AlliedSignal

AlliedSignal Inc.
Law Department
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Morristown, NJ 07962-2245
(201)455-2817

328702

ORIGINAL
(Red)

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 10, 1994

Ms. Joan Armstrong (3HW11)
U.S. Environmental Protection Agency
841 Chestnut Building
Philadelphia, PA 19107

RE: **Hanlin-Allied Site**
Moundsville, WV

Dear Ms. Armstrong:

AlliedSignal Inc. ("Allied") submits the attached responses to Questions 1 through 10 of the above referenced request for information propounded by the United States Environmental Protection Agency, Region III ("EPA"), relating to the above-captioned site previously owned by Allied and its predecessors and now owned by Hanlin Chemicals, West Virginia.

Allied makes these responses without admitting any liability or any issue of law or fact, and without prejudice to any position that Allied may take in connection with this matter or any other. Moreover, Allied objects to the requests to the extent that they are overly broad and vague, and makes the responses without conceding relevancy, materiality or admissibility with respect to any legal proceeding.

Allied has searched the records it considers likely to contain information responsive to the EPA's request, and similarly has interviewed employees it believes may have relevant information, but given the magnitude the complexity of the Site, Allied cannot categorically state that it has not inadvertently overlooked some piece of information that the EPA might consider responsive to its request or that might cause Allied to supplement, modify or correct the submission to this request. Accordingly, Allied reserves the right to supplement, modify or correct the submitted responses.

At the present time, Allied has not located any information responsive to questions numbered 6 and 7 but is continuing its search for such information and will supplement the answers provided herein as appropriate.

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If you have any questions at all, please feel free to call me.

Very truly yours,

David P. Cooke
Counsel

c: Christina M. Valente, Esq.

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QUESTION 1 - DATES THAT ALLIED OWNED AND OPERATED ANY PORTION OF THE SITE

The original Moundsville land purchase was made in 1952 by Allied Chemical & Dye Corporation. The plant was started-up in 1953 and was operated by Allied until May 1, 1980, at which time it was sold to LCP Chemicals - West Virginia, Inc., now Hanlin Chemicals - West Virginia, Inc.

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QUESTION 2 - PERSON(s) FROM WHOM ALLIED PURCHASED ANY PORTION OF THE SITE

The property consisted of several tracts, each owned by different individuals, i.e., Unterzuber, Snedeker, Mercer, Travis, Barlow, Williams, Scott. No attempt has been made to identify the last known address and contact person as all of these individuals are believed to be deceased.

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QUESTION 3 - OPERATION BEING CONDUCTED AT THE TIME OF PURCHASE

Farming was the operation being conducted when Allied purchased the land.

QUESTION 4 - NATURE OF ALLIED's OPERATIONS DURING THE TIME PERIOD IN WHICH ALLIED OWNS AND/OR OWNED A PORTION OF THE SITE

The first operation conducted at the Site was a chlorine/caustic soda installation, which went on stream on December 12, 1953. The chlorine and caustic soda were produced by the electrolysis of a saturated salt solution in a mercury cell. The salt came from on-site brine wells that are approximately 6,500 feet deep.

In mid-1954, a chloromethane plant went on stream. In this operation, purchased natural gas was reacted with chlorine to produce the four chloromethanes, i.e., methyl chloride, methylene chloride, chloroform and carbon tetrachloride, along with by-product hydrogen chloride. A vinyl chloride plant was added to the chloromethane complex in 1956 to consume the by-product acid. The vinyl chloride was produced by reacting hydrogen chloride and acetylene. The acetylene was produced on site and purchased from Union Carbide. Since the vinyl chloride plant was being phased out, an operation was added in 1966 to react the by-product acid with methanol to produce methyl chloride. The vinyl chloride plant was shut down in 1967.

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QUESTION 5 - SUBSTANCES USED IN THE OPERATIONS

A list of raw materials/major chemicals used in the operations along with products follows. Material Safety Data sheets are included.

Raw Materials/Chemicals Used

* Acetylene
  Mercury
* Methane
* Methanol
  Potassium carbonate
  Propylene oxide
* Salt
  Sodium carbonate *Raw Material
  Sulfuric acid
  Zinc chloride

Products

Carbon tetrachloride
Chlorine
Chloroform
Hydrochloric acid
Hydrogen
Methyl chloride
Methylene chloride
Sodium hydroxide
Vinyl chloride (No MSDS available)

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved OMB No. 44-R0180

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MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

REV: 5/16/78

MANUFACTURER'S NAME: Airco Welding Products	EMERGENCY TELEPHONE NO.: (201) 464-8100
ADDRESS (Number, Street, City, State, and ZIP Code): 575 Mountain Ave., Murray Hill, N. J. 07974	
CHEMICAL NAME AND SYNONYMS: Acetylene (Ethyne, Ethine)	TRADE NAME AND SYNONYMS: Acetylene-in compressed gas cylinders
CHEMICAL FAMILY: Hydrocarbon Flammable Gas	FORMULA: C_2H_2

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	% (1)	TLV (Units) (2)
Acetylene	100	None
(1) Except trace impurities.		
(2) American Conference of Government and Industrial Hygenists, 1977 ed.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) (Sublimes)	-118.5	SPECIFIC GRAVITY (H_2O=1)	N/A
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	0.9053	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Slight		
APPEARANCE AND ODOR	Colorless, garlic odor, gas.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Flammable Gas	FLAMMABLE LIMITS Volume % (in air)	LEL 2.5%	UEL 80%

EXTINGUISHING MEDIA: Water dry chemical, CO_2, wet rag or waste for small leak fire. Close cylinder valve or shut off supply if possible.

SPECIAL FIRE FIGHTING PROCEDURES: Keep personnel away. Cool burning cylinder with lots of water to prevent explosion. Wet down adjacent combustables. If flame is extinguished continue to cool cylinder with water. Remove cylinder as quickly as possible to safe, outdoor location and allow contents to be expended.

UNUSUAL FIRE AND EXPLOSION HAZARDS: WARNING: If flame is extinguished before supply is shut off, there is serious danger of explosion from re-ignition. Keep all sources of ignition away. Container may rupture if its wall is subjected to localized fire or unusual heat. Keep container cool with lots of water.

(Continued on reverse side)

acetylene-in compressed gas cylinders.

SECTION V - HEALTH HAZARD DATA

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THRESHOLD LIMIT VALUE: None

EFFECTS OF OVEREXPOSURE: Simple asphyxiant. Gas reduces oxygen available for breathing. Can cause unconsciousness & death at concentration high enough to dilute oxygen in atmosphere below 19%. Mild anesthetic at lower concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Remove to fresh air. Give oxygen. Give artificial respiration if breathing has stopped. Obtain medical attention.

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE	X	Except in specially constructed cylinders. Do not use at pressures above 15 psig.
	STABLE		

INCOMPATABILITY (Materials to avoid): Natural rubber, copper alloys above 65% copper, silver, mercury, halogens, acids, metallic sodium or potassium, potassium permanganate.

HAZARDOUS DECOMPOSITION PRODUCTS

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: Small leaks will dissipate rapidly into the atmosphere. Remove leaking cylinders to safe outdoor location, if possible, and allow contents to be expended. For large leaks or leaks in confined areas, ventilate area, keep personnel away. WARNING: Any leaks of acetylene present great danger of explosion or fire. Keep all sources of ignition away.

WASTE DISPOSAL METHOD: Vent to atmosphere at slow rate in outdoor area. Keep all sources of ignition away.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Not normally required. Do not enter area of high acetylene concentration until first purging with inert gas and then ventilating with air.

VENTILATION: Provide local exhaust or mechanical ventilation if welding or cutting in confined areas. Use air supplied respirator for extreme confined areas where TLV's may be exceeded when welding, cutting or brazing.

PROTECTIVE GLOVES: Leather or asbestos when welding, cutting, or brazing.

EYE PROTECTION: Glasses with filter lenses, shade #4 or darker when welding or cutting.

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Do not drop cylinders. Store where temperature will not exceed 125°F. Store in well ventilated area. Store away from oxygen and non-flammable compressed gas cylinders. Keep valve protection cap in place except when using. Open cylinder valve slowly. Keep container upright.

OTHER PRECAUTIONS: See CGA Pamphlet P-1, Safe Handling of Compressed Gases. Store away from oxygen cylinders. Compressed Gas Association, 500 5th Ave., New York, N.Y. 10036

GPO 934-180

Form OSHA-20
Rev. May 72

MERCURY
MERCURY
MERCURY

MATERIAL SAFETY DATA SHEET

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

EMERGENCY CONTACTS
GASTON L. PILLORI
(201) 796-7100

DATE: 11/30/85
PO NBR: 07-1408-5
ACCT: 449324-01
INDEX: 35-8532-40220
CAT NO: 1498310C

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SUBSTANCE IDENTIFICATION

CAS-NUMBER 7439-97-6

SUBSTANCE: **MERCURY**

TRADE NAMES/SYNONYMS: COLLOIDAL MERCURY; METALLIC MERCURY; NCI-C60399; QUICK SILVER; INORGANIC MERCURY; NA 2809; M-139; M-140; M-141

CHEMICAL FAMILY:
INORGANIC METAL

MOLECULAR FORMULA: HG MOL WT: 200.59

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

COMPONENTS AND CONTAMINANTS

PERCENT: 100 COMPONENT: MERCURY

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
0.1 MG(HG)/M3 OSHA CEILING; 0.05 MG(HG)/M3 ACGIH TWA;
0.05 MG(HG)/M3 NIOSH RECOMMENDED CEILING; 0.15 MG(HG)/M3 ACGIH STEL

PHYSICAL DATA

DESCRIPTION: SILVER-WHITE, HEAVY MOBILE, LIQUID METAL

BOILING POINT: 675 F (357 C) MELTING POINT: -38 F (-39 C)

SPECIFIC GRAVITY: 13.6 VAPOR PRESSURE: 0.0012 MMHG @ 20 C

SOLUBILITY IN WATER: INSOLUBLE

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SOLVENT SOLUBILITY: SULFURIC ACID, NITRIC ACID, LIPIDS VAPOR DENSITY: 7.0

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
SLIGHT FIRE AND EXPLOSION HAZARD WHEN EXPOSED TO HEAT OR FLAME.

FLASH POINT: NON-FLAMMABLE

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR ALCOHOL FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FIREFIGHTING:
MOVE CONTAINERS FROM FIRE AREA IF POSSIBLE. COOL CONTAINERS EXPOSED TO FLAMES WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT (1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

USE AGENTS SUITABLE FOR TYPE OF FIRE; USE WATER IN FLOODING AMOUNTS AS A FOG. AVOID BREATHING CORROSIVE AND POISONOUS VAPORS, KEEP UPWIND.

TOXICITY

150 UG/M3/46 DAYS INHALATION-WOMAN TCLO; 29 MG/M3/30 HOURS INHALATION-RABBIT TCLO; TUMORIGENIC DATA (RTECS); REPRODUCTIVE DATA (RTECS).
MERCURY IS AN IRRITANT TO SKIN, EYES, RESPIRATORY TRACT AND MUCOUS MEMBRANES. IT IS ALSO A SKIN SENSITIZER, NEPHROTOXIN, NEUROTOXIN, AND PULMONARY SENSITIZER.

HEALTH EFFECTS AND FIRST AID

INHALATION:
IRRITANT/SENSITIZER/NEUROTOXIN.
28 MG/M3 IMMEDIATELY DANGEROUS TO LIFE OR HEALTH.

ACUTE EXPOSURE- INHALATION OF A HIGH CONCENTRATION OF MERCURY VAPOR CAN CAUSE ALMOST IMMEDIATE DYSPNEA, COUGH, FEVER, NAUSEA AND VOMITING, DIARRHEA, STOMATITIS, SALIVATION AND METALLIC TASTE. THE SYMPTOMS MAY RESOLVE OR MAY PROGRESS TO NECROTIZING BRONCHIOLITIS, PNEUMONITIS, PULMONARY EDEMA, AND PNEUMOTHORAX. THIS SYNDROME IS OFTEN FATAL IN CHILDREN. ACIDOSIS AND RENAL DAMAGE WITH RENAL FAILURE MAY OCCUR. INHALING VOLATILE ORGANIC MECURIALS IN HIGH CONCENTRATIONS CAUSES METALLIC TASTE, DIZZINESS, CLUMSINESS, SLURRED SPEECH, DIARRHEA, AND SOMETIMES FATAL CONVULSIONS.

CHRONIC EXPOSURE- INHALATION OF MERCURY VAPOR, DUSTS, OVER A LONG PERIOD CAUSES MERCURIALISM. FINDINGS ARE EXTREMELY VARIABLE AND INCLUDE TREMORS, SALIVATION, STOMATITIS, LOOSENING OF THE TEETH, BLUE LINES ON THE GUMS, PAIN AND NUMBNESS IN THE EXTREMITIES, NEPHRITITIS, DIARRHEA, ANXIETY, HEADACHE, WEIGHTLOSS, ANOREXIA, MENTAL DEPRESSION, INSOMNIA, IRRITA-

BILITY, INSTABILITY, HALLUCINATIONS, AND EVIDENCE OF MENTAL DETERIORATION. SEE ANIMAL REPRODUCTIVE EFFECTS AND TUMORIGENIC REFERENCES IN TOXICITY SECTION.

FIRST AID: REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
IRRITANT/NEUROTOXIN/NEPHROTOXIN.

ACUTE EXPOSURE- MAY CAUSE REDNESS AND IRRITATION.SENSITIZATION DERMATITIS MAY OCCUR IN PREVIOUSLY EXPOSED WORKERS. SUBSTANCE MAY BE ABSORBED THROUGH THE SKIN CAUSING ANURIA.

CHRONIC EXPOSURE- MAY CAUSE IRRITATION AND SENSITIZATION DERMATITIS. MAY RESULT IN PSYCHIC DISTURBANCES, PERIPHERAL NEUROPATHY, AND KIDNEY DAMAGE AS IN CHRONIC INHALATION. SEE ANIMAL REPRODUCTIVE EFFECTS AND TUMORIGENIC REFERENCES IN TOXICITY SECTION.

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:
IRRITANT.

ACUTE EXPOSURE- CONTACT MAY CAUSE IRRITATION.

CHRONIC EXPOSURE- MERCURY MAY BE DEPOSITED IN THE LENS OF THE EYE, CAUSING VISUAL DISTURBANCES.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION.

INGESTION:
NEUROTOXIC/NEPHROTOXIC.

ACUTE EXPOSURE- METALLIC MERCURY GENERALLY SHOWS NO EFFECT. HOWEVER, IN EXCEPTIONAL CASES EXISTING INTERNAL SORES MAY ALLOW MERCURY TO ACCUMULATE WITH SERIOUS OR EVEN FATAL RESULTS. ALSO ASPIRATION INTO THE LUNGS IS A REMOTE POSSIBILITY, AND THIS WOULD CAUSE A PERMANENT HAZARD.

FIRST AID- IF VICTIM IS CONSCIOUS AND NOT CONVULSIVE, IMMEDIATELY GIVE 2 TO 4 GLASSES OF WATER, AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF THROAT. FROM SITTING POSITION, HEAD MUST BE LOWER THAN HIPS TO PREVENT ASPIRATION. KEEP PATIENT WARM AND AT REST. GET MEDICAL ATTENTION IMMEDIATELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
MERCURY
ACETYLINIC COMPOUNDS: VIOLENT REACTION.
AMMONIA: VIOLENT REACTION.
BORON: VIOLENT REACTION.
DIIODOPHOSPHIDE: VIOLENT REACTION.
ETHYLENE OXIDE: VIOLENT REACTION.
METALS (ALUMINUM; POTASSIUM; LITHIUM; SODIUM; RUBIDIUM): VIOLENT REACTION.
METHYL AZIDE: VIOLENT REACTION.
METHYLSILANE: VIOLENT REACTION.
OXYGEN: VIOLENT REACTION.
OXIDANTS (BROMINE; PEROXYFORMIC ACID; CHLORINE DIOXIDE; NITRIC ACID): VIOLENT REACTION.
TETRACARBONYLNICKEL: VIOLENT REACTION.
OXYGEN: VIOLENT REACTION.
NITROMETHANE: VIOLENT REACTION.
SILVER PERCHLORATE: VIOLENT REACTION.

DECOMPOSITION:
NOT APPLICABLE- BOILS AWAY UNCHANGED AT 357 C.

POLYMERIZATION:
NONE KNOWN.

* * *

CONDITIONS TO AVOID

CONTACT WITH OR STORAGE WITH INCOMPATIBLE MATERIALS LISTED ABOVE AND EXCESSIVE HEAT.

* * *

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
DO NOT TOUCH SPILLED MATERIAL. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR SMALL DRY SPILLS, WITH CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER. MOVE CONTAINERS FROM SPILL AREA. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION OR GENERAL DILUTION VENTILATION TO MEET PERMISSIBLE EXPOSURE LIMITS.

RESPIRATOR:
1 MG(HG)/M3- SUPPLIED-AIR RESPIRATOR.
SELF-CONTAINED BREATHING APPARATUS.

5 MG(HG)/M3- SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE, HELMET, OR HOOD.
SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.

28 MG(HG)/M3- 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 CONTINUOUS-FLOW MODE.

ESCAPE- ANY ESCAPE SELF-CONTAINED BREATHING APPARATUS.

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 ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHALL PROVIDE AN EYE-WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - ALLIED FISHER SCIENTIFIC
CREATION DATE: 05/02/85 REVISION DATE: 05/07/85

-ADDITIONAL INFORMATION-

HOPE GAS, INC.
P.O. Box 2868
Clarksburg, West Virginia 26302-2868
Phone 304/623-8000

LEGAL DEPARTMENT

000935

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HOPE GAS INC.

Material Safety Data Sheet

I - Identification

Material Name:	Natural Gas
Description:	Fuel gas delivered in pipelines or used compressed from cylinders.
Other Designations:	Methane, marsh gas, synthetic natural gas, or other appropriate terms.
Manufacturer/Supplier:	Local gas utility or independent supplier.

II - Ingredients

Methane (principal component)
Ethane
Propane
(Possible butanes and heavier hydrocarbons)
Trace of odorant to impart a distinctive odor

III - Physical Data

Specific gravity gas - 0.55 - 0.62 (lighter than air) at 30 inches of mercury and 60° F (standard conditions).

Appearance and odor: colorless, odorless, tasteless gas without odorants.

However, federal and state regulations require the addition of odorants to make leaking gas readily detectable at at least 20% of the LFL in air.

IV - Fire and Explosion Data

Auto. ignition temperature	900° F - 1,200° F
Flammable limits in air	% by volume
Lower	4
Upper	16

Ignition can occur between the lower and upper limits which express percent of natural gas in the air. Natural gas without sufficient air or with too much air will not burn or explode.

Extinguishing Media: Flame can be extinguished with CO_2, dry chemical, or halo carbon gas. A hazard from re-ignition of explosion exists if the flame is extinguished without stopping flow of gas and/or cooling surroundings and eliminating ignition source. Use water spray to cool surroundings and exposures.

V - Health Hazard Information

TLV - Simple asphyxiant

Natural gas is non-toxic; however, it acts as a simple asphyxiant by displacing or partially displacing the air required to support life.

FIRST AID: Remove victim to fresh air. If breathing has stopped, begin mouth-to-mouth resuscitation and get medical aid.

VI - Reactivity Data

Natural gas is stable, non-corrosive, and non-polymerizing, but readily mixes with air when released to create a combustible atmosphere. Some other strong oxidizing agents with which it can mix and burn or explode in confined areas are chlorine, bromine pentafluoride, oxygen difluoride, and nitrogen trifluoride. It will ignite spontaneously when mixed with chlorine dioxide.

VII - Leaks and Disposal Procedures

Evacuate area, provide optimum explosion-proof ventilation. Shut off supply; remove or eliminate ignition sources. Minor leaks can be detected with soap solution applied at suspected leak points. Never use a flame to detect leaks.

Note:

This sheet covers "natural gas" as a general commodity for employee "right to know" information only. Each location will have a site specific gas supply. Exact composition will vary from site to site and from time to time at any single site depending on operating conditions. More specific information as to chemical composition would require chemical analysis of selected samples.

Issued: January 1, 1986.

TENNECO OIL COMPANY
P.O. BOX 2511
HOUSTON, TX 77252

DEC 4 1987

MSDS CENTRAL FILES

000061

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METHANOL

MSDS NO. 110 | DATE 10-87

I. MATERIAL IDENTIFICATION

MATERIAL/TRADE NAME Methanol

24 HOUR EMERGENCY TELEPHONE
CHEMTREC 800 424-9300
Tenneco 713/757-3451
(Days only)

SYNONYMS Methyl Alcohol, Wood Alcohol
Carbinol

CHEMICAL FAMILY/FORMULA Aliphatic Alcohol/CH_3OH

CAS NO. 67-56-1

HAZARD RATING*

1	HEALTH
3	FIRE
0	REACTIVITY

0 LEAST
1 SLIGHT
2 MODERATE
3 HIGH
4 EXTREME
* NFPA 704

II. INGREDIENTS

COMPOSITION	%	TOXICITY DATA
Methyl Alcohol	99.9	Human Eye - 5 ppm (irritation) Oral - LDLo 340 mg/kg Inhalation - TCLo 86000 mg/kg^3 (irritator) Rat Oral - LD_{50} - 9100 mg/kg Rabbit Acute dermal LD_{50} 20 g/kg

III. PHYSICAL DATA

BOILING POINT, 760mmHg	- 148F (64.5C)	VOLATILES, % BY VOLUME	- 100
SPECIFIC GRAVITY, H_2O = 1	- 0.791	SOLUBILITY IN H_2O, % BY WEIGHT	- Total
VAPOR PRESSURE, mmHg	- 96 @ 68F (20C)	EVAPORATION RATE, BUTYL ACETATE = 1	- 4.6
VAPOR DENSITY, AIR = 1	- 1.11	Lbs. Per Gallon	6.63

APPEARANCE AND ODOR
Clear, colorless liquid with faint alcohol odor. Less pure grades may have a pungent, oily odor.

IV. FIRE AND EXPLOSION DATA

FLASH POINT AND TEST METHOD	AUTO IGNITION TEMPERATURE	FLAMMABILITY LIMITS IN AIR, % BY VOLUME
54F (12C) TCC	725F (385C)	LOWER 6 UPPER 36.5

EXTINGUISHING MEDIA
Dry chemical, alcohol type foam, Halon, CO_2. Water may be ineffective. Use water spray to cool fire exposed containers. Use alcohol resistant foam to extinguish large fires or to blanket spill to reduce vapors.

SPECIAL FIRE FIGHTING PROCEDURES
Class IB flammable liquid. Avoid water streams which may splash and spread flaming liquid. Vapors are heavier than air and may flow along surfaces to distant ignition sources and flash back. Firefighters should use self-contained breathing equipment and protective clothing for fires in enclosed areas.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Reacts violently to oxidizers. Keep away from heat and sources of ignition. Burns with a clear, almost invisible flame, especially hard to see in strong sunlight. Vapor space in storage containers can be in the flammable range at temperatures above 50F.

TOC 3/86

STABILITY	HAZARDOUS POLYMERIZATION
[X] STABLE [ ] UNSTABLE	[ ] MAY OCCUR [X] WILL NOT OCCUR

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CONDITIONS AND MATERIALS TO AVOID

Avoid strong oxidizing agents, excessive heat and sources of ignition.

000982

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide, formaldehyde and other toxic gases may be formed in a fire.

VI. OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL - 200 ppm 8 hr. TWA (260 mg/m^3) skin
ACGIH (1986) adds skin notation. Absorption through skin can contribute significantly to overall exposure to methanol.
ACGIH STEL - 250 ppm
NIOSH recommends ceiling TLV of 800 ppm/15 min.

VII. HEALTH INFORMATION

Methanol is a poisonous chemical that can affect the body both acutely and chronically through inhalation, ingestion, or repeated or prolonged skin absorption.

Prolonged inhalation of vapors causes dizziness, nausea, visual impairment, respiratory failure, muscular incoordination and narcosis. Inhalation of high concentrations for prolonged periods has resulted in death. Liver damage has resulted from prolonged or repeated inhalation of vapors. Ingestion can produce blindness, dizziness, headache and in amounts of 100-250 ml can be fatal.

Initial symptoms from ingestion or inhalation may be only mild intoxication, but may become severe after 12-18 hours. Toxic effects from repeated over exposure to methanol are accumulative and affect the central nervous system, expecially the optic nerve. These symptoms may linger for several days after exposure.

Prolonged skin contact can cause irritation, dryness, dermatitis and erythema. Skin absorption through prolonged or repeated contact can produce or contribute to symptoms similar to inhalation hazards. Eye contact with liquid or high vapor concentrations causes eye irritation but usually no permanent tissue damage.

