquid/slight odor	**Softening Range:**	N.A.
Boiling Point:	149°C.	**Melting Point:**	N.A.
Solubility in Water:	Negligible	**Specific Gravity ($H_2O=1$):**	0.98
Evaporation Rate:	<1 (ether = 1)	**Vapor Pressure (mm Hg):**	<5
Vapor Density (Air=1):	N.A.	**pH=**	N.A.

Volatile N.A. %(Wgt.) <5 %(Vol.)

Section V - Fire and Explosion Data

Flash Point (Method Used): >260°C (>500°F) C.O.C.

Flammable Limits **LEL:** N.A. **UEL:** N.A.

Extinguishing Media: Foam, carbon dioxide, water spray.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing.

Fire and Explosion Hazards: None

Section VI - Reactivity Data

Stability:	**Unstable**		**Hazardous Polymerization:**	**May Occur**	
	Stable	X		**Will Not Occur**	X

Hazardous Decomposition Products: Silicone dioxide, carbon dioxide, and traces of incompletely burned carbon products.

Incompatibility (Materials to Avoid): Strong oxidizing materials.

Section VII - Special Protection Information

Respiratory Protection: None required when used as intended in Xerox products.
Eye Protection: None required when used as intended in Xerox products.
Protective Gloves: PVC or plastic gloves recommended.
Other: None required when used as intended in Xerox products.

Section VIII - Special Precautions

Handling and Storage: Use reasonable care and caution . Clean up spills completely as residue is slippery.

Conditions to Avoid: None

Section IX - Spill, Leak, and Disposal Procedures

For Spills or Leakage: Soak up with an absorbent material. Biodegradation /non-biodegradable, Bioaccumulation/no evidence of accumulation.

Waste Disposal Method: Absorb liquid on vermiculite or other absorbent material. Dispose of in accordance with federal, state, and local regulations.

Section X - Transportation Information

DOT Proper Shipping Name: Not Regulated
Hazard Classification: N. A. **ID Number:** N. A.

XEROX

Material Safety Data Sheet

MSDS No.: C-0309
Date: 1/25/85
Revision: 10/21/91

Manufacturer: Xerox Corporation
Rochester, N.Y. 14644

Emergency Tel. No. : (716) 422-2177
Information Tel. No. : (800) 828-6571
Transportation Emergency Telephone No.: (716) 422-1230

Section I - Product Identification

Trade Names/Synonyms: 1065/1075/1090/4050/5018/5028/5034/5046/5047/5065/5090/5100/DocuTech/5775/4135 Photoreceptor

Part No. : 1R300, 1R301, 1R302, 1R85, 1R88, 1R91,1R104, 1R425, 1R427
Contained in: 13R9, 13R7

Chemical Name: None

Ingredients	CAS No.
Polyester film (65-70%)	25038-59-9
Polycarbonate (20-25%)	25971-63-5
Tertiary diamine (10-15%)	65181-78-4
Polyvinyl carbazole (<5%)	25067-59-8
Selenium (<1%)	7782-49-2

Section II - Emergency and First Aid

Eyes: Not applicable
Skin: Wash with soap and water.
Inhalation: Not applicable
Ingestion: Not applicable
Primary Route of Entry: Skin
Symptoms of Overexposure: None
Medical Conditions Generally Aggravated by Exposure: None when used as described by product literature.
Additional Information: See Sections V and IX. Further information on file in Poisindex.

Section III - Toxicology and Health Information

This material has been evaluated by Xerox Corporation.

Oral LD_{50}: >5 g/kg (Rats) practically non-toxic.
Dermal LD_{50}: N.A.
Inhalation LC_{50}: N.A.
Eye Irritation: Not an irritant.
Skin Sensitization: Not a sensitizer.
Skin Irritation: Not an irritant.
Human Patch: Non-irritating, non-sensitizing
Mutagenicity: No mutagenicity detected in Ames, Pol A^+/A^-, and WP_2 Assays.
Carcinogens: None present
Aquatic LC_{50}: >500 mg/l (Fathead Minnows) non-toxic.
Additional Information: Biodegradation/non-biodegradable; Leaching Test/negative.