Methanol exposures may aggravate existing eye, skin, kidney and liver disorders. Preplacement and annual medical examinations are recommended for workers who normally handle methanol with emphasis on neurological,visual, liver and kidney functions.

Monitoring of air in the workplace is recommended to maintain methanol vapors below recommended TLV.

VIII. EMERGENCY AND FIRST AID PROCEDURES

ORIGINAL (Red) 00039

Skin - Wash with soap and water immediately after contact. Remove contaminated clothing immediately. Launder before reuse.

Eyes - Flush with large amounts of water for 15 minutes, getting under eyelids. Contact physician if irritation persists.

Inhalation - Remove to fresh air. Restore breathing if necessary. Administer oxygen if breathing difficutly persists and contact physician for advice.

Ingestion - Drink large amounts of water, milk or sodium bicarbonate to dilute material in stomach. Induce vomiting if victim is conscious. Consult physician for additional advice and treatment.

IX. EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

Provide adequate ventilation or exhaust to meet TLV/PEL requirements. Supplied air or self-contained breathing equipment recommended for exposures above PEL. Organic vapor cartridge respirators not recommended for methanol vapor exposures.

PROTECTIVE CLOTHING

Rubber gloves and protective aprons or clothing should be used to prevent skin contact Goggles or face shield should be used to protect face and eyes from splashing liquid.

OTHER PROTECTIVE MEASURES

Eye wash and safety shower recommended in area of use.
Wash with soap and water immediately after skin contact.

X. ENVIRONMENTAL PROTECTION

SPILL CLEAN-UP PROCEDURE

Eliminate all ignition sources. Stop spill or leak if it can be done safely. Contain spill to smallest possible area. Use asborbent materials to soak up small spills. Larger spills should be recovered for reuse or disposal. Spills in critical areas can be diluted with water to reduce fire hazard during cleanup. Cleanup crew should utilize proper personal protective equipment. Do not allow material to enter sewers, drains, or waterways.

Waste materials should be disposed of by a licensed waste disposal company. Waste liquid may be burned in an approved incinerator. Federal, state and local regulations must be followed. EPA Hazardous Waste Number U154.

ENVIRONMENTAL HAZARDS

Aquatic Toxicity Rating - TLm 96: Over 1000 ppm
Spills of 5000 lbs. or more must be reported to the National Response Center (1-800-424-8802)

MSDS NO. 110	METHANOL

SPECIAL PRECAUTIONS

Store in closed containers in cool place. No smoking allowed in areas of use or storage. Use explosion proof electrical fixtures. Containers should be electrically grounded/ bonded during material transfer to prevent static spark and possible ignition.

Methanol is corrosive to lead and aluminum. Some rubber materials are incompatible. As little as 21% methanol in water is still considered a flammable liquid by OSHA definition. For large volume storage tanks an inert gas (dry nitrogen) blanket is recommended in the vapor space above the liquid.

XII. TRANSPORTATION REQUIREMENTS

DOT SHIPPING NAME: Methanol or Methyl Alcohol

DOT I.D. NO.: UN 1230

DOT CLASSIFICATION: Flammable Liquid

UN HAZARD CLASS: UN 1230

MCO Class - 3.2

XIII. OTHER REGULATORY CONTROLS

Regulated by Food and Drug Administration under 21 CFR 175 and 176, for use in adhesives and articles in contact with food items.

Consumer Product Safety Commission requires materials containing methanol to be labeled:

Danger: Poison. Flammable. Vapor Harmful May be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Contains _____% methanol.

Tenneco Oil Company
P.O. Box 2511
Houston, TX 77252

A TENNECO COMPANY

DATE PREPARED: October, 1987
Replaces August, 1986 revision

APPROVED BY: E. Wayne Drusch
Tenneco Oil Processing & Marketing
713/757-3113

MATERIAL SAFETY DATA SHEET

ORIGINAL (Red)

Diamond Shamrock Chemicals Company

MSDS NUMBER: M1252

MSDS DATE: 05-19-86

PRODUCT NAME: **POTASSIUM CARBONATE DENSE GRANULAR**

24 HOUR EMERGENCY PHONE: (214) 922-2700

I. PRODUCT IDENTIFICATION

2 HEALTH HAZARD, 0 FIRE HAZARD, & 0 REACTIVITY rating based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974)

MANUFACTURER'S NAME AND ADDRESS: Diamond Shamrock Chemicals Company, Chlor-Alkali Division, 351 Phelps Court, P.O. Box 152300, Irving, Texas 75051-2300

CHEMICAL NAME: Potassium Carbonate CAS NUMBER: 584-08-7

SYNONYMS/COMMON NAMES: PotCarb; Potash; Pearlash

CHEMICAL FORMULA: K_2CO_3

DOT PROPER SHIPPING NAME: NA

DOT HAZARD CLASS: NA

DOT I.D. NUMBER: NA HAZARDOUS SUBSTANCE: NA

II. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	HAZARD DATA	CAS NUMBER	%
Potassium Carbonate	PEL = None Established TLV = None Established (See Section V)	584-08-7	100

The materials in this product are listed in the TSCA Inventory
Not listed as carcinogenic by IARC, NTP, OSHA, ACGIH.

III. PHYSICAL DATA

BOILING POINT @ 760 mm Hg: NA VAPOR DENSITY (Air=1): N/A

EVAPORATION RATE (BuAc=1): NA MELTING POINT: 891°C

VAPOR PRESSURE: N/A DENSITY AT 20°C: 81-83 lb/ft^3

% VOLATILES BY VOL.: Not volatile

SPECIFIC GRAVITY (H_2O=1): 2.428 @ 19°C

SOLUBILITY IN H_2O % BY WT: 100%

APPEARANCE AND ODOR: White, granular, free-flowing with no distinct odor

pH: 0.02 moles/liter has pH 11.0

CAS = Chemical Abstract Service Number
PEL = OSHA Permissible Exposure Limit
TLV = TLV®, ACGIH Threshold Limit Value, Current

N/A = No relevant information found or not available
NA = Not applicable

IV. FIRE AND EXPLOSION DATA

FLASH POINT: N/A AUTOIGNITION TEMPERATURE: Non Combustible
FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: Non Combustible
LOWER: Non Combustible

EXTINGUISHING MEDIA:
This product is not combustible. Use water spray, dry chemical, or carbon dioxide in areas where this product is stored.

SPECIAL FIRE FIGHTING PROCEDURES:
Pressure-demand, self-contained breathing apparatus should be provided for fire fighters in buildings or confined areas where this product is stored.

UNUSUAL FIRE AND EXPLOSION HAZARD:
None.

V. HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA:
Potassium Carbonate: Acute Oral LD_{50} = 1870 mg/kg (rat)

ROUTES OF EXPOSURE

INHALATION:
Airborne concentrations of dust, mist, or spray may cause damage to the upper respiratory tract and even to the lung tissue proper which could produce chemical pneumonia, depending upon severity of exposure.

SKIN CONTACT:
Moderately irritating. May cause superficial tissue destruction on prolonged or repeated contact.

SKIN ABSORPTION:
See Skin Contact above.

EYE CONTACT:
Severely irritating and may cause tissue destruction if not promptly treated.

INGESTION:
May be severely irritating to the mucous membranes of the mouth, throat, esophagus, and stomach, depending upon quantity ingested.

EFFECTS OF OVEREXPOSURE

ACUTE:
May be severely irritating to all body tissue with which it comes in contact. Tissue destruction may follow if not promptly treated.

CHRONIC:
The chronic local effect may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray, or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness.

EMERGENCY AND FIRST AID PROCEDURES

EYES:
OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek medical attention immediately.

SKIN:
Wash contaminated areas with plenty of water. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. Seek medical attention immediately.

INHALATION:
Get person out of contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.

INGESTION:
NEVER give anything by mouth to an unconscious person. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. Seek medical attention immediately.

VI. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:
Under normal conditions, the material is stable.

INCOMPATIBILITY:
Avoid simultaneous presence of this product and lime dust (CaO). The combination of these chemicals in the presence of water or perspiration will cause the formation of irritating caustic potash (KOH).

HAZARDOUS DECOMPOSITION PRODUCTS:
None.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:
Material is not known to polymerize.

VII. ENVIRONMENTAL PROCEDURES

SPILLS OR RELEASES:
If a material is spilled or released to the atmosphere, steps should be taken to contain liquids and prevent discharges to streams or sewer systems and control or stop the loss of volatile materials to the atmosphere. Spills or release should be reported, if required, to the appropriate local, state and federal regulatory agencies.

DISPOSAL OR STORAGE:
Clean-up action should be carefully planned and executed. Shipment, storage, and/or disposal of waste materials are regulated and action to handle spilled or released materials must meet the applicable rules. If any question exists, the appropriate agencies should be contacted to assure proper action being taken.

VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

VENTILATION REQUIREMENTS:
Work in well-ventilated areas. Where engineering controls are not feasible, use adequate local exhaust ventilation.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:
Use a NIOSH/MSHA approved respirator following manufacturer's recommendations.

EYE:
Face shield and goggles or chemical goggles should be worn.

GLOVES:
Gloves should be worn.

OTHER CLOTHING AND EQUIPMENT:
Standard work clothing. Chemically-resistant safety shoes. Wash contaminated clothing with soap and water and dry before reuse. Shower and eyewash facilities should be provided in all areas in which this product is handled.

IX. SPECIAL PRECAUTIONS

SIGNAL WORD: WARNING!

STATEMENT OF HAZARDS:
CAN CAUSE BURNS TO SKIN AND EYES
CONTACT WITH EYES CAN CAUSE PERMANENT EYE DAMAGE

PRECAUTIONARY STATEMENTS:
Avoid contact with eyes, skin, and clothing.
Avoid breathing dust, mist, or spray.
Use with adequate ventilation and employ respiratory protection when exposure to dust, mist, or spray is possible.
Wear chemical splash goggles, rubber gloves, and protective clothing when handling.
Wash thoroughly after handling.
Avoid contact with lime (CaO) to prevent formation of corrosive Caustic Potash (KOH).
Keep container closed and dry.
See Material Safety Data Sheet (MSDS), for more detailed information regarding safe handling.

FIRST AID:
IN CASE OF CONTACT:
For eyes:
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of entire eye surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. Seek medical attention.

For skin:
Wash contaminated area with plenty of water. Remove contaminated clothing and footwear. Wash clothing before reuse and discard footwear which cannot be decontaminated. Seek medical attention.

IF INHALED:
Remove person to fresh air. If irritation persists, seek medical attention.

IF SWALLOWED:
NEVER give anything by mouth to an unconscious person. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. Seek medical attention immediately.

IN CASE OF FIRE:
Product is noncombustible, but pressure-demand, self-contained breathing apparatus should be used by fire fighters in buildings or confined areas where product is stored.

IN CASE OF SPILL OR LEAK:
Stop leaks. Spills, after containment, should be shoveled up or removed by vacuum truck (if liquid) to chemical waste area. Flush area with large amount of water and dispose of wash water according to federal, state, and local regulation.

STORAGE AND DISPOSAL

STORAGE:
Liquid Potassium Carbonate should be stored above the freezing point, -13°C (8°F).

DISPOSAL:
The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of disposal.

J. T. Baker Chemical Co.
222 Red School Lane Phillipsburg, N.J 08865
24-Hour Emergency Telephone -- (201) 859-2151
Chemtrec # (800) 424-9300
National Response Center # (800) 424-8802

MATERIAL SAFETY DATA SHEET

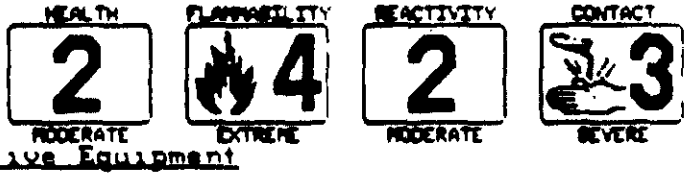
ORIGINAL (Red)

SECTION I - PRODUCT IDENTIFICATION

Product Name: Propylene Oxide
Formula: CH_3CHCH_2O
Formula Wt: 58.08
CAS No.: 00075-56-9
NIOSH/RTECS No.: TZ2975000
Common Synonyms: Propene Oxide; 1,2-Epoxy Propane; Methylethylene Oxide
Product Codes: U509

PRECAUTIONARY LABELLING

BAKER SAF-T-DATA™ System



Laboratory Protective Equipment

Precautionary Label Statements

DANGER!
EXTREMELY FLAMMABLE
CAUSES SEVERE IRRITATION
HARMFUL IF SWALLOWED OR INHALED

Keep away from heat, sparks, flame. Do not get in eyes, on skin, on clothing. Do not breathe vapor. Keep in tightly closed container. Use with adequate ventilation. In case of fire, use water spray, alcohol foam, dry chemical, or carbon dioxide. Flush spill area with waterspray.

SECTION II - HAZARDOUS COMPONENTS

Component	%	CAS No
Propylene Oxide	90-100	75-56-9

SECTION III - PHYSICAL DATA

Boiling Point: 34°C (93°F) Vapor Pressure(mmHg): 440

Continued on Page: 2

SECTION III - PHYSICAL DATA (Continued)

Melting Point: -112°C (-170°F)

Vapor Density(air=1): 2.0

Specific Gravity: 0.83
(H_2O=1)

Evaporation Rate: 33.7
(Butyl Acetate=1)

Solubility(H_2O): Appreciable (more than 10 %)

% Volatiles by Volume: 100

Appearance & Odor: Clear colorless liquid with ether-like odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Closed Cup): -37°C (-35°F)

NFPA 704M Rating: 2-4-2

Flammable Limits: Upper - 37 % Lower - 2.1 %

Fire Extinguishing Media

Use water spray, carbon dioxide, dry chemical or ordinary foam.

Special Fire-Fighting Procedures

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

Unusual Fire & Explosion Hazards

Vapors may flow along surfaces to distant ignition sources and flash back. Closed containers exposed to heat may explode. Contact with strong oxidizers may cause fire.

Toxic Gases Produced

carbon monoxide, carbon dioxide

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value (TLV/TWA): 50 mg/m^3 (20 ppm)

Permissible Exposure Limit (PEL): 240 mg/m^3 (100 ppm)

Toxicity:

LD_{50} (oral-rat)(mg/kg)	-	930
LD_{50} (ipr-rat)(mg/kg)	-	364
LD_{50} (skin-rabbit)(mg/kg)	-	1500
LC_{50} (inhl-mouse-4H) (ppm)	-	1740

Continued on Page 3

SECTION V - HEALTH HAZARD DATA (Continued)

Carcinogenicity: NTP: No IARC: Yes Z List: No OSHA reg: No

Effects of Overexposure

Inhalation of vapors may cause headache, nausea, vomiting, dizziness, drowsiness, irritation of respiratory tract, and loss of consciousness. Contact with skin or eyes may cause severe irritation or burns. Ingestion may cause nausea, vomiting, gastrointestinal irritation, and burns to mouth and throat.

Medical Conditions Generally Aggravated By Exposure

None Identified

Routes Of Entry

inhalation, eye contact, skin contact, ingestion

Emergency and First Aid Procedures

CALL A PHYSICIAN.
If swallowed, do NOT induce vomiting.
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Flush skin with water.

SECTION VI - REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will not occur

Conditions to Avoid: heat, flame, other sources of ignition

Incompatibles: strong bases, strong acids, copper, brass, bronze, polymerization catalysts & accelerators, iron, anhydrous metal chlorides, peroxides

Decomposition Products: explosive peroxides, carbon monoxide, carbon dioxide

SECTION VII - SPILL AND DISPOSAL PROCEDURES

Steps to be taken in the event of a spill or discharge

Wear self-contained breathing apparatus and full protective clothing. Shut off ignition sources; no flares, smoking or flames in area. Stop leak if you can do so without risk. Use water spray to reduce vapors. Take up with sand or other non-combustible absorbent material and place into container for later disposal. Flush area with water.

J. T. Baker Solusorb® solvent adsorbent is recommended for spills of this product.

Continued on Page: 4

SECTION VII - SPILL AND DISPOSAL PROCEDURES (Continued)

Disposal Procedure

Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: D001, D002 (Ignitable, Corrosive Waste)

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

Ventilation:	Use general or local exhaust ventilation to meet TLV requirements.
Respiratory Protection:	Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 1000 ppm, a chemical cartridge respirator with organic vapor cartridge is recommended. Above this level, a self-contained breathing apparatus is recommended.
Eye/Skin Protection:	Safety goggles and face shield, uniform, protective suit, proper gloves are recommended

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA™ Storage Color Code: Red

Special Precautions

Bond and ground containers when transferring liquid.
Keep container tightly closed. Store in a cool, dry, well-ventilated, flammable liquid storage area or cabinet.

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

Proper Shipping Name	Propylene oxide
Hazard Class	Flammable liquid
UN/NA	UN1280
Labels	FLAMMABLE LIQUID
Reportable Quantity	100 LBS.

INTERNATIONAL (I.M.O.)

Proper Shipping Name	Propylene oxide
Hazard Class	3.1
UN/NA	UN1280
Labels	FLAMMABLE LIQUID

Continued on Page: 5

N/A = Not Applicable or Not Available

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

-- LAST PAGE --

aldrich chemical co.
P.O Box 355, Milwaukee Wisconsin 53201 USA

ORIGINAL (Red)

M A T E R I A L S A F E T Y D A T A S H E E T PAGE

CATALOG # 22351-4 NAME: SODIUM CHLORIDE, 99+%, A.C.S. REAGENT

RESPIRATORY TRACT.

FIRST AID

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
CALL A PHYSICIAN.

PHYSICAL DATA

MELTING POINT: 801 C
SPECIFIC GRAVITY: 2.165

FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA

NONCOMBUSTIBLE.
USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

SPECIAL FIRE FIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSION HAZARDS

NOT APPLICABLE

REACTIVITY DATA

INCOMPATIBILITIES

STRONG OXIDIZING AGENTS
STRONG ACIDS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

NATURE OF DECOMPOSITION PRODUCTS NOT KNOWN.

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL METHOD

FOR SMALL QUANTITIES: CAUTIOUSLY ADD TO A LARGE STIRRED EXCESS OF WATER. ADJUST THE PH TO NEUTRAL, SEPARATE ANY INSOLUBLE SOLIDS OR LIQUIDS AND PACKAGE THEM FOR HAZARDOUS-WASTE DISPOSAL. FLUSH THE AQUEOUS SOLUTION DOWN THE DRAIN WITH PLENTY OF WATER. THE HYDROLYSIS AND NEUTRALIZATION REACTIONS MAY GENERATE HEAT AND FUMES WHICH CAN BE CONTROLLED BY THE RATE OF ADDITION.

OBSERVE ALL FEDERAL, STATE & LOCAL LAWS.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

CHEMICAL SAFETY GOGGLES.
USE PROTECTIVE CLOTHING, GLOVES AND MASK.
SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
WASH THOROUGHLY AFTER HANDLING.
IRRITANT.
KEEP TIGHTLY CLOSED.

Belgium
Aldrich Chemie S.A.
Telephone: 02 242 61 16
Telex: 62302 Aldrich B
Fax: 02 242 61 16

France
Aldrich Chimie S.a.r.l.
37, Rue des Tilleuls
F-67300 Strasbourg
Telephone: (88) 32 70 10
Telex: 890016 Aldrich F
Fax: (88) 75 12 63

Japan
Aldrich Japan
Fujisaki Bldg. Shinbashi
10 Kanda Mikoshicho
Chiyoda-ku, Tokyo
Telephone: (03) 256 0150
Fax: (03) 256 0151

United Kingdom
Aldrich Chemical Co. Ltd.
The Old Brickyard, New Road
Gillingham, Dorset SP8 4JL
Telephone: (01476) 3211
Telex: 417238 Aldrich G
Fax: (01476) 3779

West Germany
Aldrich-Chemie GmbH & Co. KG
D-7924 Steinheim
Telephone: (07329) 6141
Telex: 716836 Aldr D
Fax: (07329) 6139

aldrich chemical co.
P.O. Box 355, Milwaukee, Wisconsin 53201 USA

TWX (414) 272-3052 Aldrichem MI
Telex 26 843 Aldrich MI
FAX (414) 273-4979

ORIGINAL
(Red)

MATERIAL SAFETY DATA SHEET

PAGE:

CATALOG # 22351-4 NAME: SODIUM CHLORIDE, 99+%, A.C.S. REAGENT

HYGROSCOPIC.
STORE IN A COOL DRY PLACE.

ADDITIONAL PRECAUTIONS AND COMMENTS

ADDITIONAL INFORMATION
REACTS VIOLENTLY WITH BROMINE TRIFLUORIDE AND LITHIUM.

REGULATORY INFORMATION

NOT APPLICABLE

Belgium
Aldrich Chemie N.V. S.A.
Bd Lambermontlaan 146 B
B 1030 Brussels
Telephone (32) 2/242 [illegible]
Telex 57320 Aldrich B
FAX (32) 242 [illegible]

France
Aldrich-Chimie S.a.r.l.
27 Rue de Chaumont
F-67000 Strasbourg
Telephone (88) 327010
Telex 890870 Aldrich F
FAX (88) 75 12 80

Japan
Aldrich Japan
Sanbancho Building
10 Sanbancho, Chiyoda-ku
Chiyoda-ku, Tokyo
Telephone (03) 750-0150
FAX (03) 750-0151

United Kingdom
Aldrich Chemical Co. Ltd
The Old Brickyard, New Road
Gillingham, Dorset SP8 4JL
Telephone (0747) 822211
Telex 417290 Aldrich G
FAX (0747) 3179

West Germany
Aldrich-Chemie GmbH & Co. KG
D 7924 Steinheim
Telephone (07329) 97-0
Telex 714630 Aldri D
FAX (07329) 97 38

Allied Chemical
An ALLIED Company

PRODUCT SAFETY DATA SHEET

SODA ASH

A. GENERAL INFORMATION

(ORIGINAL)

TRADE NAME (COMMON NAME OR SYNONYM)	X C.A.S. NO. ☐ ALLIED PRODUCT CODE
Soda Ash	497-19-8

CHEMICAL NAME
Sodium Carbonate

FORMULA	MOLECULAR WEIGHT
Na_2CO_3	105.99

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)
Allied Chemical
P.O. Box 1053R
Morristown, N.J. 07960

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
Director, Product Safety	(201) 455-4157	June 12, 1980	Nov., 1982

B. FIRST AID MEASURES

EMERGENCY PHONE NUMBER
(201) 455-2000

Skin: Wash with plenty of water.
Eyes: Flush with plenty of water for at least 15 minutes and get medical attention.
Ingestion: Drink large quantity of water to dilute the material. Do not induce vomiting.
Get medical attention for irritation, ingestion or discomfort from inhalation.

C. HAZARDS INFORMATION

HEALTH

INHALATION
Inhalation of product dust may irritate nose, throat and lungs.

INGESTION
Although low in toxicity, ingestion can be harmful - consult a physician
May irritate mouth, esophagus, stomach, etc. LD_{50} (rat): 2.8 gm/kg. See reference (a).

SKIN
May cause skin irritation from prolonged contact.

EYES
May irritate or burn eyes.

PERMISSIBLE CONCENTRATION AIR (SEE SECTION J) None established
BIOLOGICAL
No TLV established

UNUSUAL CHRONIC TOXICITY

C. HAZARDS (Cont.)

NA – Not Applicable

FIRE AND EXPLOSION

FLASH POINT °C	AUTO IGNITION TEMPERATURE °C	FLAMMABLE LIMITS IN AIR (% BY VOL.)
Not Flammable ☐ OPEN CUP ☐ CLOSED CUP	NA	NA

UNUSUAL FIRE AND EXPLOSION HAZARDS

ORIGINAL (Red)

D. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED

NA

FIRE EXTINGUISHING AGENTS TO AVOID

NA

SPECIAL FIRE FIGHTING PRECAUTIONS

VENTILATION

Local exhaust if dusty condition prevails.

NORMAL HANDLING

oid eye contact or prolonged skin contact. Avoid breathing dust. When dissolving, add to water cautiously and with stirring; ıtions can get hot.

STORAGE

Store in a cool, dry area away from acids. Prolonged storage may cause product to cake from atmospheric moisture.

SPILL OR LEAK

Shovel up dry chemical into an empty container with a cover. Flush residue with plenty of water. (See Section I for disposal methods).

SPECIAL PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

Avoid simultaneous exposure to soda ash and lime dust. In the presence of moisture the two materials combine to form caustic soda (NaOH), which may cause burns. Label signal word: "CAUTION!"

E. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION

Where required, use a respirator approved by NIOSH for product dusts.

EYES AND FACE

Wear hard hat (or other head covering) and chemical safety goggles.
Do not wear contact lenses.

DS, ARMS, AND BODY

ar long-sleeve shirt and trousers, and gloves for routine product use.
Cotton gloves are sufficient for dry product; wear impervious gloves when handling solutions.