TLV: 0.2 mg/m³ (Selenium)
PEL: 0.2 mg/m³ (Selenium)
STEL: None established
Ceiling: None established
XEL[1]: None established

[1]XEL - Xerox Exposure Limit

Section IV - Physical Data

Appearance/Odor:	Solid /odorless	**Softening Range:**	N.A.
Boiling Point:	N.A.	**Melting Point:**	N.A.
Solubility in Water:	Insoluble	**Specific Gravity ($H_2O=1$):**	N.A.
Evaporation Rate:	N.A.	**Vapor Pressure (mm Hg):**	N.A.
Vapor Density (Air=1):	N.A.	**pH=**	N.A.

Volatile N.A. %(Wgt.) N.A. %(Vol.)

Section V - Fire and Explosion Data

Flash Point (Method Used): N.A.

Flammable Limits LEL: N.A. UEL: N.A.

Extinguishing Media: Water, carbon dioxide, foam.

Special Fire Fighting Procedures: When in a machine, treat as an electrical fire.

Fire and Explosion Hazards: Exposure to high temperatures can result in melting and pyrolysis. Fumes may cause respiratory symptoms. Delayed effects may occur up to 72 hours.

Section VI - Reactivity Data

Stability:	**Unstable**		**Hazardous Polymerization:**	**May Occur**	
	Stable	X		**Will Not Occur**	X

Hazardous Decomposition Products: Oxides of selenium.

Incompatibility (Materials to Avoid): Strong acids

Section VII - Special Protection Information

Respiratory Protection:	None required when used as intended in Xerox equipment.
Eye Protection:	None required when used as intended in Xerox equipment.
Protective Gloves:	None required when used as intended in Xerox equipment.
Other:	None required when used as intended in Xerox equipment.

Section VIII - Special Precautions

Handling and Storage: Avoid exposure to high temperatures.

Conditions to Avoid: Flames, direct heat.

Section IX - Spill, Leak, and Disposal Procedures

For Spills or Leakage: Particles detached through physical damage may be disposed of as indicated below.

Waste Disposal Method: Casual disposal leading to incineration or regular landfill according to local, state, and federal ordinances. (Photoreceptors must not be incinerated in quantities greater than 150 lb. in one hour according to New York state standards.)

Section X - Transportation Information

DOT Proper Shipping Name: Not Regulated

Hazard Classification: N. A. **ID Number:** N. A.

MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

06/16/97
PAGE 1 OF 3

ZEP MANUFACTURING COMPANY
FIRST IN MAINTENANCE PRODUCTS

ISSUE DATE: 02/26/96 ZEP DYNA 143
SUPERSEDES: 03/08/93 PRODUCT NUMBER: 0366
PARTS CLEANER

SECTION I - EMERGENCY CONTACTS

ZEP MANUFACTURING COMPANY
P.O. BOX 2015
ATLANTA, GEORGIA 30301

TELEPHONE: (404)352-1680 BETWEEN 8:00 AM-5:00 PM (EST)
NON-OFFICE HOURS, WEEKENDS, AND HOLIDAYS: AREA CODE 770
439-4200, 392-1480, 455-8160, 552-8836, 432-2873, 424-4789
LOCAL POISON CONTROL CENTER .....

TRANSPORTATION EMERGENCY:
(770)922-0923 OR

CHEMTREC: TOLL FREE 1-800-424-9300 ALL CALLS RECORDED
DISTRICT OF COLUMBIA (202)483-7616 ALL CALLS RECORDED

SECTION II - HAZARDOUS INGREDIENTS

DESIGNATIONS	TLV (PPM)	EFFECTS (SEE REVERSE)	% IN PROD.
** LIGHT ALIPHATIC NAPHTHA ** SOLVENT NAPHTHA (PETROLEUM), MEDIUM ALIPHATICS; CAS# 64742-88-7; RTECS# NONE; SUPPLIER SUGGESTED TLV - 100 PPM	100	IRR CBL	>90

SOLVENT

SECTION III - HEALTH HAZARD DATA

SPECIAL NOTE: MSDS DATA PERTAINS TO THE PRODUCT AS DISPENSED FROM THE CONTAINER. ADVERSE HEALTH EFFECTS WOULD NOT BE EXPECTED UNDER RECOMMENDED CONDITIONS OF USE (DILUTED) SO LONG AS PRESCRIBED SAFETY PRECAUTIONS ARE PRACTICED.

ACUTE EFFECTS OF OVEREXPOSURE:
OVER-EXPOSURE TO THE VAPORS FROM THIS PRODUCT MAY PRODUCE MUCOUS MEMBRANE IRRITATION, PARTICULARLY OF THE EYE AND RESPIRATORY TRACT. OVER-EXPOSURE TO VAPORS MAY ALSO PRODUCE MILD CENTRAL NERVOUS SYSTEM DEPRESSION CHARACTERIZED BY HEADACHE, DIZZINESS, NAUSEA, AND STUPOR, LEADING TO UNCONSCIOUSNESS IN EXTREME CASES. INTRODUCTION OF SOLVENTS, AS IN ASPIRATION OF VOMITUS FLUID, MAY PRODUCE CHEMICAL PNEUMONIA. EXISTING RESPIRATORY DISORDERS AND LUNG DISEASES MAY BE AGGRAVATED BY INHALATION OF VAPORS.

MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

ZEP MANUFACTURING COMPANY
FIRST IN MAINTENANCE PRODUCTS

ISSUE DATE: 02/26/96 ZEP DYNA 143
SUPERSEDES: 03/08/93 PRODUCT NUMBER: 0366
PARTS CLEANER

SECTION III - H E A L T H H A Z A R D D A T A (CONTINUED)

CHRONIC EFFECTS OF OVEREXPOSURE:
SKIN WHICH IS REPEATEDLY DEFATTED BY CONTACT WITH THIS PRODUCT MAY BE MORE SUSCEPTIBLE TO IRRITATION, INFECTION, OR DERMATITIS.
NONE OF THE HAZARDOUS INGREDIENTS ARE LISTED AS CARCINOGENS BY IARC, NTP, & OSHA

EST'D PEL/TLV: NOT ESTABLISHED PRIMARY ROUTES OF ENTRY: INH, SKIN.

HMIS CODES: HEALTH 1; FLAM. 2; REACT. 0; PERS. PROTECT. B ; CHRONIC HAZ. YES

FIRST AID PROCEDURES:
SKIN : WASH CONTAMINATED SKIN THOROUGHLY WITH SOAP OR A MILD DETERGENT. APPLY A SKIN CREAM WITH LANOLIN. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.
EYES : IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING UPPER AND LOWER LIDS. GET MEDICAL ATTENTION AT ONCE.
INHALE: MOVE EXPOSED PERSON TO FRESH AIR. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION PROMPTLY.
INGEST: IF SWALLOWED, DO NOT INDUCE VOMITING IF VOMITING OCCURS, KEEP HEAD BELOW HIP LEVEL. GET EMERGENCY MEDICAL ATTENTION IMMEDIATELY.

SECTION IV - S P E C I A L P R O T E C T I O N I N F O R M A T I O N

PROTECTIVE CLOTHING : WEAR NEOPRENE, NITRILE, OR NATURAL RUBBER GLOVES OR GLOVES WITH PROVEN RESISTANCE TO THE INGREDIENTS LISTED.
EYE PROTECTION : WEAR TIGHT-FITTING SPLASH-PROOF SAFETY GLASSES ESPECIALLY IF CONTACT LENSES ARE WORN.
RESPIRATORY PROTECTION: WHEN EXPOSURE LEVELS EXCEED PEL/TLV (LIKELY IN CONFINED AREAS) USE AN ORGANIC VAPOR RESPIRATOR (EG ZEP 2211).
VENTILATION : PROVIDE LOCAL EXHAUST/VENTILATION AS NEEDED TO KEEP CONCENTRATION OF VAPORS BELOW EXPOSURE LIMITS (PEL/TLV).

SECTION V - P H Y S I C A L D A T A

BOILING POINT (F)	: 368 INITIAL	SPECIFIC GRAVITY	: 0.785
VAPOR PRESSURE(MMHG):	< 3 @ 100F	PERCENT VOLATILE BY VOLUME (%)	: 100
VAPOR DENSITY(AIR=1):	5.3	EVAPORATION RATE(BUTYL ACETATE =1):	0.14
SOLUBILITY IN WATER :	INSOLUBLE	PH(CONCENTRATE)	: N/A
		PH(USE DILUTION OF):	N/A

APPEARANCE AND ODOR : A CLEAR, WATER-WHITE LIQUID WITH A MILD ODOR.