OTHER CLOTHING AND EQUIPMENT

F. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	White powder. Odorless.	ORIGINAL (Red)
BOILING POINT °C MELTING POINT 854 °C	SPECIFIC GRAVITY (H_2O = 1) 2.533	VAPOR DENSITY (AIR = 1) NA
SOLUBILITY IN WATER (% by Weight) 17% solution at 20°C	pH 1% solution; pH = 11.3	VAPOR PRESSURE (mm Hg at 20° C) NA
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☒ NA	% VOLATILES BY VOLUME (At 20° C) NA	

G. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☐ STABLE	

INCOMPATIBILITY (MATERIALS TO AVOID)

Contact with acids will release carbon dioxide gas.

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	

H. HAZARDOUS INGREDIENTS (Mixtures Only)

MATERIAL OR COMPONENT/C.A.S. #	WT. %	HAZARD DATA (SEE SECT. J)
NA		

ORIGINAL
(Red)

Du Pont Chemicals

4950CR | Revised 25-AUG-1993 | Printed 25-JAN-1994

Sulfuric Acid, 77 to 100%

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number	DU000051
CAS Number	7664-93-9
Formula	H2S04
Molecular Weight	98.08
CAS Name	SULFURIC ACID
Grade	77 to 100% TECHNICAL

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information	1-800-441-9442
Transport Emergency	CHEMTREC: 1-800-424-9300
Medical Emergency	1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*SULFURIC ACID	7664-93-9	
60 DEG TECHNICAL		77.7
66 DEG TECHNICAL		93.2
1.835 ELECTROLYTE		93.2

(Continued)

COMPOSITION/INFORMATION ON INGREDIENTS(Continued)

98% TECHNICAL		98
99% TECHNICAL		99
100% TECHNICAL		100
WATER	7732-18-5	0-22

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

Causes severe burns to eyes, skin, and all body tissue. Eye damage may be permanent. Destruction of tissue may result from direct chemical reaction with tissue, from thermal burns, and from dehydration (removal of water) of the tissue.

HUMAN HEALTH EFFECTS:

Human health effects of overexposure to the liquid by skin or eye contact may cause eye corrosion with corneal or conjunctival ulceration; or skin burns or ulceration. Ingestion of the liquid may cause severe burns to the mucous membranes of the mouth and esophagus. Repeated or prolonged contact with mists may cause eye irritation with discomfort, tearing or blurring of vision; or skin irritation with discomfort or rash. Overexposure by inhalation may include irritation of the upper respiratory passages or erosion of dental surfaces. Higher inhalation exposures may lead to temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; or possibly modest initial symptoms followed in hours by severe shortness of breath, requiring prompt medical attention.

The International Agency for Research on Cancer (IARC) classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions. The basis for the IARC classification rests on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking or alcohol consumption) and included small numbers of subjects. Based on the overall weight of evidence from all human and chronic animal studies, no definitive causal relationship

(Continued)

HAZARDS IDENTIFICATION (Continued)

between sulfuric acid mist exposure and respiratory tract cancer has been shown.

Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, immediately remove to fresh air and have patient lie down and remain quiet. Apply artificial respiration if breathing has stopped. Give oxygen if breathing is difficult. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Give large quantities of water. Call a physician. Do not neutralize the acid. Never give anything by mouth to an unconscious person.

SKIN OR EYE CONTACT

In case of contact, immediately (within seconds) flush skin or eyes with plenty of water (preferably cold water) for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse.

While the patient is being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues.

Notes to Physicians

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of the treatment.

(Continued)

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point Will not burn

Fire and Explosion Hazards:

Reacts with most metals, especially when dilute, to give flammable, potentially explosive hydrogen gas. Follow appropriate National Fire Protection Association (NFPA) codes.

Extinguishing Media

Use media appropriate for surrounding material.

Use water spray to cool containers exposed to fire; do not get water inside containers.

Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possible spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Stop flow if possible. Review "Fire and Explosion Hazards" and "Safety Precautions" before proceeding with clean up. Use appropriate protective equipment during clean up. Soak up small spills with dry sand, clay or diatomaceous earth. Dike large spills, and cautiously dilute and neutralize with lime or soda ash, and transfer to waste water treatment system. Prevent liquid from entering sewers, waterways, or low areas.

If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the Reportable Quantity is 1,000 lbs. (based on the sulfuric acid content of the solution spilled). Comply with Federal, State, and local regulations on reporting releases.

DuPont Emergency Exposure Limits (EEL) are established to facilitate site or plant emergency evacuation and specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape. EEL's are expressed as airborne concentration

(Continued)

ACCIDENTAL RELEASE MEASURES (Continued)

multiplied by time (CxT) for up to a maximum of 60 minutes and as a ceiling airborne concentration. These limits are used in conjunction with engineering controls/monitoring and as an aid in planning for episodic releases and spills. For more information on the applicability of EEL's, contact DuPont.

The DuPont Emergency Exposure Limit (EEL) for Sulfuric Acid is 10 mg/m3 for 15 to 60 minutes and 20 mg/m3 for up to 15 minutes with a not-to-exceed ceiling of 20 mg/m3.

HANDLING AND STORAGE

Handling (Personnel)

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wash thoroughly after handling.

Keep containers closed. Do not add water to contents while in container because of violent reaction.

Storage

Keep out of sun and away from heat, sparks, and flame. Keep container tightly closed and (drum) closure up to prevent leakage. Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. Do not use pressure to empty. Be sure closure is securely fastened before moving container. Do not wash out container or use it for other purposes; replace closure after each withdrawal and return it with empty container.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits.

Personal Protective Equipment

Have available and wear as appropriate for exposure conditions when handling containers or operating equipment containing sulfuric acid: chemical splash goggles; full-length face shield/chemical splash goggles combination; acid-proof gauntlet gloves, apron, and boots; long sleeve wool, acrylic, or polyester clothing; acid proof suit and hood; and appropriate NIOSH/MSHA respiratory protection. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NIOSH/MSHA respiratory protection.

(Continued)

EXPOSURE CONTROLS/PERSONAL PROTECTION(Continued)

 # Exposure Guidelines

Exposure Limits

Sulfuric Acid, 77 to 100%

PEL	(OSHA)	1 mg/m3, 8 Hr. TWA
TLV	(ACGIH)	1 mg/m3, 8 Hr. TWA STEL 3 mg/m3
AEL *	(Du Pont)	1 mg/m3, 8 & 12 Hr. TWA

* AEL is Du Pont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point	193-327 C (379-621 F) @ 760 mm Hg
Vapor Pressure	<0.3 mm Hg @ 25 C (77 F) <0.6 mm Hg @ 38 C (100 F)
Vapor Density	3.4
Melting Point	-35 to 11 C (-31 to 52 F)
Evaporation Rate	(Butyl Acetate = 1) Less than 1
Solubility in Water	100 WT%
pH	Less than 1
Odor	Odorless
Form	Oily; clear to turbid liquid
Color	Colorless to light gray

GRADE	BOILING PT. DEG C	BOILING PT. DEG F	MELTING PT. DEG C	MELTING PT. DEG F	SPECIFIC GRAVITY
60 DEG TECHNICAL	193	380	-12	10	1.706
66 DEG TECHNICAL	279	535	-35	-31	1.835
1.835 ELECTROLYTE	279	535	-35	-31	1.835
98% TECHNICAL	327	621	-2	29	1.844
99% TECHNICAL	310	590	4	40	1.842
100% TECHNICAL	274	526	11	51	1.839

STABILITY AND REACTIVITY

Chemical Stability

Stable, but reacts violently with water and organic materials with evolution of heat.

(Continued)

STABILITY AND REACTIVITY (Continued)

Decomposition
Releases sulfur dioxide at extremely high temperatures.

Polymerization
Polymerization will not occur.

Other Hazards
Incompatibility : Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fuminates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

TOXICOLOGICAL INFORMATION

Animal Data
Inhalation 1-hour LC50: 347 ppm in rats
Oral LD50 : 2,140 mg/kg in rats

Sulfuric acid is corrosive to the skin and eyes of animals. By ingestion, it is moderately toxic in animals causing corrosion of mucosal surfaces. Toxic effects described in animals from single exposures by inhalation include respiratory irritation. Animal testing indicates that this compound does not have carcinogenic, mutagenic, embryotoxic, or reproductive effects.

ECOLOGICAL INFORMATION

Ecotoxicological Information
Aquatic Toxicity

48-hour TLm, flounder: 100-300 ppm

DISPOSAL CONSIDERATIONS

Waste Disposal
Cleaned-up material may be an RCRA Hazardous Waste on disposal due to the corrosivity characteristic. Do not flush to surface water or sanitary sewer system. Comply with Federal, State, and local regulations. If approved, neutralize and transfer to waste treatment system.

(Continued)

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	SULFURIC ACID*
Hazard Class	8
UN No.	1830
DOT/IMO Label	CORROSIVE
Special Information	DOT/IMO PLACARD: CORROSIVE
Packing Group	II

Reportable Quantity 1000 lb

Shipping Containers

Tank Cars.
Tank Trucks.
Barge

*If material is shipped in quantities greater than 1,000 lbs. per container, the Proper Shipping Name is RQ SULFURIC ACID.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute	: Yes
Chronic	: Yes
Fire	: No
Reactivity	: Yes
Pressure	: No

LISTS:

SARA Extremely Hazardous Substance	-Yes
CERCLA Hazardous Material	-Yes
SARA Toxic Chemicals	-Yes

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health	3
Flammability	0
Reactivity	2

Water Reactive.

NPCA-HMIS Rating

(Continued)

OTHER INFORMATION (Continued)

Health	3
Flammability	0
Reactivity	2

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

For further information, see DuPont Sulfuric Acid "Storage and Handling Bulletin".

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS	DuPont Chemicals
Address	Engineering & Product Safety P. O. Box 80709, Chestnut Run Wilmington, DE 19880-0709
Telephone	302-999-4946

# Indicates updated section.

End of MSDS

DU PONT

ORIGINAL
(Red)

MATERIAL SAFETY DATA SHEET

001032

IDENTIFICATION

Name Zinc Chloride, Solution

Synonyms

Chemical Family
Metal salt solution

CAS Name

CAS Registry No.
7646-85-7

I.D. Nos./Codes NIOSH Access No. = ZH 14040
Wiswesser Code = .ZN..G2

Chemical Formula: Solution of $ZnCl_2$ in water

Manufacturer/Distributor
E. I. Du Pont de Nemours & Co., (Inc.)

Product Information and Emergency Phone
(302) 774-2421

Address
Wilmington, DE 19898

Transportation Emergency Phone
(800) 424-9300

HAZARDOUS COMPONENTS

Material(s)		Approximate %
Zinc chloride solution	50%	50
" " "	70 Bé	69
" " "	72 Bé	71

PHYSICAL DATA

Boiling Point, 760 mm Hg
115-135°C (239-275°F)

Melting Point

Specific Gravity
1.6-2.0 (water = 1)

Vapor Pressure
3 mm Hg @ 25°C (77°F)

Vapor Density
<1 (vapor is water) (Air = 1)

Solubility in H_2O
Complete

% Volatiles by Vol.
29-50% (water)

Evaporation Rate (Butyl Acetate = 1)

Form	Appearance	Color	Odor
Liquid	Clear	Pale Yellow	Odorless

pH Information
4.5-5.0

Octanol/Water Partition Coefficient

FIRE AND EXPLOSION DATA

Flash Point Method

Autoignition Temperature

Will not burn.

Flammable Limits in Air, % by Vol.

Lower

Upper

Fire and Explosion Hazards Dried down material may release zinc chloride and zinc oxide fumes, hydrogen chloride gas, if involved in a fire.

Extinguishing Media

Special Fire Fighting Instructions

ORIGINAL
(Red)

HAZARDOUS REACTIVITY

Instability
Stable.

Incompatibility
Cyanides (releases toxic HCN gas)

Decomposition
Will not occur.

Polymerization
Will not occur.

HEALTH HAZARD INFORMATION

Exposure Limits OSHA 8-hour time weighted average (TWA) and ACGIH TLV®-TWA for zinc chloride fumes is 1 mg/m³.

Routes of Exposure and Effects Causes burns. Mist or fumes may cause injury to respiratory tract. Metal fume fever may result from inhalation of zinc oxide, a possible decomposition product at high temperature.

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

If swallowed, give large quantities of water or milk. Do not induce vomiting. Call a physician. Never give anything by mouth to an unconscious person.

PROTECTION INFORMATION

Ventilation

Personal Protective Equipment
Chemical splash goggles, rubber gloves, footwear and apron.

Other
Face shield if danger of splashing.

DISPOSAL PROCEDURES

Aquatic Toxicity

Spill, Leak or Release
Flush with plenty of water to chemical sewer.

Waste Disposal Dispose in accordance with federal, state and local regulations. If approved, may be given to disposal contractor or drained to sewer to waste treatment plant.

SHIPPING PRECAUTIONS

Transportation DOT Shipping Name = Zinc chloride solution. DOT Hazard Class = corrosive material. 49 STC Code = 49 32393. UN No. 1840. IMCO Class 8.

Shipping Containers
Tank cars, tank trucks, 30 gallon PE lined fiber drum.

Storage Conditions Keep drum in upright position; do not roll drum on side. Keep container closed.

REFERENCES AND ADDITIONAL INFORMATION

Do not get in eyes, on skin or clothing.
Avoid breathing mist and fumes.
Wash thoroughly after handling.
Before using, read Du Pont Zinc Chloride Data Sheet.

DATE: 1/80

DU PONT

E-31172

ORIGINAL (Red)

HANLIN CHEMICALS
A DIVISION OF HANLIN GROUP, INC.
RARITAN PLAZA II RARITAN CENTER
EDISON, N.J. 08837

DATE: 1/91
EMERGENCY PHONE NO.:
(800) 624-6938
CHEMTREC:
(800) 424-9300

PRODUCING FACILITY: MOUNDSVILLE, WV 800-624-6938 OR 304-843-1310

MATERIAL SAFETY DATA FOR CARBON TETRACHLORIDE

MSDS NO. 000056235

SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME: CARBON TETRACHLORIDE C.A.S. NO.: 56-23-5
SYNONYMS: TETRACHLOROMETHANE, PERCHLOROMETHANE, METHANE TETRACHLORIDE
D.O.T. IDENTIFICATION NO.: UN 1846
TRADE NAME: CARBON TETRACHLORIDE D.O.T. HAZARD CLASS: ORM-A
CHEMICAL FORMULA: CCL4 RQ: 5000 LBS., 2270 KG.
D.O.T. SHIPPING NAME: CARBON TETRACHLORIDE
D.O.T. HAZARD GUIDE: # 55
CHEMICAL FAMILY: HALOGENATED HYDROCARBON N.F.P.A. REGISTRY: 3-0-0
LABELING: ORM-A PLACARD: UN 1846

SECTION II (SEE SECTION XI) INGREDIENTS AND HAZARD DATA

PRINCIPAL COMPONENT: CARBON TETRACHLORIDE C.A.S. NO.: 56-23-5
PERCENT: 100%

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: VIOLENT REACTIONS OR EXPLOSIONS MAY OCCUR WITH INCOMPATIBLE MATERIALS, SUCH AS BARIUM, LITHIUM, SODIUM, AND POTASSIUM METAL, POWDERED ALUMINUM, MAGNESIUM, DIMETHYLFORMAMIDE (ABOVE 65 DEG C) AND FLOURINE. THERMAL-OXIDATION DECOMPOSITION WILL PRODUCE TOXIC, CORROSIVE FUMES INCLUDING PHOSGENE AND HYDROGEN CHLORIDE.

NIOSH THRESHOLD LIMIT VALUE: 2 PPM 60 MIN CEILING (SEPT. 1985 DHEW 78-210)
OSHA PERMISSIBLE EXPOSURE LIMIT: 2 PPM TWA, (MARCH 1989)
ACGIH LIMIT VALUE: 5 PPM - SKIN (1988-89)
NTP CARCINOGEN: EVIDENCE OF CARCINOGENICITY IN HUMANS IS INADEQUATE (NTP-85-002)
IARC CARCINOGEN: EVIDENCE FOR CARCINOGENICITY IN HUMANS IS INADEQUATE (IARC MONOGRAPHS - SUPPLEMENT 4)
MUTAGENIC: NOT LISTED TERATOGENIC: NOT LISTED
REPRODUCTIVE TOXICITY: NOT LISTED
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: OBESITY, DIABETES, ALCOHOLISM, PULMONARY PROBLEMS.
PRIMARY ROUTES OF EXPOSURE: INHALATION, ABSORPTION (SKIN), INGESTION
EFFECTS OF EXPOSURE:
INHALATION: HEADACHE, DIZZINESS, NAUSEA, DULLNESS, UNCONSCIOUSNESS;
SKIN: TOXIC BY SKIN ABSORPTION - REDNESS - CAUSES DEFATTING AND DERMATITIS.
EYES: REDNESS, PAIN.
INGESTION: ABDOMINAL PAIN, DIARRHEA, DIZZINESS, UNCONSCIOUSNESS.

ORIGINAL (Red)

MSDS NO. 000056235

SECTION II (CON'T) INGREDIENTS AND HAZARD DATA

ADDITIONAL INFORMATION: CARBON TETRACHLORIDE IS HIGHLY TOXIC AND IRRITATING WHEN INHALED OR INGESTED. IT IS TOXIC BY SKIN ABSORPTION. EXCESSIVE EXPOSURE MAY RESULT IN CNS DEPRESSION AND/OR GASTROINTESTINAL SYMPTOMS. KIDNEY AND LIVER DAMAGE MAY OCCUR FROM SEVERE ACUTE OR CHRONIC EXPOSURE. IT IS A SUSPECTED CARCINOGEN IN HUMANS. TOXICITY IS MARKEDLY INCREASED BY THE SYNERGISTIC EFFECTS OF ALCOHOL. WORKERS WITH OBESITY, DIABETES, ALCOHOLISM, OR PULMONARY PROBLEMS SHOULD BE CONSULTED BY A PHYSICIAN. PERIODIC MEDICAL EXAMINATIONS (ANNUALLY) ARE RECOMMENDED FOR PERSONS SUBJECT TO EXPOSURE. NO SMOKING IN AREAS WHERE VAPORS MAY BE PRESENT.

TARGET ORGANS: C.N.S, EYES, LUNGS, LIVER, KIDNEYS, SKIN.

SECTION III PHYSICAL DATA

BOILING POINT: 77 DEG C

SPECIFIC GRAVITY (H2O=1): 25/4 DEG C = 1.585

VAPOR PRESSURE (MM HG): 20 DEG C = 91 pH: NON AQUEOUS

VAPOR DENSITY (AIR=1) : 5.3 MOLECULAR WEIGHT: 153.8

APPEARANCE/ODOR: A CLEAR, COLORLESS LIQUID WITH A CHARACTERISTIC SWEETISH ODOR.

PERCENT VOLATILE BY VOLUME (%): 100

EVAPORATION RATE: CONTINGENT ON RATE OF HEAT ABSORPTION

SOLUBILITY IN WATER: 20 DEG C = 0.08 WT. %

FREEZE/SOLIDIFICATION TEMP: -23 DEG C

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE

EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE

AUTO IGNITION TEMP: NONE

SPECIAL FIRE FIGHTING PROCEDURES: WEAR APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE GEAR.

UNUSUAL FIRE/EXPLOSION HAZARDS: METALS SUCH AS ALUMINUM AND MAGNESIUM MAY REACT VIOLENTLY WHEN HOT OR BURNING. TOXIC AND CORROSIVE FUMES MAY OCCUR DUE TO DECOMPOSITION OF CARBON TETRACHLORIDE.

SECTION V REACTIVITY DATA

STABILITY: THIS MATERIAL IS STABLE UNDER NORMAL CONDITION OF HANDLING AND USE.

CONDITIONS TO AVOID: KEEP AWAY FROM FLAMES AND HIGH TEMPERATURES.

INCOMPATABILITY: SEE SECTION II

HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL DECOMPOSITION PRODUCES TOXIC FUMES INCLUDING PHOSGENE AND HYDROGEN CHLORIDE.

POLYMERIZATION: WILL NOT POLYMERIZE.

ORIGINAL (Red)

SECTION VI ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: CLEAN-UP PERSONNEL MUST BE PROTECTED AGAINST CONTACT AND INHALATION (SEE SECTION VIII). CONTAIN SPILL PICK UP LIQUID FOR DISPOSAL. SMALL SPILLS AND RESIDUES CAN BE ABSORBED ON PAPER, VERMICULITE, ETC. AND ALLOW TO EVAPORATE IN A HOOD. PREVENT RELEASE TO SURFACE WATER OR SEWERS. SPILLS OR DISCHARGES, MUST BE REPORTED TO PROPER GOVERNMENTAL AGENCIES, AS REQUIRED.

WASTE DISPOSAL METHODS: CONSIDER RECOVERY OR REUSE IF POSSIBLE. NON REUSABLE MATERIAL OR SCRAP MAY BE DISPOSED OF VIA A LICENSED, APPROVED WASTE DISPOSAL COMPANY OR AN ON-SITE, GOVERNMENT APPROVED, HIGH TEMPERATURE, INCINERATOR WITH SCRUBBER. FOLLOW FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. THIS IS LISTED BY THE EPA AS A HAZARDOUS WASTE U211 OR F001 AS A SPENT DEGREASING SOLVENT.

ADDITIONAL INFORMATION: SPILLS IN EXCESS OF 5000 POUNDS MUST BE REPORTED.

SECTION VII SPECIAL PROTECTION INFORMATION

EYE PROTECTION: CHEMICAL GOGGLES AND/OR FACE SHIELD.

RESPIRATORY PROTECTION: USE APPROVED AIR SUPPLIED OR SELF CONTAINED BREATHING APPARATUS WHEN CONCENTRATIONS OCCUR ABOVE TLV LIMITS.

SKIN PROTECTION: IMPERVIOUS CLOTHING TO PREVENT CONTACT.

OTHER PROTECTION: A SAFETY EYE WASH/SHOWER STATION SHOULD BE PROVIDED IN THE HANDLING AREA.

VENTILATION RECOMMENDED: PROVIDE GENERAL AND LOCAL EXHAUST VENTILATION TO MEET TLV. VENTILATE SUMPS OR LOW LYING AREAS.

GLOVE TYPE RECOMMENDED: POLYETHYLENE LINED, VITON, PVA OR NEOPRENE.

ADDITIONAL INFORMATION: MONITOR VAPOR LEVELS IN THE WORKPLACE.

SECTION VIII SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING & STORING: AVOID INHALATION AND/OR BODY CONTACT.

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING: STORE IN CLOSED CONTAINERS IN A COOL, DRY, WELL VENTILATED, LOW FIRE-RISK AREA. KEEP CONTAINERS AWAY FROM SOURCES OF HEAT, DIRECT SUNLIGHT AND INCOMPATIBLE MATERIALS (SEE SECTION IV). POST NO SMOKING IN AREAS WHERE VAPORS MAY BE PRESENT.

PRECAUTIONS FOR REPAIR & MAINTENANCE OF CONTAMINATED EQUIPMENT: INSURE THAT LEVELS ARE MAINTAINED BELOW TLV.

OTHER PRECAUTIONS: NO SMOKING IN AREAS WHERE VAPORS ARE PRESENT.

ORIGINAL (Red)

SECTION IX TRANSPORTATION

USUAL SHIPPING CONTAINERS: TANK CARS, TANK TRUCKS.
USUAL SHELF LIFE: INDEFINITE IN SEALED CONTAINERS.
STORAGE/TRANSPORT TEMPS: AMBIENT
SUITABLE STORAGE MATERIALS/COATINGS: STEEL
UNSUITABLE: RUBBER, PLASTICS.
OTHER INFORMATION: DO NOT PERMIT STORAGE NEAR HEAT SOURCES OR FLAMMABLE MATERIALS.

SECTION X REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.
EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A
THRESHOLD PLANNING QUANTITY - NONE ESTABLISHED
SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.
COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

REVISED: 1/91
SUPERCEDES: 9/84; 11/86; 9/88, 9/89
LCP MSDS NO.: 000056235

FIRST AID INSTRUCTIONS

EMERGENCY FIRST AID:

INHALATION: REMOVE TO FRESH AIR. RESTORE AND/OR SUPPORT BREATHING, ADMINISTER OXYGEN IF NEEDED. GET MEDICAL HELP.

SKIN: REMOVE CONTAMINATED CLOTHING. WASH WITH SOAP AND WATER.

EYES: FLUSH WITH WATER FOR 15 MINUTES INCLUDING UNDER THE EYELIDS. SEEK MEDICAL ATTENTION.

INGESTION: CONTACT PHYSICIAN FOR GASTRIC LAVAGE. IF MEDICAL HELP IS NOT AVAILABLE, GIVE WATER TO DRINK AND INDUCE VOMITING. NEVER GIVE LIQUIDS TO AN UNCONSCIOUS PERSON.

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EMERGENCY PHONE NO.:
(800) ~~624-6938~~ 334-3806
CHEMTREC:
(800) 424-9300

ORIGINAL (Red)

MATERIAL SAFETY DATA
FOR
CHLORINE LIQUID

SECTION I — MATERIAL IDENTIFICATION

CHEMICAL NAME: CHLORINE
SYNONYMS: LIQUID CHLORINE
D.O.T. IDENTIFICATION NO.: UN 1017
TRADE NAME: CHLORINE, COMPRESSED CHLORINE
CHEMICAL FORMULA: CL2
D.O.T. SHIPPING NAME: CHLORINE
D.O.T. HAZARD GUIDE: #20
CHEMICAL FAMILY: HALOGEN
N.F.P.A. REGISTRY: 3-0-0-OXY
LABELING: NONFLAMMABLE GAS, CHLORINE

C.A.S. NO.: 7782-50-5
R.Q.: 10 LBS.
HMIS: 3-0-0-G
FIFRA: #21139-5

PLACARD: UN 1017

SECTION II (SEE SECTION XI) — INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: CHLORINE C.A.S. NO.: 7782-50-5 PERCENT: 100%
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: CHLORINE IS ONE OF THE CHEMICAL ELEMENTS. THIS SUBSTANCE CAN BE ABSORBED INTO THE BODY BY INHALATION AND IS CORROSIVE TO THE EYES, SKIN AND RESPIRATORY TRACT. SERIOUS CASES MAY BE FATAL.

SECTION III — PHYSICAL DATA

BOILING POINT: -29.3 DEG F OR -34.0 DEG C
SPECIFIC GRAVITY (H2O=1): LIQUID AT 0 DEGREES C = 1.467
VAPOR PRESSURE (PSIG): AT 60 DEG F = 71 PH: NON AQUEOUS
APPEARANCE/ODOR: GAS IS GREENISH YELLOW, LIQUID IS AMBER. ODOR IS SUFFOCATING, PUNGENT, IRRITATING.
PERCENT VOLATILE BY VOLUME: 100%
EVAPORATION RATE: CONTINGENT ON RATE OF HEAT ABSORPTION
SOLUBILITY IN WATER: SLIGHT (ABOUT 0.7%)
FREEZE/SOLIDIFICATION TEMP: -149.8 DEG F OR -101 DEG. C

ORIGINAL (Red)

SECTION IV — FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE - THIS MATERIAL IS NOT COMBUSTIBLE.
EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE.
AUTO IGNITION TEMP: NONE LEL: NONE UEL: NONE
SPECIAL FIRE FIGHTING PROCEDURES: REMOVE CONTAINERS FROM FIRE ZONE IF POSSIBLE, EXCEPT IF CHLORINE IS LEAKING. IN PRESENCE OF CHLORINE USE SELF CONTAINED BREATHING APPARATUS AND FIRE FIGHTER TURNOUT CLOTHING.
UNUSUAL FIRE/EXPLOSION HAZARDS: MANY METALS IGNITE IN THE PRESENCE OF CHLORINE, FOR EXAMPLE, STEEL AT ABOUT 485 DEG. F, TITANIUM ON CONTACT WITH DRY CHLORINE. IT MAY REACT TO CAUSE FIRE AND/OR EXPLOSION ON CONTACT WITH ORGANICS LIKE TURPENTINE, PENETRATING OIL, ETC. ALSO WITH ETHER, AMMONIA, HYDROCARBONS, AND FINE PARTICLES OF METALS.
ADDITIONAL INFORMATION: MANY REACTIONS MAY CAUSE FIRE (POSSIBLY WITH EXPLOSION). AVOID CONTACT WITH COMBUSTIBLES, IN PARTICULAR HYDROGEN, ACETYLENE, LIGHT ORGANICS AND AMMONIA. CHLORINE CYLINDERS AND TON CONTAINERS ARE EQUIPPED WITH FUSIBLE PLUGS THAT MELT AT ABOUT 158 DEGREES F.

SECTION V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:ACGIH=1 PPM (8 HRS TWA) [1988-89 EDITION] 3 PPM STEL
OSHA PERMISSIBLE EXPOSURE LIMIT: 0.5 PPM TWA (MARCH 1989)
IARC CARCINOGEN: NOT LISTED NTP CARCINOGEN: NOT LISTED
MUTAGENIC: NOT REPORTED TERATOGENIC: NOT REPORTED
REPRODUCTIVE TOXICITY: STUDIES SHOW NO EFFECTS ON RATS AND RABBITS EXPOSED TO CHLORINE.
MEDICAL CONDITION(S) AGGRAVATED BY EXPOSURE: EMPHYSEMA, BRONCHITIS, ASTHMA AND OTHER RESPIRATORY DISEASES.
PRIMARY ROUTES OF EXPOSURE: INHALATION
EFFECTS OF EXPOSURE:
- INHALATION: IT AFFECTS THE RESPIRATORY SYSTEM FROM MILD IRRITATION WITH COUGHING AND LABORED BREATHING TO POSSIBLE DEATH FROM SUFFOCATION.
- SKIN: LIQUID AND GAS ARE CAPABLE OF CAUSING A BURN.
- EYES: LIQUID AND GAS ARE CAPABLE OF CAUSING A BURN.
- INGESTION: NOT LIKELY A PROBLEM BECAUSE IT IS A GAS AT ROOM TEMPERATURE.

FIRST AID:
- INHALATION: REMOVE FROM CONTAMINATED AREA. IF BREATHING HAS CEASED, START ARTIFICIAL RESPIRATION AT ONCE. OBTAIN MEDICAL ASSISTANCE.
- SKIN: REMOVE CONTAMINATED CLOTHING UNDER SHOWER.
- EYES: FLUSH WITH WATER FOR 15 MINUTES. USE NO OILS OR CHEMICAL NEUTRALIZERS. OBTAIN MEDICAL ASSISTANCE PROMPTLY.
- INGESTION: NOT A LIKELY OCCURENCE. VOMITING SHOULD BE INDUCED.

ADDITIONAL INFORMATION: ONE STUDY WHICH INVOLVED EXPOSURES TO HUMANS TO 0.5 PPM FOR 8 HRS AND 1.0 PPM FOR 4 HOURS CAUSED TRANSIENT DECREASED PULMONARY CAPACITY AS MEASURED BY PULMONARY FUNCTION TESTS.
TARGET ORGANS: RESPIRATORY SYSTEM
CHRONIC TOXICITY: RHESUS MONKEYS EXPPOSED TO CONCENTRATIONS TO 2 PPM FOR 6 HOURS A DAY, 5 DAYS A WEEK FOR ONE YEAR DID NOT EXHIBIT ANY SIGNS OF CHRONIC TOXICITY.

SECTION VI — REACTIVITY DATA

STABILITY: STABLE UNDER NORMAL CONDITIONS.

CONDITIONS TO AVOID: MOISTURE IN CHLORINE HANDLING SYSTEMS. EXCESSIVE HEAT OR FIRE IN STORAGE AREAS, ABOVE 485 DEGREES F.

INCOMPATABILITY: CHLORINE REACTS AS AN OXIDIZER WITH MOST ORGANIC MATERIALS (EXCEPT THOSE FULLY HALOGENATED) AT ROOM TEMP. IT REACTS WITH MANY METALS AT ELEVATED TEMPERATURES. DRY CHLORINE WILL REACT WITH TITANIUM AND ALUMINUM. WET CHLORINE IS CORROSIVE TO MOST METALS EXCEPT TITANIUM.

HAZARDOUS DECOMPOSITION PRODUCTS: CANNOT DECOMPOSE

POLYMERIZATION: WILL NOT POLYMERIZE.

CONDITIONS TO AVOID: WET CHLORINE CONTACT WITH MOST METALS (EXCEPT TITANIUM).

ADDITIONAL INFORMATION: HANDLE CHLORINE WITH FULL REGARD TO ITS PRESSURE CHARACTERISTICS.

SECTION VII — ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: FOLLOW PREPLANNED EMERGENCY PROCEDURES. ONLY PROPERLY EQUIPPED, TRAINED, FUNCTIONAL PERSONNEL SHOULD ATTEMPT TO CONTAIN A LEAK. ALL OTHER PERSONNEL SHOULD BE EVACUATED FROM THE DANGER AREA. USING FULL PROTECTIVE EQUIPMENT, APPLY EMERGENCY KIT DEVICE OR OTHER SECUREMENT TECHNOLOGY TO STOP THE LEAK. REPORT SPILLS AS REQUIRED TO APPROPRIATE GOVERNMENT AUTHORITIES. FOR ASSISTANCE CALL CHEMTREC (800) 424-9300 OR SUPPLIER.

WASTE DISPOSAL METHODS: CHLORINE GAS WILL DISPERSE TO THE ATMOSPHERE LEAVING NO RESIDUE. NEUTRALIZING CHEMICALS ARE CAUSTIC SODA SOLUTIONS, SODA ASH SOLUTIONS AND LIME SOLUTIONS.

PROTECTIVE EQUIPMENT: REQUIRES NIOSH APPROVED SELF CONTAINED BREATHING APPARATUS AND MAY REQUIRE A FULLY ENCAPSULED SUIT.

SECTION VIII — SPECIAL PROTECTION INFORMATION

EYE PROTECTION: SPLASH GOGGLES OR FULL FACE GAS MASK.

RESPIRATORY PROTECTION: NIOSH APPROVED ACID GAS CHEMICAL CARTRIDGE RESPIRATOR OR FULL FACE WITH CANISTER - WITHIN ALLOWABLE LIMITS. FOR UNKNOWN CONCENTRATIONS, USE APPROVED SELF CONTAINED BREATHING APPARATUS.

OTHER PROTECTION: FOR EXPOSURE TO HIGH CONCENTRATIONS OF LIQUID CHLORINE FULL BODY PROTECTION (CHEMICAL SUIT) IS REQUIRED. IN THE OPEN AND/OR FIRE SITUATIONS, FIREMAN'S TURN-OUT CLOTHING IS RECOMMENDED. IN LIGHT CONCENTRATIONS, ONE PIECE TYVEK SUIT SEALED AT THE NECK, WRISTS, AND ANKLES IS FUNCTIONAL.

VENTILATION RECOMMENDED: SUFFICIENT TO CONTROL BELOW TLV OR PEL OF 1 PPM. CHLORINE WILL COLLECT AT THE FLOOR OR GROUND LEVEL. EXHAUST SYSTEMS MUST BE DESIGNED ACCORDINGLY. ABSORPTION OR SCRUBBER SYSTEMS ARE RECOMMENDED.

GLOVE TYPE RECOMMENDED: NON POROUS

ADDITIONAL INFORMATION: DO NOT ATTEMPT TO HANDLE CHLORINE WITHOUT PREVIOUS TRAINING IN RESPIRATORY EQUIPMENT FOR TOXIC GASES.

SECTION IX — SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING & STORING: AVOID INHALATION OF VAPORS AND BODY CONTACT AS BODY MOISTURE WILL FORM A WEAK ACID.

PRECAUTIONS TO BE TAKEN FOR HANDLING AND STORING: DO NOT ATTEMPT TO HANDLE, STORE, OR USE CHLORINE WITHOUT COMPLETE REVIEW OF THE CHLORINE INSTITUTE'S CHLORINE MANUAL OR FORMAL TRAINING. CHLORINE SYSTEMS AND SUPPORT SYSTEMS MUST BE KEPT FREE OF ORGANICS, CLEAN, DRY (FREE OF MOISTURE) AND PROTECTED FROM FIRE. PROPER SELECTION OF MATERIALS OF CONSTRUCTION OF A CHLORINE SYSTEM IS CRITICAL TO SAFETY.

PRECAUTIONS FOR REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT: PURGE FREE OF CHLORINE.

OTHER PRECAUTIONS: OBTAIN MEDICAL ASSISTANCE PROMPTLY AFTER EXPOSURE. PREPLANNING FOR EMERGENCIES AND TRAINING OF PERSONNEL IS ESSENTIAL TO SAFE HANDLING.

SECTION X — TRANSPORTATION

USUAL SHIPPING CONTAINERS: STEEL TANK CARS, TANK TRUCKS, TON CONTAINERS, 100 AND 150 POUND CYLINDERS.

USUAL SHELF LIFE: UNLIMITED

STORAGE/TRANSPORT TEMPS: AMBIENT

SUITABLE STORAGE MATERIALS/COATINGS: STEEL

UNSUITABLE: TITANIUM, CHROME, ALUMINUM AND REACTIVE METALS.

OTHER INFORMATION: TO ACTIVATE A CHLORINE EMERGENCY RESPONSE TEAM, CALL CHEMTREC 800-424-9300.

CHLORINE IS SHIPPED AS A DRY COMPRESSED GAS IN STEEL CONTAINERS. LOCAL HEATING OF THIS EQUIPMENT (ABOVE 480 DEGREES F) CAN RESULT IN A CHLORINE-IRON FIRE FROM THE INSIDE OF THE CONTAINER RESULTING IN SUDDEN RELEASE OF CONTENTS. TO ASSIST EXPOSURE VICTIMS, AVOID FURTHER EXPOSURE BY REMOVAL OF SATURATED CLOTHING AND PROTECTION OF THE RESPIRATORY SYSTEM BY CONTINUOUS SUPPLY OF AIR OR OXYGEN BY MASK. KEEP PATIENT HALF UPRIGHT AND WARM. GET PROMPT MEDICAL ATTENTION. THERE IS NO KNOWN ANTIDOTE FOR CHLORINE, HOWEVER, INHALATION OF MOISTURE WITH FRESH AIR AS FROM A HOUSEHOLD VAPORIZER EXPEDITES RECOVERY FOR INHALATION VICTIMS.

SECTION XI — REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A THRESHOLD PLANNING QUANTITY - 100 POUNDS

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

EPA PRODUCT REGISTRATION NUMBER 21139-5 FEDERAL INSECTICIDE FUNGICIDE AND RODENTICIDE ACT (FIFRA)

ORIGINAL (Red)

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REVISED: 4/90
SUPERCEDES: 9/89
LCP MSDS NO. 007782505

THIS INFORMATION IS DRAWN FROM RECOGNIZED SOURCES BELIEVED TO BE RELIABLE. LCP CHEMICALS MAKES NO GUARANTEES NOR ASSUMES ANY LIABILITY IN CONNECTION WITH THIS INFORMATION. THE USER SHOULD BE AWARE OF CHANGING TECHNOLOGY, RESEARCH, REGULATIONS, AND ANALYTICAL PROCEDURES THAT MAY REQUIRE CHANGES HEREIN. THE ABOVE DATA IS SUPPLIED UPON THE CONDITION THAT PERSONS WILL EVALUATE THIS INFORMATION AND THEN DETERMINE ITS SUITABILITY FOR THEIR USE. ONLY U.S.A. REGULATIONS APPLY TO THE ABOVE.

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(800) 424-9300

PRODUCING FACILITY: MOUNDSVILLE, W. VA.: 800-624-6938 OR 304-843-1310

MATERIAL SAFETY DATA FOR CHLOROFORM

SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME: CHLOROFORM C.A.S. NO.: 67-66-3
SYNONYMS: TRICHLOROMETHANE, METHANE TRICHLORIDE HMIS: 2-1-0-C
D.O.T. IDENTIFICATION NO.: UN 1888
TRADE NAME: CHLOROFORM CHEMICAL FORMULA: CHCL3
D.O.T. SHIPPING NAME: CHLOROFORM
D.O.T. HAZARD GUIDE: #55 RQ: 5000 LBS., 2270 KG.
CHEMICAL FAMILY: HALOGENATED HYDROCARBON
N.F.P.A. REGISTRY: 2-0-0
LABELING: ORM-A PLACARD: UN 1888

SECTION II (SEE SECTION XI) INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: INGREDIENTS C.A.S. NO.: 67-66-3 100% CHLOROFORM
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: REACTS WITH STRONG ALKALIES AND ALCOHOLS TO CAUSE POTENTIAL EXPLOSIVE HAZARD.

SECTION III PHYSICAL DATA

BOILING POINT: 142 DEG. F OR 61 DEG. C
SPECIFIC GRAVITY (H20=1): 1.489
VAPOR PRESSURE (MM HG): 20 DEG.C = 159. 30 DEG. C = 245
VAPOR DENSITY (AIR =1): 4.13 MOLECULAR WEIGHT: = 119.38
APPEARANCE/ODOR: COLORLESS VOLATILE LIQUID. CHARACTERISTIC SWEETISH ODOR.
PERCENT VOLATILE BY VOLUME: 100%
EVAPORATION RATE (CCL4=1): 1.18
SOLUBILITY IN WATER: 25 DEG. C = 0.8%
FREEZE/SOLIDIFICATION TEMP: -82 DEG. F OR -63.5 DEG. C

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE - NONFLAMMABLE MATERIAL
EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE
AUTO IGNITION TEMP: NONE LEL: NONE UEL: NONE
SPECIAL FIRE FIGHTING PROCEDURES: FIREFIGHTERS SHOULD USE SELF CONTAINED BREATHING APPARATUS FOR PROTECTION FROM OXYGEN DEFICIENCY, SUFFOCATING VAPORS AND TOXIC/CORROSIVE VAPORS.
UNUSUAL FIRE/EXPLOSION HAZARDS: THERMAL OXIDATIVE DECOMPOSITION AT HIGH TEMPERATURES CAN GENERATE TOXIC AND CORROSIVE OXIDES OF CHLORINE AND CARBON ALSO HYDROGEN CHLORIDE AND CHLORINE.

SECTION V — HEALTH HAZARD DATA

NIOSH THRESHOLD LIMIT VALUE: 2 PPM - 60 MIN. CEILING (SEPTEMBER 1985 DHEW 78-210)

OSHA PERMISSIBLE EXPOSURE LIMIT : 2 PPM TWA (MARCH 1989)

ACGIH LIMIT VALUE: 10 PPM (1988-89)

NTP CARCINOGEN: EVIDENCE FOR CARCINOGENICITY IN HUMANS IS CONSIDERED INADEQUATE (NTP 85-002)

IARC CARCINOGEN: 2B - EVIDENCE FOR CARCINOGENICITY IN HUMANS IS CONSIDERED INADEQUATE (IARC MONOGRAPHS SUPPLEMENT 4)

MUTAGENIC: NOT LISTED FOR HUMANS TERATOGENIC: NOT LISTED FOR HUMANS

REPRODUCTIVE TOXICITY: NOT LISTED FOR HUMANS

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: CARDIOVASCULAR, ALCOHOLISM

PRIMARY ROUTES OF EXPOSURE: INHALATION, INGESTION, CONTACT

EFFECTS OF EXPOSURE:

INHALATION: CAN CAUSE HEADACHES, FATIGUE, DIZZINESS, MENTAL DULLNESS, NAUSEA & UNCONSCIOUSNESS. AT HIGH CONCENTRATIONS IT CAN CAUSE DEATH FROM HEART ARRHYTHMIAS AND FORM KIDNEY AND LIVER DISORDERS.

SKIN: CONTACT WILL CAUSE DEFATTING AND POSSIBLE IRRITATION FROM PROLONGED CONTACT.

INGESTION: WILL CAUSE SEVERE BURNING OF THE MOUTH AND THROAT. LIVER DAMAGE AND LOSS OF CONSCIOUSNESS MAY RESULT FROM A LARGE INGESTION (4 OZ.).

EYES: CONTACT WITH LIQUID OR HIGH VAPOR CONCENTRATIONS CAN CAUSE PAIN AND IRRITATION, BUT SERIOUS DAMAGE IS NOT EXPECTED.

EMERGENCY FIRST AID:

INHALATION: MOVE TO FRESH AIR. RESTORE OR SUPPORT BREATHING AS NECESSARY. OBTAIN MEDICAL ATTENTION FOR SERIOUS EXPOSURE.

SKIN: WASH WITH SOAP AND WATER. REPLACE SKIN OILS WITH CREAMS OR LOTIONS.

EYES: FLUSH WITH WATER FOR 15 MINUTES INCLUDING UNDER THE EYELIDS. OBTAIN MEDICAL ATTENTION

INGESTION: GIVE LARGE QUANTITIES OF MILK OR WATER AND INDUCE VOMITING IF CONSCIOUS. REPEAT IF LARGE QUANTITIES ARE INGESTED. OBTAIN MEDICAL ATTENTION.

ADDITIONAL INFORMATION: ALCOHOL INGESTION CAN INCREASE THE TOXIC EFFECTS OF CHLOROFORM EXPOSURE. PERIODIC MEDICAL EXAMINATIONS (ANNUALLY) ARE RECOMMENDED FOR PERSONS SUBJECT TO EXPOSURE.

TARGET ORGANS: LIVER, KIDNEYS, HEART, EYES, SKIN.

SECTION VI — REACTIVITY DATA

STABILITY: STABLE IN SEALED CONTAINERS IN THE DARK.

CONDITIONS TO AVOID: PROLONGED EXPOSURE TO AIR AND LIGHT WILL DEVELOP ACIDITY EVEN WHEN STABILIZED WITH ETHANOL.

INCOMPATABILITY (MATERIALS TO AVOID): STRONG ALKALIES, FLAME, AND OXIDANTS.

HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL OXIDATIVE DECOMPOSITION AT HIGH TEMPERATURES CAN GENERATE TOXIC AND CORROSIVE OXIDES OF CHLORINE AND CARBON ALSO CHLORINE AND HYDROGEN CHLORIDE.

POLYMERIZATION: WILL NOT POLYMERIZE

CONDITIONS TO AVOID: FLAME AND HIGH CONCENTRATION WITH AIR MIXTURES ABOVE 55 DEG. C.

ADDITIONAL INFORMATION: DO NOT USE RUBBER OR PLASTIC HOSE FOR HANDLING.

SECTION VII ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: REPORT SPILLS TO GOVERNMENTAL AGENCIES AS REQUIRED. FOLLOW PREPLANNED EMERGENCY PROCEDURE. WORKERS INVOLVED IN SPILL CLEAN-UP MUST WEAR SKIN AND RESPIRATORY (SELF CONTAINED BREATHING APPARATUS) PROTECTION. RECOVER IN SEALABLE METAL CONTAINERS IF POSSIBLE OR ABSORB WITH INERT ABSORBANT. THIS MATERIAL WILL EVAPORATE TO LEAVE NO RESIDUE. EVAPORATION SHOULD BE VENTED TO AN APPROVED FUME HOOD OR VENTILATION SYSTEM.

WASTE DISPOSAL METHODS: WASTE CAN BE DISPOSED OF VIA A LICENSED WASTE DISPOSAL COMPANY OR REPROCESSED. FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS.

ADDITIONAL INFORMATION: SEALABLE CONTAINERS ARE NECESSARY TO PREVENT EVAPORATION. SPILLS IN EXCESS OF 5000 POUNDS MUST BE REPORTED.

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION: WHERE SPLASHING IS PROBABLE WEAR CHEMICAL GOGGLES TO AVOID EYE CONTACT.

RESPIRATORY PROTECTION (SPECIFIC TYPE): THE USE OF APPROVED AIR SUPPLIED OR SELF CONTAINED BREATHING APPARATUS IS RECOMMENDED FOR CONCENTRATIONS ABOVE THE TLV.

SKIN PROTECTION: IMPERVIOUS COVERING (APRON OR CLOTHING) TO PREVENT CONTACT - BUNA, PVA, OR NEOPRENE

GLOVE TYPE RECOMMENDED: VITON, POLETHYLENE

ADDITIONAL INFORMATION: AIR MONITORING INSTRUMENTS ARE RECOMMENDED IN HEAVY USE AREAS.

SECTION IX SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING AND STORING: AVOID INHALATION AND/OR BODY CONTACT

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING: STORE IN SEALED CONTAINERS BELOW 86 DEG. F (30 DEG. C) AWAY FROM LIGHT. AVOID FLAME AND CONTACT WITH HOT SURFACES. PROVIDE ADEQUATE VENTILATION. HANDLE WITH RESPECT AND CAUTION. PREVENT SPILLAGE, DRUM PUNCTURE, ETC. DO NOT USE RUBBER OR PLASTIC HOSE FOR HANDLING.

PRECAUTIONS FOR REPAIR MAINTENANCE OF CONTAMINATED EQUIPMENT: INSURE THAT LEVELS ARE MAINTAINED BELOW TLV.

OTHER PRECAUTIONS: PREPLAN FOR EMERGENCIES.