SECTION VI - F I R E A N D E X P L O S I O N D A T A

FLASH POINT(F) (METHOD USED): 143 (TCC)
FLAMMABLE LIMITS LEL 1% UEL 7%
EXTINGUISHING MEDIA : CARBON DIOXIDE, DRY CHEMICAL, WATER FOG, FOAM.
SPECIAL FIRE FIGHTING: WEAR SELF-CONTAINED POSITIVE PRES. BREATHING APPARATUS.
UNUSUAL FIRE HAZARDS : DIRECT WATER ONTO INTACT CONTAINERS TO PREVENT BURSTING.

MATERIAL SAFETY DATA SHEET

AND SAFE HANDLING AND DISPOSAL INFORMATION

ZEP MANUFACTURING COMPANY
FIRST IN MAINTENANCE PRODUCTS

ISSUE DATE: 02/26/96 ZEP DYNA 143
SUPERSEDES: 03/08/93 PRODUCT NUMBER: 0366
PARTS CLEANER

SECTION VII - REACTIVITY DATA

STABILITY : STABLE
INCOMPATIBILITY(AVOID) : HEAT, OPEN FLAME, SPARK, AND OXIDIZING AGENTS
POLYMERIZATION : WILL NOT OCCUR.
HAZARDOUS DECOMPOSITION: CARBON DIOXIDE, CARBON MONOXIDE, AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS.

SECTION VIII - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
IMMEDIATELY ELIMINATE ALL FLAME, IGNITION AND HIGH-HEAT SOURCES. ABSORB SPILL ON INERT ABSORBENT MATERIAL (EG ZEP-O-ZORB). PICK UP AND PLACE RESIDUE IN A CLEAN, D.O.T. SPECIFICATION CONTAINER FOR DISPOSAL. WASH AREA THOROUGHLY WITH A DETERGENT SOLUTION AND RINSE WELL WITH WATER.

WASTE DISPOSAL METHOD:
LIQUID WASTES ARE NOT PERMITTED IN LANDFILLS. PRODUCT IS NOT CONSIDERED A HAZARDOUS WASTE UNDER RCRA. UNUSABLE LIQUID MAY BE ABSORBED ON AN INERT ABSORBENT MATERIAL (EG ZEP-O-ZORB), DRUMMED, AND TAKEN TO A CHEMICAL OR INDUSTRIAL LANDFILL. PRETREATMENT MAY BE REQUIRED BEFORE LANDFILLING. CONSULT LOCAL, STATE, OR FEDERAL AGENCIES FOR PROPER DISPOSAL IN YOUR AREA.

RCRA HAZ. WASTE NOS. : N/A

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN WHEN HANDLING AND STORING:
COMBUSTIBLE! STORE AND USE AWAY FROM HEAT, SPARKS, OPEN FLAME, OR ANY SOURCE OF IGNITION.
POST "NO SMOKING" SIGNS ACCORDING TO LOCAL REGULATIONS FOR COMBUSTIBLE LIQUIDS.
KEEP PRODUCT AWAY FROM SKIN AND EYES.
DO NOT BREATHE SPRAY MISTS OR VAPORS.
CLOTHING OR SHOES WHICH BECOME CONTAMINATED WITH SUBSTANCE SHOULD BE REMOVED PROMPTLY AND NOT REWORN UNTIL THOROUGHLY CLEANED.
STORE TIGHTLY CLOSED CONTAINER IN A DRY AREA AT TEMPS. BETWEEN 40-120 DEGREES F.
KEEP OUT OF THE REACH OF CHILDREN.

SECTION X - TRANSPORTATION DATA

DOT PROPER SHIP NAME CASES (<46 LBS) OF GALLONS OR SMALLER MAY BE SHIPPED ORM-D
NONE
DOT HAZARD CLASS: N/A
DOT I.D. NUMBER : N/A DOT LABEL/PLACARD: NONE
EPA TSCA CHEMICAL INVENTORY - ALL INGREDIENTS ARE LISTED
EPA CWA 40CFR PART 117 SUBSTANCE(RQ IN A SINGLE CONTAINER): N/A