SECTION X TRANSPORTATION

USUAL SHIPPING CONTAINERS: TANK CARS, TANK TRUCKS

USUAL SHELF LIFE: INDEFINITE IN SEALED CONTAINERS

STORAGE/TRANSPORT TEMPS: AMBIENT

SUITABLE STORAGE MATERIALS/COATINGS: STEEL

UNSUITABLE: RUBBER - PLASTICS

OTHER INFORMATION: DO NOT PERMIT STORAGE NEAR HEAT SOURCES OR FLAMMABLE MATERIALS

ORIGINAL (Red)

SECTION XI REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A
THRESHOLD PLANNING QUANTITY - 10,000 POUNDS

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

REVISED: 9/89
SUPERCEDES:9/84; 11/86; 9/88
LCP MSDS. NO. 0067663

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ORIGINAL (Red)

MATERIAL SAFETY DATA FOR HYDROCHLORIC ACID 18, 20, 22, 23 DEG. BAUME'

SECTION I — MATERIAL IDENTIFICATION

CHEMICAL NAME: HYDROCHLORIC ACID — C.A.S. NO.: 7647-01-0
SYNONYMS: MURIATIC ACID, HYDROGEN CHLORIDE — R.Q.: 5000 LBS. (100% BASIS)
D.O.T. IDENTIFICATION NO.: UN 1789
TRADE NAME: HYDROCHLORIC ACID — CHEMICAL FORMULA: HCL
D.O.T. SHIPPING NAME: HYDROCHLORIC ACID SOLUTION
CHEMICAL FAMILY: ACID — N.F.P.A. REGISTRY: 3-0-0
LABELING: CORROSIVE — PLACARD: UN 1789

SECTION II (SEE SECTION XI) — INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: HCL C.A.S. NO.: 7647-01-0 PERCENT: 28-31-35-37
BALANCE IS WATER
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: TOXIC FUMES CAN BE GENERATED BY CONTACT WITH ALKALIS, OXIDANTS AND MANY METALS WHICH CAUSE SPONTANEOUS TEMPERATURE RISE.
ADDITIONAL INFORMATION: TLV 5 PPM CEILING ACGIH;
PEL 5 PPM CEILING OSHA

SECTION III — PHYSICAL DATA

BAUME:	18	20	22	23
BOILING POINT DEG. F:	195	182	144	123
SPECIFIC GRAVITY:	1.142	1.160	1.179	1.189
VAPOR DENSITY 20C:	1.3	1.3	1.3	1.3
PERCENT VOLATILE BY VOLUME:	100	100	100	100
WEIGHT PERCENT HCL:	27.9	31.4	35.2	37.2
FREEZE/SOLIDIFICATION TEMP:	-49	-63.4	-86.3	-101.2
SOLUBILITY IN WATER:	INFINITE	INFINITE	INFINITE	INFINITE

APPEARANCE/ODOR: COLORLESS TO LIGHT YELLOW FUMING LIQUID.
PUNGENT AND SUFFOCATING ODOR.
MOLECULAR WEIGHT: 36.47 — PH: 0 OR LESS THAN 0.1

SECTION IV — FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE NON-COMBUSTIBLE
FLAMMABLE LIMITS: NONE
EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE.
SPECIAL FIRE FIGHTING PROCEDURES: USE PROTECTIVE CLOTHING SUITABLE FOR ACIDS AND SELF CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE/EXPLOSION HAZARDS: FLAMMABLE HYDROGEN GAS IS GENERATED BY REACTION WITH MANY METALS.
ADDITIONAL INFORMATION: THIS MATERIAL CAN BE NEUTRALIZED WITH AN ALKALI SUCH AS WEAK CAUSTIC SOLUTIONS OR SODA ASH.

ORIGINAL (Red)

SECTION V — HEALTH HAZARD DATA

NIOSH THRESHOLD LIMIT VALUE: NONE NIOSH (DHEW 78-210 SEPT.1985)
OSHA PERMISSIBLE EXPOSURE LIMIT: 5 PPM CEILING (MARCH 1989)
ACGIH LIMIT VALUE: 5 PPM CEILING (1988-89 EDITION)
NTP CARCINOGEN: NONE- WORLD HEALTH ORGANIZATION
IARC CARCINOGEN: NONE- WORLD HEALTH ORGANIZATION
MUTAGENIC: NONE- WORLD HEALTH ORGANIZATION
TERATOGENIC: NONE- WORLD HEALTH ORGANIZATION
REPRODUCTIVE TOXICITY: NONE- WORLD HEALTH ORGANIZATION
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: RESPIRATORY AILMENTS
PRIMARY ROUTES OF EXPOSURE: INHALATION, BODY CONTACT
EFFECTS OF EXPOSURE:

INHALATION: PUNGENT, SORE THROAT, COUGHING, SHORTNESS OF BREATH. CONCENTRATIONS ABOVE 50 PPM WILL DAMAGE THE UPPER RESPIRATORY TRACT.

SKIN: CORROSIVE, REDNESS, BURNS

EYES: CORROSIVE, BURNS, PAIN, BLURRED VISION

INGESTION: CORROSIVE TO ESOPHAGUS AND STOMACH. MAY LEAD TO CONVULSIONS

EMERGENCY FIRST AID:

INHALATION: REMOVE TO FRESH AIR, KEEP UPRIGHT POSITION, PROVIDE OXYGEN, GET MEDICAL AID.

SKIN: WASH WITH WATER, GET MEDICAL HELP.

EYES: FLUSH WITH WATER FOR 15 MINUTES,INCLUDING UNDER THE EYELIDS. GET MEDICAL HELP.

INGESTION: DO NOT INDUCE VOMITING-GET MEDICAL AID-RINSE MOUTH WITH WATER-DRINK PLENTY OF WATER-GIVE MILK OF MAGNESIA OR LIME WATER.

ADDITIONAL INFORMATION: CONCENTRATIONS ABOVE 1300 PPM ARE BELIEVED TO BE IMMEDIATELY DANGEROUS TO LIFE.
TARGET ORGANS: RESPIRATORY SYSTEM, SKIN, EYES.

SECTION VI — REACTIVITY DATA

STABILITY: STABLE UNDER NORMAL CONDITIONS.
CONDITIONS TO AVOID: HEAT SOURCES, CONTACT WITH METALS OR ALKALIS, AND BODY CONTACT.
INCOMPATABILITY: BASE METALS, METAL OXIDES, ALKALINE MATERIALS, CARBONATES, AMINES, HYDROXIDES.
HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE GAS, HYDROGEN
POLYMERIZATION: WILL NOT OCCUR
ADDITIONAL INFORMATION: STRONG MINERAL ACID - CORROSIVE TO MOST COMMON METALS.

SECTION VII — ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: CONTAIN SPILL OR LEAKS IN PLASTIC CONTAINERS, DIKES, PONDS, OR RETENTION AREAS WHERE SPILLAGE CAN BE NEUTRALIZED WITH SODA ASH OR ALKALINE SOLUTIONS. CONSIDERE RECOVERY IF PROPER EQUIPMENT IS AVAILABLE.
WASTE DISPOSAL METHODS: DISPOSAL IS CONTINGENT UPON ALLOWABLE SALT CONCENTRATIONS AND PH IN THE EFFLUENT STREAM.
ADDITIONAL INFORMATION: FOLLOW FEDERAL, STATE, LOCAL AND PERMITP REGULATIONS. PREPARE FOR EMERGENCIES IN ADVANCE, SUCH AS ACID RESISTANT FLOORS AND DRAINAGE, NEUTRALIZATION MATERIALS, CONTAINMENT SAND, ETC.

ORIGINAL (Red)

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION: SPLASH GOGGLES OR FACE SHIELD

RESPIRATORY PROTECTION: NIOSH APPROVED ACID GAS CHEMICAL CARTRIDGE RESPIRATOR OR FULL FACE WITH CANISTER. FOR UNKNOWN CONCENTRATIONS USE APPROVED SELF CONTAINED BREATHING APPARATUS.

OTHER PROTECTION: DISPOSABLE PLASTIC SUITS, OR A RUBBER APRON.

VENTILATION RECOMMENDED: SUFFICIENT TO CONTROL BELOW TLV REQUIREMENTS. DUE TO LOW FREEZE POINTS THIS MATERIAL IS NORMALLY STORED OUTSIDE OF BUILDINGS.

GLOVE TYPE RECOMMENDED: RUBBER, LATEX, PLASTIC

ADDITIONAL INFORMATION: AVOID BODY CONTACT AND INHALATION OF FUMES

SECTION IX SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING/STORING: WEAR EYE, RESPIRATORY AND CLOTHING TO PROTECT AGAINST ACCIDENTAL SPILLS.

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING:

1. STORE IN COMPATIBLE EQUIPMENT (ACID PROOF)
2. PROVIDE VENTILATION
3. STORE AWAY FROM ALKALINE MATERIALS, OXIDIZING AGENTS AND BASE METALS.
4. DIKE STORAGE AREAS TO MEET FEDERAL, STATE, AND LOCAL REGULATIONS.

PRECAUTIONS FOR REPAIR MAINTENANCE OF CONTAMINATED EQUIPMENT: THOROUGHLY WASH WITH WATER AND CHECK THAT RESIDUAL IS SAFE.

OTHER PRECAUTIONS: KEEP METALS AWAY FROM STORAGE AREAS AS CONTACT MAY CAUSE HYDROGEN GENERATION.

ADDITIONAL INFORMATION: ONLY TRAINED PESONNEL SHOULD HANDLE THIS MATERIAL AND SOMEONE SHOULD BE IN ATTENDANCE THROUGHOUT ANY LOADING, UNLOADING, OR TRANSFER OPERATION.

SECTION X TRANSPORTATION

USUAL SHIPPING CONTAINERS: RUBBER LINED TANK CARS, TRUCKS, PLASTIC DRUMS AND GLASS CARBOYS.

USUAL SHELF LIFE: UNLIMITED STORAGE/TRANSPORT TEMPS: AMBIENT

SUITABLE STORAGE MATERIALS/COATINGS: NON-METALLIC, MATERIAL APPROVED RESISTANT TO STRONG MINERAL ACIDS.

UNSUITABLE: MOST COMMON METALS, CONCRETE

OTHER INFORMATION: PROVIDE VENTILATION. STORE AWAY FROM ALKALINE MATERIALS, OXIDIZING AGENTS, AND BASE METALS. DIKE STORAGE AREAS TO MEET FEDERAL, STATE, AND LOCAL REGULATIONS. KEEP METALS AWAY FROM STORAGE AREAS WHICH MAY CAUSE HYDROGEN GENERATION. ONLY TRAINED PERSONNEL SHOULD HANDLE THIS MATERIAL AND SOMEONE SHOULD BE IN ATTENDANCE THROUGHOUT ANY LOADING,UNLOADING OR TRANSFER OPERATION.

ORIGINAL (Red)

SECTION XI REGULATORY INFORMATION *

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A, THRESHOLD PLANNING QUANTITY 500 POUNDS - GAS ONLY

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

REVISED: 9/89
SUPERCEDES: 11/86; 11/87; 9/88
LCP MSDS. NO.007647010

ORIGINAL (Red)

PRODUCING FACILITY:

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DATE: 9/88
EMERGENCY PHONE NO: 304-843-1310
(800) 624-6938
CHEMTREC: (800) 424-9300

MATERIAL SAFETY DATA FOR HYDROGEN GAS

SECTION 1: MATERIAL IDENTIFICATION

CHEMICAL NAME: HYDROGEN C.A.S. NO.: 1333-74-0

SYNONYMS: COMPRESSED HYDROGEN

EPA HAZARDOUS WASTE NO:

D.O.T. IDENTIFICATION NO: UN 1049 GAS; UN 1966 LIQUID

TRADE NAME: HYDROGEN GAS

CHEMICAL FORMULA: H2

D.O.T. SHIPPING NAME: HYDROGEN COMPRESSED

D.O.T. HAZARD GUIDE: #22 RQ:

CHEMICAL FAMILY: ELEMENT

N.F.P.A. REGISTRY: 0-4-0

LABELING: FLAMMABLE GAS PLACARD: UN 1049 GAS
UN 1966 LIQUID

SECTION II: INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: HYDROGEN PERCENT: ESSENTIALLY 100%

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: REACTS VIOLENTLY WITH MANY GASES CAUSING FIRE AND EXPLOSION HAZARDS.

ADDITIONAL INFORMATION: CAN BECOME AN ASPHYXIANT BY CAUSING OXYGEN DEFICIENCY. TLV = ACGIH: MINIMUM OXYGEN LEVEL OF 18% BY VOLUME.

* SECTION III: PHYSICAL DATA *

BOILING POINT: -253 DEG C

SPECIFIC GRAVITY: -253 DEG C -0.07

VAPOR PRESSURE: GAS, AMBIENT

pH: NON AQUEOUS

VAPOR DENSITY: 0.1

MOLECULAR WEIGHT: 2.02

APPEARANCE/ODOR: COLORLESS, ODORLESS, TASTELESS.

PERCENT VOLATILE BY VOLUME: 100%

EVAPORATION RATE: N.A.

SOLUBILITY IN WATER: 0.019

FREEZE/SOLIDIFICATION TEMP: -259 DEG C

* SECTION IV: FIRE AND EXPLOSION DATA *

FLASH POINT (METHOD): FLAMMABLE GAS NA (GASEOUS MATERIAL)

EXTINGUISHING MEDIA: DRY CHEMICAL, CO2, INERT GAS.

AUTO IGNITION TEMP: 1075 DEG F - 580 DEG C

LEL: 4

UEL: 75

SPECIAL FIRE FIGHTING PROCEDURES: USE CARBON DIOXIDE, DRY CHEMICAL OR INERT GAS (NITROGEN).

UNUSUAL FIRE/EXPLOSION HAZARDS: IGNITES WITH A LOUD REPORT, IF POSSIBLE, STOP THE FLOW TO EXTINGUISH A FIRE - OR ALLOW IT TO BURN OUT IF POSSIBLE.

ADDITIONAL INFORMATION: DUE TO LOW ELECTRIC CONDUCTIVITY, THIS SUBSTANCE CAN GENERATE ELECTROSTATIC CHARGES DURING HANDLING OPERATIONS.

* SECTION V: HEALTH HAZARD DATA *

THRESHOLD LIMIT VALUE: NON TOXIC

PERMISSIBLE EXPOSURE LIMIT: MINIMUM OF 18% OXYGEN.

OSHA LIMIT VALUE: ASPHYXIANT MINIMUM OF 18% OXYGEN.

ACGIH LIMIT VALUE: ASPHYXIANT MINIMUM OF 18% OXYGEN.

NTP CARCINOGEN: NOT LISTED.

IARC CARCINOGEN: NOT LISTED.

MUTAGENIC: NOT LISTED.

TERATOGENIC: NOT LISTED.

REPRODUCTIVE TOXICITY: NO KNOWN STUDY.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NONE.
PRIMARY ROUTES OF EXPOSURE: INHALATION.

EFFECTS OF EXPOSURE:

INHALATION: EXPOSURE TO OXYGEN DEFICIENT ATMOSPHERE CAN CAUSE DIMINISHED ALERTNESS, BREATHING IMPAIRMENT AND DEATH.

SKIN: NONE.

EYES: NONE.

INGESTION: NOT PROBABLE - GAS AT ROOM TEMPERATURE.

EMERGENCY FIRST AID:

INHALATION: REMOVE TO FRESH AIR. RESTORE BREATHING. ADMINISTER OXYGEN. GET MEDICAL HELP.

SKIN: NONE.

EYES: NONE.

INGESTION: NONE.

ADDITIONAL INFORMATION: FIRE AND/OR EXPLOSION HAZARD. BE PREPARED AT ALL TIMES. RESPONDERS MUST WEAR SELF-CONTAINED BREATHING APPARATUS AND TURN-OUT CLOTHING. AVOID ALL IGNITION SOURCES.

TARGET ORGANS:

* SECTION VI: REACTIVITY DATA *

STABILITY: STABLE IN CLOSED CONTAINERS AT AMBIENT TEMPERATURES.

CONDITIONS TO AVOID: OXIDIZING AGENTS-GASEOUS MIXTURES (i.e., HALOGENS)

INCOMPATIBILITY: HALOGENS, OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS: OXYGEN DEFICIENCY.

POLYMERIZATION: DOES NOT POLYMERIZE.

CONDITIONS TO AVOID: HEAT, IGNITION SOURCES.

ADDITIONAL INFORMATION: OXYGEN/HYDROGEN MIXTURES CAN EXPLODE ON CONTACT WITH A CATALYST SUCH AS PLATINUM.

* SECTION VII: ENVIRONMENTAL PROTECTION PROCEDURES *

SPILL RESPONSE: STOP LEAK AT SOURCE IF POSSIBLE.

WASTE DISPOSAL METHODS: NONE - WILL VAPORIZE TO THE ATMOSPHERE.

ADDITIONAL INFORMATION: AVOID BODY CONTACT WITH COLD GAS. PROVIDE VENTILATION TO AVOID ACCUMULATION OF EXPLOSIVE MIXTURE.

* SECTION VIII: SPECIAL PROTECTION INFORMATION *

EYE PROTECTION: IS RECOMMENDED.

RESPIRATORY PROTECTION: AIR SUPPLIED OR SELF-CONTAINED IN EXPOSURE AREAS.

SKIN PROTECTION: WORK CLOTHING IS GENERALLY ADEQUATE.

OTHER PROTECTION: HYDROGEN AND OXYGEN MEASURING INSTRUMENTS.

VENTILATION RECOMMENDED: EXPLOSION PROOF.

GLOVE TYPE RECOMMENDED: LEATHER, COTTON.

ADDITIONAL INFORMATION: TRAINING IN THE SAFE HANDLING AND EMERGENCY PROCEDURES IS STRONGLY RECOMMENDED.

* SECTION IX: SPECIAL PRECAUTIONS *

HYGIENIC PRACTICES IN HANDLING & STORING: MONITOR THE ATMOSPHERE TO DETERMINE FLAMMABLE HYDROGEN AND OXYGEN DEFICIENCY.

PRECAUTIONS TO BE TAKEN FOR HANDLING & STORING: USE ONLY APPROVED D.O.T., ASME, OR ANSI EQUIPMENT FOR HANDLING.

PRECAUTIONS FOR REPAIR & MAINTENANCE OF CONTAMINATED EQUIPMENT: PURGE UNTIL INERT BY AN APPROVED METHOD.

OTHER PRECAUTIONS: STORAGE QUANTITIES MUST MEET LOCAL FIRE CODE AND REGULATIONS. EQUIPMENT SHOULD BE LABELED AND INDENTIFIABLE TO FIRST-LINE RESPONDER. GROUND ALL EQUIPMENT DURING TRANSFER OPERATIONS. NEVER USE AIR FOR PURGING EQUIPMENT.

* SECTION X: TRANSPORTATION *

USUAL SHIPPING CONTAINERS: CYLINDERS, PIPE LINES.

USUAL SHELF LIFE: UNLIMITED.

STORAGE/TRANSPORT TEMPS: BELOW 125 DEG F

SUITABLE STORAGE MATERIALS/COATINGS: STEEL.

UNSUITABLE: NON CODE EQUIPMENT D.O.T., ASME, ANSI.

OTHER INFORMATION: STORE OR HANDLE IN LOW RISK AREAS.

* SECTION IX: ADDITIONAL INFORMATION *

REVISED: 9/88 PREPARED BY:

SUPERCEDES: 9/84; 11/86

LCP MSDS. NO.: 001333740

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(Red)

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CHEMTREC:
(800) 424-9300

PRODUCING FACILITY: MOUNDSVILLE, W. VA.: (800) 624-6938 OR (304) 843-1310

MATERIAL SAFETY DATA FOR METHYL CHLORIDE

SECTION I — MATERIAL IDENTIFICATION

CHEMICAL NAME: METHYL CHLORIDE — C.A.S. NO.: 74-87-3
SYNONYMS: CHLOROMETHANE, MONOCHLOROMETHANE — RQ: 1 LB.
D.O.T. IDENTIFICATION NO.: UN 1063
TRADE NAME: METHYL CHLORIDE — HMIS: 2-4-0-C+
CHEMICAL FORMULA: CH3CL
D.O.T. SHIPPING NAME: METHYL CHLORIDE
D.O.T. HAZARD GUIDE: #18
CHEMICAL FAMILY: HALOGENATED HYDROCARBON
N.F.P.A. REGISTRY: 2-4-0
LABELING: FLAMMABLE GAS — PLACARD: UN 1063

SECTION II (SEE SECTION XI) — INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: METHYL CHLORIDE C.A.S. NO.: 74-87-3 PERCENT: 100%
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: THIS SUBSTANCE CAN DECOMPOSE BY FLAME OR CONTACT WITH HOT SURFACES FORMING TOXIC GAS AND CORROSIVE FUMES. IT IS INCOMPATIBLE WITH OXIDIZING AGENTS, AMINES, AMIDES, ALUMINUM, MAGNESIUM, ZINC AND ALKALI METALS.
ADDITIONAL INFORMATION: THERMAL OR OXIDATIVE DEGRADATION CAN PRODUCE HYDROCHLORIC ACID AND PHOSGENE GAS. LOW ELECTRIC CONDUCTIVITY CAN GENERATE ELECTROSTATIC CHARGES DUE TO FLOW.

SECTION III — PHYSICAL DATA

BOILING POINT: -24 DEG C OR -11 DEG F
SPECIFIC GRAVITY: 20/4C PRESSURIZED LIQUID 0.920
VAPOR PRESSURE: (MM HG): 20 DEG C = 3600 — PH: NON AQUEOUS
VAPOR DENSITY: (AIR = 1): 1.8 — MOLECULAR WEIGHT: 50.49
APPEARANCE/ODOR: COLORLESS LIQUEFIED GAS - FAINT ETHER LIKE ODOR
PERCENT VOLATILE BY VOLUME: 100%
EVAPORATION RATE: EVAPORATION RATE IS CONTINGENT ON RATE OF HEAT ABSORPTION.
SOLUBILITY IN WATER: 0.74%
FREEZE/SOLIDIFICATION TEMP: -98C

ORIGINAL (Red)

SECTION IV — FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): UNDER 32F OPEN CUP

EXTINGUISHING MEDIA: CO2, DRY CHEMICAL, WATER FOG. WATER SPRAY CAN BE USED FOR COOLING FIRE EXPOSED CONTAINERS. GAS FLOW SHOULD BE STOPPED FOR FIRE CONTROL.

AUTO IGNITION TEMP: 1170 DEG F NFPA LEL: 7.6% UEL: 19% NIOSH
10.7% 17% NFPA

SPECIAL FIRE FIGHTING PROCEDURES: FIREFIGHTERS MUST USE SELF CONTAINED BREATHING APPARATUS WHEN THIS MATERIAL IS INVOLVED IN A FIRE.

UNUSUAL FIRE/EXPLOSION HAZARDS: FIRE SITUATIONS CAN RESULT IN SMOKING FLAME CONTAINING TOXIC FUMES. IF POSSIBLE, (CONTINGENT UPON RISK TO SURROUNDING AREA) LET THE FIRE BURN ITSELF OUT. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING OR RELIEF DEVICES.

SECTION V — HEALTH HAZARD DATA

NIOSH THRESHOLD LIMIT VALUE: LOWEST FEASIBLE LIMIT (DHEW 78-210 SEPT. 1985)

OSHA PERMISSIBLE EXPOSURE LIMIT: 50 PPM TWA, 100 PPM STEL (MARCH 1989)

ACGIH LIMIT VALUE: 50 PPM TWA; STEL 100 PPM (1988 - 89 EDITION)

NTP CARCINOGEN: NOT LISTED

IARC CARCINOGEN: NOT LISTED

MUTAGENIC: NOT LISTED TERATOGENIC: NOT LISTED

REPRODUCTIVE TOXICITY: NO KNOWN STUDY

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: THE USE OF ALCOHOLIC BEVERAGES ENHANCES THE TOXIC EFFECTS.

PRIMARY ROUTES OF EXPOSURE: INHALATION

EFFECTS OF EXPOSURE:

- INHALATION: EXCESSIVE INHALATION MAY PRODUCE DELAYED EFFECTS SUCH AS HEADACHES, DIZZINESS, NAUSA, INTOXICATION, SLURRED SPEECH AND STAGGERED GAIT, UP TO UNCONSCIOUSNESS AND POSSIBLE DEATH.
- SKIN: VAPORIZING LIQUID MAY CAUSE FROST-BITE TYPE OF BURN OR MAY IRRITATE THE SKIN CAUSING REDNESS AND PAIN.
- EYES: EXPOSURE MAY CAUSE IRRITATION EFFECTS SIMILAR TO SKIN.
- INGESTION: IMPROBABLE BECAUSE SUBSTANCE IS A GAS AT AMBIENT TEMPERATURES.

EMERGENCY FIRST AID:

- INHALATION: REMOVE VICTIM TO FRESH AIR, RESTORE BREATHING, KEEP WARM AND QUIET, GET IMMEDIATE MEDICAL HELP.
- SKIN: WASH WITH WATER. IN CASE OF FROSTBITE DO NOT REMOVE CLOTHING. GET MEDICAL ATTENTION.
- EYES: FLUSH WITH WATER. GET PROMPT MEDICAL HELP.

ADDITIONAL INFORMATION: SMELL CANNOT BE RELIED UPON TO PROVIDE WARNING OF UNACCEPTABLE CONCENTRATIONS.

TARGET ORGANS: C. N. S., LIVER, KIDNEYS, SKIN

SECTION VI — REACTIVITY DATA

STABILITY: THIS MATERIAL IS STABLE IN SEALED CONTAINERS AT ROOM TEMPERATURE.

CONDITIONS TO AVOID: OPEN FLAME AND GAS-AIR MIXTURES (EXPLOSIVE).

INCOMPATABILITY: REACTS VERY SLOWLY WITH WATER TO PRODUCE HCL. IT IS INCOMPATIBLE WITH OXIDIZING AGENTS, ALKALI METALS, ALUMINUM, MAGNESIUM, ZINC, AMINES, AMIDES.

HAZARDOUS DECOMPOSITION PRODUCTS: THERMAL-OXIDATIVE DEGRADATION CAN PRODUCE HCL AND PHOSGENE WHICH CAN BE TOXIC.

POLYMERIZATION: WILL NOT OCCUR.

CONDITIONS TO AVOID: AVOID CONTACT WITH OPEN FLAMES, ELECTRIC ARCS AND HIGH TEMPERATURE SOURCES EVEN AT CONCENTRATIONS OUTSIDE THE EXPLOSIVE LIMITS.

ADDITIONAL INFORMATION: DO NOT USE COMPRESSED AIR FOR HANDLING - CAN CAUSE EXPLOSIVE MIXTURES.

SECTION VII — ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: EVACUATE THE DANGER AREA. ELIMINATE IGNITION SOURCES. PROVIDE EXPLOSION PROOF VENTILATION TO KEEP CONCENTRATIONS BELOW EXPLOSIVE LIMITS AND WEAR RESPIRATORY PROTECTION. STOP THE LEAK IF POSSIBLE. PERSONNEL INVOLVED IN CLEAN UP MUST USE SELF CONTAINED BREATHING APPARATUS AND CLOTHING TO PREVENT SKIN CONTACT WITH LIQUID. TEST THE AIR FOR CONCENTRATIONS PRIOR TO RETURN OF WORKERS TO THE AREA.

WASTE DISPOSAL METHODS: FOLLOW FEDERAL, STATE AND LOCAL REGULATIONS. LARGE QUANTITIES OF WASTE MAY BE BURNED IN AN APPROVED INCINERATOR THAT IS EQUIPPED TO SCRUB AND RECOVER THE HCL GENERATED.

ADDITIONAL INFORMATION: FOR EMERGENCY ASSISTANCE, CALL YOUR SUPPLIER OR CHEMTREC 800-424-9300. USE NO FLARES, SMOKING OR FLAMES IN SPILL AREA.

SECTION VIII — SPECIAL PROTECTION INFORMATION

EYE PROTECTION: CHEMICAL SPLASH GOGGLES

RESPIRATORY PROTECTION: NIOSH APPROVED SELF CONTAINED BREATHING APPARATUS OR AIR SUPPLIED MASKS.

SKIN PROTECTION: IMPERVIOUS CLOTHING

OTHER PROTECTION: AIR MONITORING SYSTEMS ARE ADVISABLE.

VENTILATION RECOMMENDED: EXPLOSION PROOF TO MEET TLV REQUIREMENTS.

GLOVE TYPE RECOMMENDED: NEOPRENE OR POLYVINYL.

ADDITIONAL INFORMATION: VAPOR EXPLOSION HAZARD INDOORS OR IN SEWERS OR STORM CONDUITS.

SECTION IX — SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING/STORING: AVOID INHALATION OF VAPORS AND BODY CONTACT WITH LIQUID.

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING: PROVIDE EXPLOSION PROOF GENERAL AND EXHAUST VENTILATION AND MAINTAIN TEMPERATURE BELOW 120F. PROVIDE APPROPRIATE RESPIRATORY EQUIPMENT. HANDLING SYSTEMS SHOULD AVOID SPILLAGE DUE TO INDOOR VAPOR EXPLOSION HAZARDS AND RESPIRATORY RISKS.

PRECAUTIONS FOR REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT: PROVIDE SUFFICIENT VENTILATION TO AVOID EXPLOSIVE ATMOSPHERE AND USE SPARK PROOF TOOLS.

OTHER PRECAUTIONS: DO NOT USE COMPRESSED AIR FOR EFFECTING TRANSFERS. SPECIFY ELECTRIC CODE 501 FOR CLASS I HAZARDOUS LOCATIONS - NFPA #70. AIR MONITORING SYSTEMS ARE RECOMMENDED WHERE LARGE QUANTITIES ARE USED. ELECTRICALLY "GROUND" ALL EQUIPMENT TO AVOID STATIC SPARK.

DO NOT USE METHYL CHLORIDE IN THE VICINITY OF A FIRE OR DURING WELDING. TURN LEAKING CYLINDER WITH LEAK FACING UPWARD TO PREVENT LIQUID FROM ESCAPING.

SECTION X — TRANSPORTATION

USUAL SHIPPING CONTAINERS: TANK CAR, TANK TRUCK, CYLINDERS

USUAL SHELF LIFE: UNLIMITED

STORAGE/TRANSPORT TEMPS: AMBIENT - BELOW 120F

SUITABLE STORAGE MATERIALS/COATINGS: CARBON STEEL

UNSUITABLE: ALUMINUM, ZINC COATED, PLASTICS ARE NOT RECOMMENDED.

OTHER INFORMATION: AVOID ALL IGNITION SOURCES. FOLLOW STANDARD SAFETY PROCEDURES FOR LIQUIFIED GAS UNDER PRESSURE.

SECTION XI — REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A THRESHOLD PLANNING QUANTITY - NONE ESTABLISHED

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45 THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

REVISED: 9/89
SUPERCEDES: 9/84; 11/86; 9/88
LCP MSDS NO.: 0074873

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PRODUCING FACILITY: MOUNDSVILLE, W. VA.: (800) 624-6938 OR (304) 843-1310

MATERIAL SAFETY DATA FOR METHYLENE CHLORIDE

SECTION I — MATERIAL IDENTIFICATION

CHEMICAL NAME: METHYLENE CHLORIDE — C.A.S. NO.: 75-09-2
SYNONYMS: DICHLOROMETHANE, METHYLENE DICHLORIDE, FREON 30
D.O.T. IDENTIFICATION NO.: UN 1593 — RQ: 1000LBS
TRADE NAME: METHYLENE CHLORIDE — HMIS: 2-1-0C +
CHEMICAL FORMULA: CH2CL2
D.O.T. SHIPPING NAME: DICHLOROMETHANE
D.O.T. HAZARD GUIDE: NO. 74
CHEMICAL FAMILY: HALOGENATED HYDROCARBON
N.F.P.A. REGISTRY: 2-1-0
LABELING: ORM - A — PLACARD: UN 1593

SECTION II (SEE SECTION XI) — INGREDIENTS AND HAZARDS

PRINCIPAL COMPONENT: METHYLENE CHLORIDE — PERCENT: 100%
MAY ALSO CONTAIN VARYING AMOUNTS OF THE FOLLOWING STABILIZERS: <1.0% OF MIXED AMYLENE (NO C.A.S. NUMBER); <1.0% OF CYCLOHEXANE, C.A.S. NO.: 110-82-7; 6.0% TO 10.0% OF METHANOL, C.A.S. NO.: 67-56-1; 0.5% TO 2.0% OF PROPYLENE OXIDE, C.A.S. NO.: 75-56-9.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: MAY REACT WITH ALKALI METALS AND FINELY POWDERED ALUMINUM OR MAGNESIUM. EXPOSURE TO HIGH TEMPERATURES SUCH AS OPEN FLAMES OR WELDING ARCS CAN GIVE OFF CORROSIVE AND TOXIC VAPORS.

ADDITIONAL INFORMATION: CAUTION RECOMMENDED WITH ALUMINUM REACTIVITY. INDUSTRY USAGE FOR CLEANING ALUMINUM PARTS IS APPARENTLY WITHOUT RISK. THE DANGER IS CONFINED TO PRESSURIZED SYSTEMS WITH DIRTY, WET, HOT METHYLENE CHLORIDE WHERE REACTIVITY WITH ALUMINUM METAL SURFACE CAN BECOME APPRECIABLE.

SECTION III — PHYSICAL DATA

BOILING POINT: 104 DEG. F OR 40 DEG C
SPECIFIC GRAVITY (H20=1): 1.320
VAPOR PRESSURE (MM HG): AT 20 DEG C = 340 — pH: NON AQUEOUS
VAPOR DENSITY: 2.9 — MOLECULAR WEIGHT: 84.9
APPEARANCE/ODOR: COLORLESS LIQUID. SWEETISH ORGANIC ODOR
PERCENT VOLATILE BY VOLUME: 100%
EVAPORATION RATE (CC14 = 1): 1.47
SOLUBILITY IN WATER: SLIGHT
FREEZE/SOLIDIFICATION TEMP: -95 DEG C

ORIGINAL (Red)

SECTION IV — FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE -
EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE
AUTO IGNITION TEMP: 1033 DEG F (605 DEG C) LEL: 12% UEL: 19%
SPECIAL FIRE FIGHTING PROCEDURES: WEAR APPROVED SELF CONTAINED BREATHING APPARATUS FOR PROTECTION FROM TOXIC VAPORS OR INADEQUATE OXYGEN
UNUSUAL FIRE/EXPLOSION HAZARDS: WILL FORM WEAKLY COMBUSTIBLE MIXTURES WITH HIGH CONCENTRATIONS AT ELEVATED TEMPERATURES. WILL READILY BURN IN OXYGEN ENRICHED ATMOSPHERE.
ADDITIONAL INFORMATION: THIS MATERIAL DOES NOT HAVE A FLASH POINT BY STANDARD METHODS. AT ELEVATED TEMPERATURES IT DOES FORM FLAMMABLE MIXTURES.

SECTION V — HEALTH HAZARD DATA

NIOSH THRESHOLD LIMIT VALUE: 75 PPM - 10 HR TWA, 500 PPM 15 MIN CEILING (SEPTEMBER 1985 - DHEW 78-210)
OSHA PERMISSIBLE EXPOSURE LIMIT: 500 PPM TWA, 1000 PPM CEILING 2000 PPM (5 MIN/2 HOUR PEAK) (MARCH 1989)
ACGIH LIMIT VALUE: 50 PPM TWA, (1988-89)
NTP CARCINOGEN: NOT LISTED
IARC CARCINOGEN: 2-B EVIDENCE FOR CARCINOGENICITY IN HUMANS IS INADEQUATE. IARC MONOGRAPHS SUPPLEMENT 7 (1987)
MUTAGENIC: NOT LISTED SOURCE: IARC - NTP
TERATOGENIC: NOT LISTED SOURCE: IARC - NTP
REPRODUCTIVE TOXICITY: NOT LISTED
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: CARDIOVASCULAR DISEASE
PRIMARY ROUTES OF EXPOSURE: INHALATION, CONTACT, INGESTION
EFFECTS OF EXPOSURE:
- INHALATION: OVEREXPOSURE MAY RESULT IN HEADACHES, DIZZINESS, NAUSEA, DULLNESS. IF PROLONGED EXCESSIVELY, MAY RESULT IN UNCONSCIOUSNESS OR EVEN DEATH.
- SKIN: PRODUCES REDNESS AND PAIN. NOT BELIEVED TO CAUSE SERIOUS INJURY. MAY BE ABSORBED BY SKIN BUT LOW IN TOXICITY. PROLONGED EXPOSURE MAY CAUSE DERMATITIS.
- EYES: SAME AS ABOVE.
- INGESTION: CAUSES ABDOMINAL PAIN (ALSO SEE INHALATION) THIS MATERIAL METABOLIZES IN THE BODY TO PRODUCE CARBON MONOXIDE WHICH REDUCES THE OXYGEN CARRYING CAPACITY OF THE BLOOD.

EMERGENCY FIRST AID:
- INHALATION: REMOVE FROM CONTAMINATED AREA. GIVE ARTIFICIAL RESPIRATION. KEEP WARM.
- SKIN: WASH WITH SOAP AND WATER. IF IRRITATION PERSISTS GET MEDICAL ATTENTION.
- EYES: FLUSH WITH WATER FOR 15 MINUTES INCLUDING UNDER THE EYELIDS. IF IRRITATION PERSISTS GET MEDICAL HELP.
- INGESTION: GET PROMPT MEDICAL HELP. MODERATELY TOXIC.

ADDITIONAL INFORMATION: TOXIC HAZARDS ARE INCREASED BY PRESENCE OF ALCOHOL, CARBON MONOXIDE, HEAVY LABOR, SMOKING. THOSE WITH A HISTORY OF CARDIOVASCULAR DISEASE OR WHO ARE HEAVY DRINKERS OR SMOKERS SHOULD AVOID EXPOSURE. OVER EXPOSURE VICTIMS MAY SUFFER MYOCARDIAL INSTABILITY. AVOID EPINEPHINE OR SIMILAR DRUGS. DO NOT USE ADRENALIN. POSSIBLE EFFECTS TO LIVER KIDNEYS AND BLOOD. ALERT MEDICAL PERSONNEL.
TARGET ORGANS: SKIN, C.V.S., EYES, C.N.S.

ORIGINAL (Red)

SECTION VI REACTIVITY DATA

STABILITY: STABLE UNDER NORMAL CONDITIONS OF STORAGE AND USE.
CONDITIONS TO AVOID: EXPOSURE TO HIGH TEMPERATURES SUCH AS OPEN FLAMES AND WELDING ARCS.
INCOMPATABILITY: STRONG OXIDIZERS AND CAUSTICS. CHEMICALLY ACTIVE METALS SUCH AS ALUMINUM OR MAGNESIUM POWDERS, SODIUM AND POTASSIUM
HAZARDOUS DECOMPOSITION PRODUCTS: DECOMPOSITION BY FLAME OR HOT SURFACES WILL FORM CORROSIVE MISTS (HYDROCHLORIC ACID) AND TOXIC GAS (PHOSGENE)
POLYMERIZATION: NONE
CONDITIONS TO AVOID: HEAT SOURCES, CONTACT WITH METALS AND ALKALIS AND BODY CONTACT.
ADDITIONAL INFORMATION: PROLONGED EXPOSURE TO WATER MAY CAUSE NOTICEABLE HYDROLYSIS ABOVE 60 DEGREES C

SECTION VII ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: AVOID INHALATION OF VAPORS AND EYE/SKIN CONTACT. COLLECT SPILLAGE IN SUITABLE CONTAINERS OR ABSORB WITH AN INERT ABSORBANT. LARGE SPILLS SHOULD BE CONTAINED IN AS SMALL AN AREA AS POSSIBLE TO ENHANCE RECOVERY. RECOVER WITH SEPTIC TANK TRUCK OR LIKE EQUIPMENT. CONTACT A PRODUCER OR APPROVED WASTE SOLVENT DISPOSAL COMPANY FOR ASSISTANCE. SPILLAGE OVER 10 GALLONS WILL GENERALLY REQUIRE RESPIRATORY, SKIN AND EYE PROTECTION.
WASTE DISPOSAL METHODS: COMPLY WITH CAA, CWA, RCRA. RECLAIM SPILLAGE WHENEVER POSSIBLE FOR FILTRATION AND DISTILLATION, OR DISPOSE OF VIA A LICENSED WASTE DISPOSAL COMPANY. DO NOT ALLOW DRAINAGE TO SEWER SYSTEMS. KEEP CONTAMINATION CONFINED TO THE SPILL AREA.
ADDITIONAL INFORMATION: HIGH CONCENTRATIONS IN AIR CAUSE A DEFICIENCY OF OXYGEN WITH THE RELATED HEALTH RISKS. METHYLENE CHLORIDE IS DESIGNATED AS A HAZARDOUS WASTE BY THE EPA, HAZARDOUS WASTE NO. IS 080 (FROM 40 CFR 261).

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION: CHEMICAL GOGGLES AND/OR FACE SHIELD. CONTACT LENS SHOULD NOT BE USED.
RESPIRATORY PROTECTION: APPROVED AIR SUPPLIED OR SELF CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE IS RECOMMENDED WHEN CONCENTRATIONS MAY EXCEED TWA OR CEILING.
OTHER PROTECTION: SELF CONTAINED BREATHING APPARATUS (APPROVED) FOR EMERGENCY USE.
VENTILATION RECOMMENDED: GENERAL VENTILATION OR EXHAUST VENTILATION TO MEET TLV REQUIREMENTS. ATMOSHERE SHOULD BE MONITORED WHERE EXPOSURE COULD OCCUR.
GLOVE TYPE RECOMMENDED: POLYETHYLENE LINED OR VITON.
ADDITIONAL INFORMATION: AN EYE WASH AND SAFETY SHOWER STATION SHOULD BE AVAILABLE WHERE SPLASHING IS PROBABLE.

ORIGINAL (Red)

SECTION IX — SPECIAL PRECAUTIONS

HYGIENIC PRACTICES IN HANDLING AND STORING: AVOID INHALATION OR BODY CONTACT.

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING: STORE IN A COOL AREA, PROVIDE VENTILATION TO PREVENT AIRBORNE BUILD-UP. AVOID OPEN FLAMES IN STORAGE OR USE AREAS.
SEVERE CORROSION WILL RESULT FROM VAPORS BEING DRAWN INTO COMBUSTION EQUIPMENT.

PRECAUTIONS FOR REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT: INSURE THAT LEVELS ARE BELOW TLV.

OTHER PRECAUTIONS: USE CAUTION IN HANDLING THIS MATERIAL-KEEP CONTAINED AND AVOID SPILLS. FUMES ARE HEAVIER THAN AIR AND WILL SETTLE IN CONFINED, LOW AREAS.

SECTION X — TRANSPORTATION

USUAL SHIPPING CONTAINERS: TANK CARS, TANK TRUCKS, DRUMS

USUAL SHELF LIFE: INDEFINITE IN SEALED CONTAINERS.

STORAGE/TRANSPORT TEMPS: AMBIENT

SUITABLE STORAGE MATERIALS/COATINGS: STEEL

UNSUITABLE: RUBBER AND PLASTICS

SECTION XI — REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APPENDIX A
THRESHOLD PLANNING QUANTITY - NONE ESTABLISHED

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986. SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

REVISED: 9/89
SUPERCEDES: 11/86; 9/88
LCP MSDS. NO. 0075092

LCP CHEMICALS
A DIVISION OF HANLIN GROUP, INC.
~~RARITAN PLAZA II, RARITAN CENTER~~
~~EDISON, N.J. 08837~~
P.O. Box 4-84
Linden, NJ 07036

DATE: 1/91
EMERGENCY PHONE NO.:
(800) ~~424-9939~~ 334-3806
CHEMTREC:
(800) 424-9300

ORIGINAL
(Red)

MATERIAL SAFETY DATA
FOR
CAUSTIC SODA LIQUID - 50%

MSDS NO. 001310732

SECTION I — MATERIAL IDENTIFICATION

CHEMICAL NAME: SODIUM HYDROXIDE LIQUID — C.A.S. NO.: 1310-73-2
SYNONYMS: LIQUID CAUSTIC SODA, SODA LYE SOLUTION, SODIUM HYDRATE
D.O.T. IDENTIFICATION NO.: UN 1824 — R.Q.: 1000 LBS (100% BASIS)
TRADE NAME: CAUSTIC SODA LIQUID
CHEMICAL FORMULA: NaOH — HMIS: 3-0-1-D+
D.O.T. SHIPPING NAME: SODIUM HYDROXIDE LIQUID OR SOLUTION; CAUSTIC SODA LIQUID OR SOLUTION
D.O.T. HAZARD GUIDE: #60
CHEMICAL FAMILY: ALKALI
N.F.P.A. REGISTRY: 3-0-1
LABELING: CORROSIVE CLASS 8 — PLACARD: UN 1824

SECTION II — INGREDIENTS AND HAZARDS DATA

PRINCIPAL COMPONENT: NaOH C.A.S. NO.: 1310-73-2 — PERCENT: 50%
BALANCE IS WATER (REGULAR GRADE MAY CONTAIN 1.3% NACL)
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES: REACTS VIOLENTLY WITH ACIDS. REACTS WITH ALUMINUM, TIN, ZINC AND GENERATES FLAMMABLE HYDROGEN GAS.
ADDITIONAL INFORMATION: CORROSIVE TO ALL HUMAN AND ANIMAL TISSUE
CEILING LIMIT 2 MG/M3 ACGIH.
NIOSH THRESHOLD LIMIT VALUE: 2 MG/M3, 15 MIN. CEILING
OSHA PERMISSIBLE EXPOSURE LIMIT: 2 MG/M3 CEILING (MARCH 1989)
ACGIH LIMIT VALUE: 2 MG/M3 CEILING (1988-89) NTP CARCINOGEN: NOT LISTED
IARC CARCINOGEN: NOT LISTED
MUTAGENIC: NOT LISTED — TERATOGENIC: NOT LISTED
REPRODUCTIVE TOXICITY: NO KNOWN STUDY
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NONE
PRIMARY ROUTES OF EXPOSURE: BODY CONTACT
EFFECTS OF EXPOSURE:
INHALATION: SORE THROAT, COUGHTING, SHORTNESS OF BREATH
SKIN: CORROSIVE. SERIOUS CHEMICAL AND POSSIBLE THERMAL BURNS.
EYES: CORROSIVE. SEVERE TO PERMANENT INJURY (BLINDNESS)
INGESTION: CORROSIVE. SPASMS, VOMITING, TISSUE DESTRUCTION, POSSIBLE DEATH. LD 50 FOR MICE = MG/KG, ORAL LDLO FOR RABBITS = 500 MG/KG

ORIGINAL
(Red)

SECTION III — IMPORTANT COMPONENTS

CAS NUMBER/NAME
1310732 SODIUM HYDROXIDE (NAOH)
EXPOSURE LIMITS
PEL=2 MG/M3, CEILING
TLV=2 MG/M3, CEILING
COMMON NAMES:
CAUSTIC SODA
LISTED ON (LIST LEGEND BELOW):
13 18 21

PERCENTAGE	
VOL	ND
WT	48.50-51

7647145 SODIUM CHLORIDE (NACL)
EXPLSURE LIMITS
PEL=NOT ESTABLISHED
TLV=NOT ESTABLISHED
COMMON NAMES:
SALT
LISTED ON (LIST LENGEN BELOW):
23

PERCENTAGE	
VOL	ND
WT	0.80-1.30

7732185 WATER
EXPOSURE LIMITS
PEL=NOT ESTABLISHED
TLV=NOT ESTABLISHED
COMMON NAMES:
LISTED ON (LIST LEGEND BELOW):
19 23

PERCENTAGE	
VOL	ND
WT	49-51.50

SEE SECTION II

ALL COMPONENTS OF THIS PRODUCT THAT ARE REUIRED TO BE ON THE TSCA INENTORY ARE LISTED ON THE INVENTORY.

NOT LISTED AS CARCINOGEN - IARC, NTP, OSHA

LIST LEGEND

13 PA ENVIRONMENTAL HAZ SUBSTANCE
19 PA REQUIREMENT - 3% OR GREATER
23 NJ REQUIREMENT - 1% OR GREATER
18 NY HAZARDOUS SUBSTANCES
21 NJ SPECIAL HEALTH HAZ SUB

SECTION IV — FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): NONE- NON-COMBUSTIBLE
FLAMMABLE LIMITS: NONE
EXTINGUISHING MEDIA: SUITABLE FOR SURROUNDING FIRE
AUTO IGNITION TEMP: NONE LEL: NONE UEL: NONE
SPECIAL FIRE FIGHTING PROCEDURES: CAN CAUSE SPATTERING BY REACTION WITH WATER - WEAR CLOTHING TO AVOID BODY CONTACT.
UNUSUAL FIRE/EXPLOSION HAZARDS: THIS MATERIAL IS CORROSIVE TO ALL HUMAN TISSUE. IT WILL REACT VIOLENTLY WITH MANY ORGANIC CHEMICALS, ESPECIALLY NITROCARBONS AND CHLOROCARBONS. CAUSTIC SODA REACTS WITH ZINC, ALUMINUM, TIN AND OTHER ACTIVE METALS LIBERATING FLAMMABLE HYDROGEN GAS.
ADDITIONAL INFORMATION: REACTS VIOLENTLY WITH HYDROGEN PEROXIDE AND ACIDS.

ORIGINAL (Red)

SECTION V — SPECIAL PROTECTION INFORMATION

EYE PROTECTION: SPLASH GOGGLES AND/OR FACE SHIELD
RESPIRATORY PROTECTION: NONE IS NORMALLY REQUIRED HOWEVER IF MISTING OR HEAVY VAPOR FORMATION SHOULD OCCUR, A NIOSH APPROVED MIST RESPIRATOR SHOULD BE WORN.
OTHER PROTECTION: RUBBER BOOTS. RUBBERS OVER LEATHER SHOES IS NOT RECOMMENDED. RUBBER APRON, RAINWEAR OR DISPOSABLE TYVEK SUIT WITH HARD HAT SHOULD BE WORN.
VENTILATION RECOMMENDED: PROVIDE ADEQUATE VENTILATION TO MEET TLV REQUIREMENTS.
GLOVE TYPE RECOMMENDED: RUBBER, LATEX, PLASTIC. DO NOT USE LEATHER OR WOOL.
ADDITIONAL INFORMATION: SAFETY EYE WASH/SHOWER STATIONS MUST BE AVAILABLE IN THE WORK AREA.

SECTION VI — PHYSICAL DATA

BOILING POINT: 280 TO 310 DEG. F
SPECIFIC GRAVITY: 1.530
VAPOR PRESSURE (MM HG): @ 105 DEG.F = 1.1, @ 130 DEG. F = 2.2
VAPOR DENSITY (AIR=1): N.A. MOLECULAR WEIGHT: 40.0
APPEARANCE/ODOR: COLORLESS, VISCOUS LIQUID. NO ODOR. PH: 14
PERCENT VOLATILE BY VOLUME: APPROXIMATELY 50%
EVAPORATION RATE: WILL NOT EVAPORATE AT AMBIENT TEMPERATURE.
SOLUBILITY IN WATER: COMPLETE VISCOSITY @ 68F: 100 CPS
FREEZE/SOLIDIFICATION TEMP: 45 TO 60 DEG. F

SECTION VII — REACTIVITY DATA

STABILITY: STABLE UNDER NORMAL CONDITIONS
CONDITIONS TO AVOID: DO NOT ALLOW CONTACT WITH ACIDS AND METALS SUCH AS ALUMINUM, ZINC AND TIN.
INCOMPATABILITY: (MATERIALS TO AVOID) ORGANIC CHEMICALS
HAZARDOUS DECOMPOSITION PRODUCTS: FLAMMABLE HYDROGEN GAS MAY BE GENERATED WHEN NAOH AND CERTAIN METALS REACT.
POLYMERIZATION: WILL NOT POLYMERIZE.
CONDITIONS TO AVOID: EXPOSURE TO AIR CAN FORM SODIUM CARBONATE.
ADDITIONAL INFORMATION: TRICHLOROETHYLENE WILL REACT TO FORM DICHLORACETYLENE WHICH IS SPONTANEOUSLY FLAMMABLE.

ORIGINAL (Red)

SECTION VIII HANDLING & STORAGE

HYGIENIC PRACTICES IN HANDLING/ STORING: EYE AND SKIN PROTECTIVE EQUIPMENT MUST BE WORN WHEN HANDLING. SAFETY SHOWERS WITH EYE BATHS SHOULD BE AVAILABLE IN STORAGE AREAS.

PRECAUTIONS TO BE TAKEN FOR HANDLING/STORING: STORAGE TANKS SHOULD BE CONTAINED IN A DIKED AREA THAT HAS SUFFICIENT CAPACITY TO HOLD THE CONTENTS OF THE TANK. THIS AREA SHOULD BE FREE OF POTENTIAL CONTACT WITH ACIDS, ORGANICS AND REACTIVE METALS.

PRECAUTIONS FOR REPAIR & MAINTENANCE OF CONTAMINATED EQUIPMENT: THOROUGHLY WASH WITH WATER AND CHECK PH FOR NEUTRALITY PRIOR TO WORK.

OTHER PRECAUTIONS: WHEN MIXING THE CAUSTIC SODA WITH WATER, ALWAYS ADD THE CAUSTIC SLOWLY AND CONTINUOUSLY TO THE WATER, WHILE STIRRING TO MINIMIZE SPATTERING FROM LOCALIZED HEAT OF DILUTION. DO NOT ADD WATER TO THE CAUSTIC.

STORAGE TANKS SHOULD BE LABELED TO AVOID CROSS CONTAMINATION OF MATERIALS. OVERSIZED VENTS ARE SUGGESTED FOR STORAGE TANKS IN CLIMATES WHERE FREEZING OCCURS. RECOMMENDED MATERIALS OF CONSTRUCTION ARE NICKEL, STAINLESS STEEL, LINED STEEL OR PLAIN STEEL WHERE TEMPERATURE LIMITS AND IRON PICK-UP ARE ACCEPTABLE.

USUAL SHIPPING CONTAINERS: RAIL CARS, TANK TRUCKS, DRUMS

USUAL SHELF LIFE: INDEFINITE IN CLOSED OR SEALED CONTAINERS. EXPOSURE WITH AIR WILL ABSORB CO_2 TO FORM SODIUM CARBONATE.

SECTION IX ENVIRONMENTAL PROTECTION PROCEDURES

SPILL RESPONSE: PROTECTIVE CLOTHING AND EQUIPMENT MUST BE WORN BY CLEAN-UP PERSONNEL. CONTAIN SPILLAGE OR LEAKAGE IN SUITABLE CONTAINER OR CONTAIN IN A HOLDING AREA. A TEMPORARY HOLDING AREA MAY BE FORMED WITH AN EARTHEN DIKE SYSTEM. DO NOT ALLOW DRAINABE TO SEWERS, STREAMS OR STORM CONDUITS. RECOVER WITH VACUUM EQUIPMENT SUCH AS A SEPTIC TANK TRUCK OR NEUTRALIZE WITH WEAK ACID SOLUTIONS AND FLUSH WITH WATER. AVOID SPLASHING OR MISTING WHICH COULD INCREASE HEALTH HAZARDS.

WASTE DISPOSAL METHODS: DISPOSE OF SPILLAGE WASTE PER COMPANY CONTINGENCY PLAN AND IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. NEUTRALIZED WASTE IS COMPOSED OF SALT AND WATER.

ADDITIONAL INFORMATION: REPORTABLE SPILLAGE QUANTITY IS 1000 LBS. OR 454 KG. PLANNING AHEAD IS ESSENTIAL FOR HANDLING SPILLS. PROPER EQUIPMENT AND TRAINED EMPLOYEES SHOULD BE READILY AVAILABLE TO CORRECT A SPILL SITUATION.

ORIGINAL (Red)

SECTION X — REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT - THIS SUBSTANCE IS LISTED ON THE TOXIC SUBSTANCES CONTROL ACT CHEMICAL SUBSTANCE INVENTORY 1985 EDITION VOLUME I.

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR, 355 APPENDIX A, THRESHOLD PLANNING QUANTITY - NONE ESTABLISHED

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45
THIS PRODUCT OR MIXTURE CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 - SEE SECTION II.

COMPREHENSIVE RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT IS SUBJECT TO CERCLA REPORTING REQUIREMENTS.

PREPARATION INFORMATION

REVISED: 1/91
SUPERCEDES: 9/84; 4/86; 11/86; 9/88; 9/89
LCP - MSDS NO.: 001310732

PREPARED BY: LCP CHEMICALS
QUALITY ASSURANCE DEPARTMENT
~~RARITAN PLAZA II BOX 3106~~ P.O. Box 484
~~EDISON, NJ 08818~~ Linden, NJ 07036
TELEPHONE: ~~(908) 225-4840~~ 800-526-7616

FROM WARNING LABEL FOR CAUSTIC SODA 50%

FIRST AID INSTRUCTIONS

EMERGENCY FIRST AID:
- INHALATION: REMOVE FROM EXPOSURE, GET MEDICAL HELP.
- SKIN: REMOVE CONTAMINATED CLOTHING, WASH WITH WATER. RABBIT 50 MG/24 HOUR SEVERE IRRITATION.
- EYES: FLUSH WITH WATER FOR 15 MINUTES INCLUDING UNDER THE EYELIDS. GET MEDICAL HELP. RABBIT 0.05 MG/24 HOUR SEVERE IRRITATION.
- INGESTION: DRINK PLENTY OF WATER OR FRUIT JUICE. GET IMMEDIATE MEDICAL HELP.

ADDITIONAL INFORMATION: A SIMPLE WATER RINSE IS NOT ADEQUATE TO REMOVE THIS PRODUCT FROM SKIN - CONTINUE TO WATER FLUSH UNTIL SLIPPERINESS IS GONE.

TARGET ORGANS: EYES, RESPIRATORY SYSTEM, SKIN

ORIGINAL
(Red)

QUESTION 8 - SPILLS AND RELEASES

A. Water/Land

Listed below are abnormal discharges to water and/or land not specifically covered by permit limits.

Date	Substance	Attachment No.
10/29/76	Sodium chloride brine	8.1
2/18/77	Lubricating oil	8.2
3/04/77	Sodium chloride brine	8.3
3/25/77	Carbon tetrachloride	8.4
3/28/77	Carbon tetrachloride	8.5
4/02/77	Carbon tetrachloride	8.6
7/24/77	Sodium chloride brine	8.7
11/09/77	Sodium chloride brine	8.8
4/01/78	Diesel fuel oil	8.9
12/01/78	Sodium chloride brine	8.10
8/08/79	Sodium chloride brine	8.11
9/18/79	Sodium chloride brine	8.12

B. Air

Listed below are releases to air.

Date	Substance	Attachment No.
4/20/74	Chlorine	8.13
6/02/78	Chlorine	*
5/16/79	Chlorine	*

There are no records prior to the above periods.

* Correspondence missing

Allied Chemical

ATTACHMENT 9.1

ORIGINAL (Red)

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

November 5, 1976

Mr. Daniel J. Snyder, III.
U.S. Environmental Protection Agency
Region III
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Attention: Chief, Permits Branch

Subject: NPDES Permit No. WV0004405
Moundsville South Plant
Specialty Chemicals Division
Allied Chemical Corporation

Dear Mr. Snyder:

We herewith notify you of the following incident which may have resulted in a mercury discharge in excess of our daily maximum permit limitation of 0.25 PPD.

The incident occurred as follows:

At approximately 5:00 PM on October 29, 1976, one of three (3) fiberglass-reinforced polyester tanks containing saturated sodium chloride brine ruptured. The brine is used as a raw material in our caustic-chlorine plant. As a result of this rupture, lines connecting this tank to the two (2) other tanks were broken. The contents of all three tanks (estimated at 27,000 gallons) were emptied into the curbed containment area within which they are located. Because of the nature of the rupture, some brine (estimated at approximately 5000 gallons) spilled over the containment curbing and was discharged to the Ohio River via our plant Outfall 001. The remainder of the brine drained into the collection system established for this purpose. This collection system serves to accumulate leaks and spills from this plant for treatment to remove mercury before discharge to the river.

Outfall grab samples representative of the spilled material could not be taken at the time of the incident because of the speed with which the spill exited through the plant sewer system. The routine monitoring sample was not being collected at the time (a single 24-hour composite is required weekly by the subject permit). Therefore, no samples which could accurately define our discharge at the time of the incident are available.

We have estimated the maximum possible discharge of mercury that may have resulted from this incident as follows:

Estimated Brine to River:	5000 gal. x 10 lbs/gal. = 50,000 lbs. max.
Mercury Content of Brine:	5.70 ppm (determined by analysis of the saturated brine on 11/1/76)
Estimated Mercury to River:	(Max.) 0.285 lbs.

If this estimated maximum quantity of mercury were to be added to the 0.10 lbs./day contained in our most recent 24-hour composite ending 1:35 PM 10/29/76, the estimated mercury discharged for the 24-hour period including the incident would be 0.385 lbs.

Since the mercury discharged may have exceeded the daily maximum limitations of our permit by 0.135 lbs./day, we are reporting it as an instance of possible non-compliance.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

CAR:ps

cc: Mr. John H. Hall
Department of Natural Resources
Mr. Raymond George

ORIGINAL
(Red)

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

RECEIVED
NOV 18 1976
C. A. R.

IRA S. LATIMER, Jr.
Director

November 15, 1976

CERTIFIED RETURN RECEIPT REQUESTED

Mr. C. A. Raymond, Plant Manager
Specialty Chemical Corporation
Industrial Chemicals Division
P. O. Drawer "E"
Moundsville, West Virginia 26041

Re: South Plant

Dear Mr. Raymond:

This office has been made aware of a spill of approximately 27,000 gallons of brine containing mercury from your plant on October 29, 1976, of which 5,000 gallons escaped to the sewer and thus to the Ohio River.

Mr. Douglas Foley, our District Supervisor, has indicated that you first reported this to his office on November 1, 1976. Mr. Foley has also indicated that you apparently did not report the spill at the time of its occurrence because plant personnel did not feel that discharge load limits would violate your water pollution control permit (WPCP No. 4309).

Enclosed for your information is a copy of the current Administrative Regulations of the State of West Virginia for Water Quality Criteria on Inter- and Intrastate Streams. You are referred to Section 4. Reporting Spills and Accidental Discharges.

You will readily determine that Allied Chemical Corporation is in clear violation of this section of the regulations.

First of all, you are required to report promptly any spill or accidental discharge.

Secondly, a water pollution control permit is not written to authorize spills or accidental discharges.

The fact that Mr. Foley reports you have made a later determination that mercury limits did exceed permit limitations compounds the problem. Also, the quantity of chloride discharge is not known.

ORIGINAL
(Red)

In reference to Section 4.01(d), we are requesting a written verification of the incident providing all the information required by 4.01(b) and 4.01(c). Enclosed is a sample form for your use in submitting this report. We expect to receive your report no later than November 26, 1976.

You should make copies of this sample form in the event of future incidents in which you are requested to provide written verification.

Also enclosed is a copy of our latest spill alert system, a copy of which was sent you in August, 1976, and your receipt was acknowledged.

Prompt notification to this agency is expected on any incidents as described in Section 4.

Very truly yours,

WATER RESOURCES DIVISION

Jerry L. Ray

Jerry L. Ray, Assistant Chief
Surveillance, Analysis & Enforcement
Branch

JLR/st

cc: Douglas Foley, Supervisor-District VI
Dwight McClure, Industrial Waste Section, Permits Branch

Enclosures

Allied Chemical

ORIGINAL (Red)

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

November 24, 1976

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, West Virginia 25311

RE: Brine (Sodium Chloride Solution)
Spill of October 29, 1976

Dear Mr. Ray:

This letter and the attached spill report are submitted in response to your letter of November 1., 1976. This reply supplements our prior report on this incident which was mailed to the Regional Administrator of USEPA of Region III on November 5, 1976. A copy of that report was sent con urrently to Mr. John H. Hall. An additional copy is attached for your records.

As you have noted, the incident was not reported to the West Virginia Division of Water Resources (or the USEPA) at the time it occurred. Unfortunately, this happened because the operating personnel on duty at that time (the incident occurred outside normal working hours) made an erroneous judgement that such a report was not necessary. They also failed to notify the Works' Environmental Control Department of the incident. However, on Monday morning (November 1, 1976) when the plant management staff became aware of the situation, the incident was reported immediately by telephone to both the USEPA and the West Virginia Division of Water Resources.

We have taken appropriate steps to clarify and confirm the importance of the notification and report procedures for such occurrences. We are confident that prompt and proper notification will be given to your department if any such incidents should occur in the future.

Very truly yours,

C. A. Raymond
Plant Manager

CAR:ps

ORIGINAL
(Red)

cc: Mr. John H. Hall
Mr. Doug Foley

STATE OF WEST VIRGINIA

DEPARTMENT OF NATURAL RESOU
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

ORIGINAL (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Specialty Chemicals Divisi

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) Don P. DeNoon (TITLE) Supv.-Envir. Control

DATE REPORTED 11/1/76 TIME REPORTED 11:15 A.M.

SPILL STARTED (DATE) 10/29/76 (TIME) 5:00 P.M.

SPILL STOPPED (DATE) 10/29/76 (TIME) 5:05 P.M.

NAME OF MATERIAL SPILLED Saturated sodium chloride brine solution co taining 0.285 pounds Hg.

QUANTITY OF UNDILUTED MATERIAL LOST (5,000 gallons) 50,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.2000

RIVER CONCENTRATION 0.00025 ppm Hg and 11 ppm NaCl (estimated)

CAUSE OF SPILL Rupture of a fiberglass reinforced polyester tank.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE Spill emptied into a curbed containment area. The initial surge spilled over the containment curbing. Alternate materials of construction are being considered to prevent recurrence.

RIVER FLOW (CFS) 60,000 RIVER GAGE (LOCATION) Wheeling Wharf and Lower Pike Island

ESTIMATED RIVER VELOCITY 0.7 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 12 Noon 10/31/76 -Sistersvil WATER PLANT

* 11:15 AM - Doug Foley (Mr. Foley returned call @ 3:00 PM - 11/1/76)
11:20 AM - Jerry Ray (Mr. Ray was on vacation)
11:21 AM - John Hall (Mr. Hall not available - information to Mr. Hall's secretary, M. Simon)

HAZARD ESTIMATE Material spilled - sodium chloride - full strength.

ORIGINAL (Red)

TOXICITY TO HUMANS Lowest published toxic dose (TDLo) 8200 mg/kg/23 days

From U.S.D.H.E.W. 1974 Toxic Substances List

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm - From California Water Resources Control Board Water Quality Criteria - 1973

TASTE AND ODOR Salty - No odor

NUISANCE None for river

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for these quantities.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES Monitoring Program. Reports to State & EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. Cantor of EPA notified by phone 11:10 AM 11/1/76. EPA (Region III) notified by report dated November 5, 1976, of probable excursion beyong Hg limits, copy of this report to Mr. Hall.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

(SIGNATURE)

C. A. Raymond
Plant Manager

ATTACHMENT 8.2

ORIGINAL (Red)

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

February 23, 1977

Mr. Daniel J. Snyder, III.
U.S. Environmental Protection Agency
Region III
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Attention: Chief, Permits Branch

Subject: NPDES Permit No. WV0004405
Moundsville South Plant
Specialty Chemicals Division
Allied Chemical Corporation
Spill of 55 Gallons of Lubricating Oil
February 18, 1977

Dear Mr. Snyder:

With reference to the conditions of the subject permit, we herewith notify you of a spill of 55 gallons of lubricating oil which occurred on February 18, 1977. Mr. Ray George of Region III's Wheeling Office was notified of this incident by phone shortly after it had occurred.

We trust that the attached written report provides all the information that you require.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

Enc.
CAR:ps

cc: Mr. Raymond George

Allied Chemical

ORIGINAL (Red)

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

February 23, 1977

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street, East
Charleston, West Virginia 25311

RE: Allied Chemical Corp.
Moundsville South Plant
Spill of 55 Gallons of Lubricating Oil
February 18, 1977

Dear Mr. Ray:

Attached is a spill report covering the subject incident. As noted in this report, all appropriate agencies were notified of the incident immediately after it occurred.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

Enc.
CAR:ps

cc: Mr. D. Foley
Mr. J. H. Hall

STATE OF WEST VIRGINIA

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

ORIGINAL (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corp., Specialty Chemicals Division

LOCATION (CITY Moundsville, W.Va. (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supervisor, Environmental Control

DATE REPORTED 2/18/77 TIME REPORTED 12 Noon

SPILL STARTED (DATE) 2/18/77 (TIME) 11:30 AM

SPILL STOPPED (DATE) 2/18/77 (TIME) 11:35 AM

NAME OF MATERIAL SPILLED Mobil DTE Medium Lubricating Oil

QUANTITY OF UNDILUTED MATERIAL LOST 55 gallons POUNDS

SOLUBILITY Non-miscible ~~SPECIFIC GRAVITY~~ Density 7.5 lbs/gal.

RIVER CONCENTRATION Not applicable

CAUSE OF SPILL Employee was lifting 55 gal. drum of material to 2nd floor with chain hoist. Drum struck edge of hole in platform, was jarred loose, fell to ground level and ruptured. Oil entered floor drain immediately adjacent to ruptured drum.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE PREVENTATIVE MEASURES: 1) Employees involved in such transfers will be re-instructed. 2) Safety hook will be used in this operation. 3) Tag line will be used in the future. ACTION AFTER SPILL: 1) Adsorbent used at site of spill; 2) Skimmer installed at plant outfall.

RIVER FLOW (CFS) 41,000 RIVER GAGE (LOCATION) Wheeling Wharf & lower Pike Island

ESTIMATED RIVER VELOCITY 0.6 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) Sistersville WATER PLANT

1:30 PM February 20, 1977

ORIGINAL (Red)

HAZARD ESTIMATE

TOXICITY TO HUMANS Not considered toxic in normal sense - specific data Unavailable.

TOXICITY TO FISH Not considered toxic in normal sense - specific data unavailable.

TASTE AND ODOR Significant concentrations of petroleum oils may impart unpleasant taste and odor to water - specific data unavailable.

NUISANCE None evident in immediate area. Slight sheen which dispersed within two hours noted on river in vicinity of plant outfall.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for this quantity

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continued NPDES Monitoring Program. Reports to State & EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Other agencies notified:

U.S.C.G. - Pittsburgh

Wheeling Office - EPA

National Response Center - Washington, D. C.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

(SIGNATURE)

C. A. Raymond
Plant Manager

Captain of the Port
U. S. Coast Guard
312 Stanwix Street
Pittsburgh, PA 15222

Subject: OIL POLLUTION INCIDENT OCCURRING ON: 18 FEBRUARY 1977 P17030

The following information is provided at Coast Guard Request for encoding into the Pollution Incident Reporting System. I understand that this is for statistical purposes only and is not an admission of responsibility for the incident in question.

BOOMS USED	None	FEET
RECOVERY DEVICES USED	Skimmer installed at plant outfall.	i.e. SKIMMERS
DISPOSABLE SORBENTS USED	100# at site of spill	LBS
RECYCLEABLE SORBENTS USED	None	LBS
COMMERCIAL CLEANUP	None	MANDAYS
DURATION OF CLEANUP	0.1	DAYS
AMOUNT OF PRODUCT REMOVED	Negligible	GALLONS
COST OF CLEANUP OPERATION	Negligible	

CLEANUP CONDUCTED BY Plant personnel

IMMEDIATE CAUSE OF DISCHARGE Rupture of 55 gallon drum.
i.e. TANK RUPTURE

SIGNIFICANT CONTRIBUTING FACTOR Employee carelessness
i.e. MATERIAL FAULT, EARTHQUAKE

SIGNATURE: Don P DeNoon

POSITION: Supervisor-Envir. Control

MSO PITT FORM 20
Rev 9/76

PI7030
4 March 1977

18 February 1977

mile 105.9 (LB) Ohio River.

Dear [illegible]

[illegible] a system known as the [illegible] Incident Reporting System [illegible] to collect and compile data [illegible] pollution incidents [illegible] to assist the [illegible] in [illegible] pollution control [illegible] and [illegible] major purpose [illegible] a way to measure the [illegible] of the current marine environmental protection program.

[illegible] to [illegible] at the [illegible] office [illegible] purposes [illegible] additional [illegible] and [illegible] and the [illegible] and [illegible] the [illegible]

Your cooperation is appreciated.

Sincerely,

R. E. [illegible]
Captain, U.S. Coast Guard
Acting Safety Director by Direction

Incl (1) [illegible] Questionnaire
(2) Franked envelope

Allied Chemical

Neil

✓ RECEIVED MAR 10 1977

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

March 7, 1977

Mr. Howard J. Lamp'l, Chief
Environmental Emergency Branch
U.S. Environmental Protection Agency
Region III EEB (35A30)
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

RE: Case No. WV-77-23; 2/18/77; Moundsville, W.Va.

Dear Mr. Lamp'l:

In response to your letter of February 22, 1977, on the above subject, we provide the following information:

Items (1) through (4) are covered in our report to Mr. Snyder dated 2/23/77 - copy attached.

Item (5) - The only oil storage tanks at the Moundsville South Plant are:

1000 Gal. Diesel Fuel

3000 Gal. Gasoline

Both are buried below ground.

Item (6) - The Moundsville South Plant was judged not to require filing of an SPCC plan under 40 CFR 112 because the only oil storages at this plant are the above-noted underground storages and lubricating and other oils used at this plant are handled in 55-gallon drums.

If you have any further questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

CAR:ps
Enc.

CC: Mr. Raymond George

ORIGINAL
(Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

April 11, 1977

RECEIVED
APR 14 1977
CCGD2 mep/mps

Commander (mep)
Second Coast Guard District
1520 Market Street
St. Louis, Missouri 63103

Re: Assessment of Civil Penalties pursuant to
33 U.S.C. 1321(b)(6); EPA Case No. WV-77-23

Gentlemen:

Enclosed for your consideration is information relating to a violation of 33 U.S.C. 1321(b)(3) which occurred on February 18, 1977. The violation is a result of a discharge of approximately 50 gallons of Mobil DTE Medium Lube Oil into the Ohio River. It is recommended that civil penalties be considered against the following:

Allied Chemical
P. O. Box E
Moundsville, W.V. 26041

If there are any questions, or if we can provide additional assistance, please call Neil Wise at (215) 597-9317.

Sincerely yours,

Howard J. Lamp'l, Chief
Environmental Emergency Branch

Enclosure

cc: Office of Water Enforcement
Enforcement Division (EN338)

Reopen
2P7Ø152

Ted Harris

ORIGINAL
(Red)

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (mep)
SECOND COAST GUARD DISTRICT
FEDERAL BLDG
1520 MARKET ST
ST LOUIS MO 63103

• 314-425-4655
2P70152
8 June 1977

• Allied Chemical
P. O. Box E
Moundsville, WV 26041

TED HARRIS
JUN 15 1977

Gentlemen:

The U. S. Environmental Protection Agency has forwarded to this office an investigative report which alleges an incident has occurred in violation of a United States anti-pollution statue.

Date	Facility
18 February 1977	55 Gal. Drum
Location	**Pollutant**
Ohio River, Marshall Co., WV	Lube Oil

The statute which may be applicable is 33 USC 1321(b)(3), which prohibits the discharge of oil in a harmful quantity (40 CFR 110) into the waters of the United States. 33 USC 1321(b)(6) requires the assessment of a civil penalty for violation of 33 USC 1321(b)(3).

This notification is given to afford you the opportunity to conduct an investigation of your own. After our evaluation of the report, you will be notified if penalty action is warranted. This letter requires no response.

Sincerely,

J. D. Webb

J. D. WEBB
Commander, U. S. Coast Guard
Chief, Environmental Protection Branch
By direction of the District Commander

Copy to:
EPA III (WV-77-23)

JUN 13 1977 TJW

ORIGINAL
(Red)

(mv)

Tel: 314-425-4655

2P70152
1 August 1977

Allied Chemical Corporation
P. O. Box E
Moundsville, WV 26041

RE: Oil Pollution Case 2P70152, Plant Outfall; oil discharge into the Ohio River, Marshall County, West Virginia, on or about 18 February 1977

Gentlemen:

I have received a report alleging that a violation of Section 311(b)(3) of the Federal Water Pollution Control Act (33 USC 1321(b)(3)) has occurred. The specific allegation is that on or about 18 February 1977, oil was discharged in a harmful quantity into the Ohio River, Marshall County, West Virginia, from a plant outfall, and that you were the owner or operator of such facility on that date. As the owner or operator, you are liable for a civil penalty of not more than $5,000 for each discharge in violation of the Act. Section 311(b)(6) also provides that "No penalty shall be assessed unless the owner or operator charged shall have been given notice and the opportunity for a hearing on such charge."

This letter constitutes notice of a reported violation and the offer of an opportunity for a hearing as required by Section 311(b)(6). The purpose of the hearing is to give you an opportunity to present relevant evidence, including testimony, statements or any other matter which you desire to have considered in the case. You should be aware that under the terms of the Federal Water Pollution Control Act fault or culpability is not a factor in determining whether or not there has been a violation. You may appear in person or through counsel. If you do not desire to appear at a hearing you may submit written material for consideration.

In assessing a civil penalty, Section 311(b)(6) requires that I consider: (1) the appropriateness of the penalty to the size of the business of the owner or operator; (2) the effect on the owner's or operator's ability to continue in business; (3) the gravity of the violation. You may submit information on the size of your business and the effect a civil penalty of $1,000 would have on your ability to continue in business. I have preliminarily determined that amount to be appropriate, based in part upon the discharge of an estimated 50 gallons of oil, allegedly when a 55 gallon drum being lifted to the second floor with a chain hoist, was jarred loose, fell to the ground level and ruptured. Oil then entered the floor drain immediately adjacent to the ruptured drum.

If I have no response from you by 29 August 1977, I will consider that the amount stated will have no significant effect on your ability to remain in business, and that you have waived your right to a hearing. A penalty will be assessed on the basis of the evidence then before me. If you submit any material containing

trade secrets, financial or commercial information, geological or geophysical data concerning wells, or other similar information which you feel is exempt from public disclosure, please identify such material and state your reasons for believing it to be so exempt in order that the material may be protected in accordance with the law.

Your statement or request for a hearing should be submitted to the address above. If you wish, you may pay the penalty I have preliminarily determined to be appropriate, in which case that amount will become the assessed penalty and the case will be closed. Your remittance, payable to U. S. Coast Guard, should be submitted with the enclosed copy of this letter, marked for "Collection Clerk."

A copy of the report of investigation is enclosed. If you have any questions concerning this matter, please contact my office at 314-425-4655.

Sincerely,

J. D. WEBB
Commander, U. S. Coast Guard
Chief, Violations Branch

Encl: (1) Report of Investigation

Copy to:
EPA Philadelphia (WV-77-23)
CCGD2(fac-1)(f) Collection Clerk

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

August 22, 1977

J. D. Webb, Commander
U.S. Coast Guard Chief
Violations Branch (mv)
Second Coast Guard District
Federal Building
1520 Market Street
St. Louis, Missouri 63103

RE: Oil Pollution Case 2P70152, Plant Outfall:
Oil Discharge into the Ohio River, Marshall County,
West Virginia, on or about 18 February, 1977

Dear Commander Webb:

This letter is in response to the notice of reported violation relative to the above-referenced matter which was issued by your violations branch on August 1, 1977.

Allied Chemical Corporation does not request that a hearing be held on this matter. However, we do feel that your preliminary determination that a civil penalty of $1,000 would be appropriate is not adequately justified by the circumstances and size of the incident. It is respectfully requested that you reconsider the following points:

1. While the amount spilled was approximately 55 gallons, an unknown but lesser amount actually entered the river due to the immediate application of absorbent material in the spill area.

2. This is the only oil spill event which has taken place at our Moundsville South Plant since passage of the Federal Water Pollution Act (PL 92-500) on October 18, 1972.

3. The visible impact on the Ohio River of the unknown quantity of oil actually discharged was minor (a slight sheen in the immediate vicinity of the outfall), and of brief duration (less than two hours).

Allied Chemical Corporation believes that a lesser monetary penalty, perhaps $100 - $200, would more appropriately reflect the nature of this discharge incident. Your further consideration of this matter is requested.

Very truly yours,

J. V. Muthig
Plant Manager

JVM:ps

ORIGINAL
(Red)

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (mv)
SECOND COAST GUARD DISTRICT
FEDERAL BLDG
1520 MARKET ST
ST LOUIS, MO 63103
Tel: (314) 425-4655

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

2P70152
SEP 7 1977

Allied Chemical Corp.
Attn: Mr. J. V. Muthig
P. O. Box E
Moundsville, WV 26041

Re: Oil Pollution Case 2P70152

Gentlemen:

I have reviewed the case file together with the matter presented in your letter of 22 August 1977. I find there was a violation of 33 USC 1321(b)(3) in that a harmful quantity of oil was discharged from an Allied Chemical Corp. plant outfall into the Ohio River, Marshall County, West Virginia, on 18 February 1977. Section 1321(b)(6) requires assessment of a penalty for every violation.

It is Coast Guard policy to assess a penalty at or near the maximum unless a lesser amount is clearly justified. In consideration of all the circumstances of the violation a penalty of $250.00 is assessed against Allied Chemical Corp. This decision may be appealed to the Commandant, U. S. Coast Guard, via this office. A copy of the Memorandum of Decision is enclosed.

Your appeal should be submitted to the address above for transmittal with the case file to the Commandant. Your remittance, payable to U. S. Coast Guard, should be submitted with the enclosed copy of this letter, marked for "Collection Clerk." If neither is received within 30 days of the date you receive this letter, the case will be referred to the U. S. Attorney for collection of the $250.00 assessed penalty.

Sincerely,

J. D. WEBB
Commander, U.S. Coast Guard
Chief, Violations Branch

Encl: (1) Copy of the Memorandum of Decision

Copy to:
EPA III (SV-77-23)

ORIGINAL
(Red)

Commander (mv)
2nd Coast Guard District
1520 Market St.
St. Louis, MO 63103

2 September 1977

MEMORANDUM OF DECISION

CASE: 2P70152

O/O: Allied Chemical Corp.

LETTER DATE: 22 AUG 77

APPEARANCES: N/A

VES/FAC: Plant Outfall

LOCATION: Ohio River, Marshall Co., WV

DISCHARGE DATE: 18 FEB 77

PRELIM. PENALTY: $1,000

Allied Chemical Corp, has been furnished a copy of the report on which this decision is based,

SUBMITTED:

Allied Chemical Corp. ltr of 22 AUG 77

DECISION:

There was a violation of 33 USC 1321(b)(3) in that a harmful quantity of oil was discharged from an Allied Chemical Corp. plant outfall into the Ohio River, Marshall Co., WV, on 18 February 1977.

ASSESS: $250.00

This penalty is based on all the circumstances surrounding the violation. The significant factors affecting the size of the penalty are the cause and amount of oil discharged.

J. D. WEBB

Allied Chemical

ORIGINAL (Red)

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

September 29, 1977

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

J. D. Webb, Commander
U.S. Coast Guard
Chief, Violations Branch (mv)
Second Coast Guard District
Federal Building
1520 Market Street
St. Louis, Missouri 63103

Attention: Collection Clerk

RE: Oil Pollution Case 2P70152

Dear Commander Webb:

Regarding the above-referenced matter, enclosed is our check for $250.00 in full payment of the penalty assessed.

Your consideration of this matter is appreciated.

Very truly yours,

J V Muthig
J. V. Muthig
Plant Manager

JVM:ps
Enc.

FROM: (See return mailing address on reverse)	DATE
Commande. Second Coast Guard District (m	14 OCT 1977

REFERENCE YOUR COMMUNICATION (File number, date, subject or other identification)

Your letter of 29 SEP 1977 enclosing check #288949 covering the penalty of $250.00 in this case.

ACTION TAKEN

2P70152

- [ ] REPLY WILL BE FURNISHED ON OR ABOUT
- [ ] WE HAVE SENT YOUR COMMUNICATION TO (See below)
- [ ] FOR DIRECT REPLY
- [ ] TO OBTAIN INFORMATION
- [ ] FOR COMPLIANCE WITH YOUR REQUEST

REMARKS This satisfies the penalty assessment for the discharge of oil into the Ohio River, Marshall County, WV on 18 FEB 1977. The civil penalty case is now closed.

NAME, GRADE, TITLE	SIGNATURE (By direction)
J. L. ROBINSON, LT, USCG	

DEPT. OF TRANSP., USCG, CG-4217 (Rev. 1-70)
PREVIOUS EDITION IS OBSOLETE

ACKNOWLEDGMENT/REFERRAL

ATTACHMENT 8.3

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

March 8, 1977

J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street, East
Charleston, WV 25311

Re: Allied Chemical Corporation
Moundsville South Plant
Spill of 1,500 Gallons of Sodium Chloride Solution
March 4, 1977

Dear Mr. Ray:

Attached is a spill report covering the subject incident. Although there was no indication State or NPDES permit limitations were exceeded, the incident was reported since it was an abnormal discharge.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

CAR:gct

Attachment

cc: Mr. D. Foley, W. Va. Dept. of Natural Resources
Mr. L. Parker, EPA, Wheeling, W. Va.

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenb r St., Charleston, W. Va. 25 1 Phone: 348-2107

ORIGINAL (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Specialty Chemicals Division

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) Don P. DeNoon (TITLE) Supv.-Envir. Control

DATE REPORTED 3/4/77 TIME REPORTED 4:00 p.m.

SPILL STARTED (DATE) 3/4/77 (TIME) 3:45 p.m.

SPILL STOPPED (DATE) 3/4/77 (TIME) 3:50 p.m.

NAME OF MATERIAL SPILLED Saturated sodium chloride brine solution containing 0.086 pounds Hg.

QUANTITY OF UNDILUTED MATERIAL LOST (1,500 gallons) 15,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.200

RIVER CONCENTRATION 0.000047 ppm Hg and 2 ppm NaCl (estimated).

CAUSE OF SPILL A brine head tank on roof of saturation building was being emptied (controlled drain) in order to replace a defective outlet valve. Although the roof had been baffled to divert drainage to the containment area, the valve moved and the sudden surge of brine spilled over the edge of the roof into a floor drain (grating) which enters outfall 001.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE Action after spill: Brine exited plant before action could be taken.

Preventive measures: The grating will be covered with deck plate to prevent recurrence.

RIVER FLOW (CFS) 97,000 RIVER GAGE (LOCATION) Wheeling Wharf and Lower Pike Island

ESTIMATED RIVER VELOCITY 1.1 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 6:45 p.m. 3/5/77 - Sistersville WATER PLANT

ORIGINAL (Red)

HAZARD ESTIMATE

TOXICITY TO HUMANS Material spilled - saturated sodium chloride solution Lowest published toxic dose (TDLO) 8200 mg/kg/23 days from U.S.D.H.E.W. 1974 Toxic Substances List.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm - from California Water Resources Control Board Water Quality Criteria - 1973.

TASTE AND ODOR Salty - no odor.

NUISANCE None for river

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for these quantities.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY Continue NPDES Monitoring Program Reports to State and EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. L. A. Parker of the Wheeling EPA office was informed of the incident by telephone on 3/7/77.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

(SIGNATURE) C. A. Raymond
Plant Manager

Allied Chemical

ATTACHMENTS 8.4/8.5

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

April 4, 1977

Mr. Daniel J. Snyder, III
Regional Administrator
U.S. Environmental Protection Agency
Region III
Sixth & Walnut Streets
Philadelphia, Pa. 19106

RE: NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
SPECIALTY CHEMICALS DIVISION
ALLIED CHEMICAL CORPORATION
CARBON TETRACHLORIDE DISCHARGES (2)
MARCH 25 & MARCH 28, 1977

Dear Mr. Snyder:

With reference to the request of Mr. Alvin R. Morris (Acting Regional Administrator), in a telegram of February 26, 1977, we herewith notify you of two unusual discharges of approximately 40 gallons (521 pounds) and 3 gallons (42 pounds), respectively, of carbon tetrachloride which occurred on March 25 and March 28, 1977. Personnel at Region III's Wheeling Office were notified of both incidents shortly after they had occurred.

Details of the incidents, the immediate corrective actions, and specific measures taken to prevent their recurrence are set forth in the attached reports. In addition, the following comprehensive spill prevention and control program is being expedited:

1. Installation of curbing protecting the CMP Distillation Area was completed on April 4, 1977. An associated collection sump and other related work will be completed by April 9, 1977.

2. Develop and expedite completion of a comprehensive containment program for CMP storage facilities.

3. Continue recently initiated 24 hour outfall surveillance program of 2 hour grab sample analyses until project (1.) is completed. Then monitor outfall for CCl_4 by an appropriate, but less frequent sampling schedule.

ORIGINAL
(Red)

Mr. Daniel J. Snyder, III
Regional Administrator
U.S. Environmental Protection Agency
April 4, 1977

4. Continue and expand administrative program to control maintenance generated wastes, tank cleaning wastes, and generally provide employees with a suitable environmental education.

5. Maintain storage tank sight gauge valves in a closed position when not in use. This is now being done.

6. Clearly identify all sewer entry points.

7. Store adsorbent material in the CMP Process Area for immediate use to control any spilled liquids.

8. Develop and implement a comprehensive program to overhaul existing curbing, collect, and decant wastes from CMP reaction areas.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

DPD:CAR:cag

cc: Mr. J. L. Ray
Mr. L. Parker
Mr. D. Foley
Mr. J. H. Hall

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

ORIGINAL
(Red)

DISCHARGE OF APPROXIMATELY 40 GALLONS OF CARBON TETRACHLORIDE

MARCH 25, 1977

DETAILS OF INCIDENT:

At approximately 8:10 A.M. on the morning of March 25, 1977, a power failure in the Chloromethanes production (CMP) area resulted in loss of the reflux pump serving the carbon tetrachloride still in this process. Despite the prompt shut down of steam to the reboiler serving this still, the carbon tetrachloride in the still continued to vaporize up through the column. This vaporized material was condensed and flowed by gravity to the reflux accumulator drum. This drum quickly filled and the liquid began flowing through a vent line leading from this accumulator drum to a vent condenser. A fitting on this vent line failed, resulting in the liquid spilling to the ground. Some of this liquid found its way into the plant storm sewer system and an estimated 40 gallons entered the Ohio River via Outfall 001 before the immediate corrective measures taken at the time of the incident succeeded in preventing flow to the river. By 9:00 A.M. on the same day the discharge was stopped.

MATERIAL INVOLVED:

The material involved was carbon tetrachloride product from our CMP process.

ORIGINAL
(Red)

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION
DISCHARGE OF APPROXIMATELY 40 GALLONS OF CARBON TETRACHLORIDE
MARCH 25, 1977

ESTIMATED QUANTITY:

The quantity of carbon tetrachloride entering the Ohio River as a result of this incident is estimated at approximately 40 gallons or approximately 521 pounds. This estimate is based on analysis of grab samples and flow measurements taken at Outfall 001 for the period during which the spilled material flowed through this outfall.

CORRECTIVE ACTION:

The following corrective actions were taken at the time of the spill:

1. Storm drains in the area were blocked to prevent the spilled CCl_4 from entering them.

2. The material exiting from the broken line was caught in buckets and other containers.

3. Absorbent material was spread in the area to soak up the spilled CCl_4.

4. CCl_4 which had accumulated in three (3) manholes enroute to the river was removed by vacuum truck.

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION
DISCHARGE OF APPROXIMATELY 40 GALLONS OF CARBON TETRACHLORIDE
MARCH 25, 1977

AGENCY NOTIFICATION:

The following agencies were notified of the incident shortly after it had occurred:

1. EPA, Region III, Wheeling Field Office - Mr. R. Preston

2. W. Va. Division of Water Resources, Parkersburg - Mr. R. Sandy

PREVENTIVE MEASURES:

The following measures will be or have been taken to prevent a recurrence of this incident:

1. The line which failed was replaced by March 26, 1977. Replacement with TFE-lined steel will be effected as soon as the necessary material is delivered.

2. Stand-pipes will be installed in the three (3) storm water catch basins in this area to provide for trapping any similar spills in order to prevent their reaching the river. This work is scheduled for completion by May 15, 1977.

3. The size of the accumulator drum which overflowed will be increased so that it will hold the entire contents of the distillation column.

ORIGINAL (Red)

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION
DISCHARGE OF APPROXIMATELY 40 GALLONS OF CARBON TETRACHLORIDE
MARCH 25, 1977

PREVENTIVE MEASURES: (Cont'd)

4. Automatic steam shut-off valves will be installed on the distillation column. These will close in the event of electrical power loss.

5. Alarms to indicate still pump shutdown will be installed.

DPD:cag

ORIGINAL (Red)

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

DISCHARGE OF APPROXIMATELY 3 GALLONS OF CARBON TETRACHLORIDE

MARCH 28, 1977

DETAILS OF INCIDENT:

On the afternoon of March 28, 1977, analysis of the 2:00 P.M. grab sample of Plant Outfall 001 showed a higher than normal level of CCl_4. Plant personnel, alerted by this analysis, began searching for the source of this excess CCl_4 in the plant sewer system. At approximately 4:20 P.M. on March 28th, a leaking mechanical seal was discovered on a process pump pumping the bottoms from a chloroform distillation unit. The leaking material contained approximately 98% CCl_4. This pump was immediately removed from service and the operation switched to an available spare pump.

Although continued analysis of outfall grab samples showed a marked decrease after this situation had been corrected, the CCl_4 levels did not return to normal and, therefore, the search was continued. The continuing search uncovered a leaking tube in a CCl_4 vent condenser. This leak resulted in small quantities of CCl_4 becoming entrained in the once-through cooling water to this condenser and entering the outfall via this route. The condenser was immediately removed from service (approximately 8:30 P.M. on March 28, 1977).

MATERIAL INVOLVED:

The material involved was carbon tetrachloride.

ORIGINAL
(Red)

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
DISCHARGE OF APPROXIMATELY 3 GALLONS OF CARBON TETRACHLORIDE
MARCH 28, 1977

ESTIMATED QUANTITY:

The quantity of carbon tetrachloride entering the Ohio River as a result of this incident is estimated at approximately 3 gallons or approximately 42 pounds greater than the quantity discharged in normal operation. This estimate is based on the analysis of seventeen (17) outfall grab samples covering the period from 8:00 A.M. March 28, 1977, to 8:00 A.M. March 29, 1977.

CORRECTIVE ACTION:

1. Both leaking pieces of equipment were removed from service at the time the leaks were discovered.

2. Storm water catch basins enroute to the river were sucked out by vacuum truck on March 29 and March 30, 1977, in order to remove any CCl_4 which had accumulated in them.

AGENCY NOTIFICATION:

The following agencies were notified by telephone:

1. EPA, Region III, Wheeling Field Office - Mr. R. Schrecongrost

2. W. Va. Division of Water Resources, Parkersburg - Mr. D. Foley

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
DISCHARGE OF APPROXIMATELY 3 GALLONS OF CARBON TETRACHLORIDE
MARCH 28, 1977

PREVENTIVE MEASURES:

The following measures will be or have been taken to prevent a recurrence of this incident:

1. Installation of curbing around the area in which these pumps are located was completed on April 4, 1977 in order to contain future leaks of this nature. An associated sump and other related work are underway and will be completed by April 9, 1977.

2. The leaking condenser will be repaired and tested before being returned to service.

DPD:cag

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

ORIGINAL (Red)

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 4, 1977

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
W. Va. Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street, East
Charleston, W. Va. 25311

RE: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
CARBON TETRACHLORIDE DISCHARGES (2)
MARCH 25 & MARCH 28, 1977

Dear Mr. Ray:

Attached are reports covering two discharges of approximately 40 gallons and 3 gallons, respectively, of carbon tetrachloride which occurred on March 25 and March 28, 1977. Personnel at your Parkersburg office were notified of both incidents by phone shortly after they had occurred.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

DPD:CAR:cag

cc: Mr. D. Foley
Mr. J. H. Hall
Mr. D. J. Snyder
Mr. L. Parker

Attachments

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOU ES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supv. Env. Control

E REPORTED March 25, 1977 TIME REPORTED 10:00 A.M.

SPILL STARTED (DATE) March 25, 1977 (TIME) 8:10 A.M.

SPILL STOPPED (DATE) March 25, 1977 (TIME) 9:00 A.M.

NAME OF MATERIAL SPILLED Carbon Tetrachloride

QUANTITY OF UNDILUTED MATERIAL LOST Approximately 521 POUNDS (40 Gal

SOLUBILITY 900 ppm in water SPECIFIC GRAVITY 1.59

RIVER CONCENTRATION 6 ppb (calculated)

CAUSE OF SPILL Power failure at CMP Plant resulted in loss of CCl_4 reflux pump. flux accumulator drum overflowed to vent condenser thru line which failed at the couplings and resulted in approximately 40 gallons (521 pounds) of CCl_4 entering Ohio River via Outfall 001.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Storm drains in area blocked; 2) CCl_4 from broken line caught in buckets; 3) absorbent spread in area of spill to soak up CCl_4; 4) accumulated CCl_4 removed by vacuum truck from three (3) manholes enroute to river. TO PREVENT RECURRENCES: 1) line replacement completed by 3/26/77; 2) stand-pipes to be installed in storm water catch basins.

RIVER FLOW (CFS) 97,000 RIVER GAGE (LOCATION) Wheeling Wharf & Lower Pike Island

ESTIMATED RIVER VELOCITY 2.2 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 9:40 P.M. 3/25/77, Sistersville WATER PLANT

ORIGINAL (Red)

HAZARD ESTIMATE

TOXICITY TO HUMANS Mean lethal dose by ingestion is .5-10 ml.

("Clinical Toxicology of Commercial Products" - Gosselin et.al., Page 92, 4th Edition)

TOXICITY TO FISH LC-50 - 125 ppm Bluegill Sunfish - Journal of Hazardous Materials, March, 1977

TASTE AND ODOR Colorless with strong characteristic odor.

NUISANCE Considered Minor

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for this quantity.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES Monitoring Program with reports to State & EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. Ron Preston of the EPA Region III, Wheeling Office was notified by telephone on 3/25/77

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. R. Sandy

(SIGNATURE)

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supv. Env. Control

DATE REPORTED March 29, 1977 TIME REPORTED 11:30 A.M.

SPILL STARTED (DATE) March 28, 1977 (TIME) 11:30 A.M.

SPILL STOPPED (DATE) March 28, 1977 (TIME) 4:30 P.M. (1) & 8:30 P.M. (2)

NAME OF MATERIAL SPILLED Carbon Tetrachloride

QUANTITY OF UNDILUTED MATERIAL LOST Approximately 42 POUNDS (3 Gal.

SOLUBILITY 900 ppm in Water SPECIFIC GRAVITY 1.59

RIVER CONCENTRATION 0.4 ppb (calculated)

CAUSE OF SPILL 1) Leaking pump seal in chloroform bottoms (98% CCl_4) pump, 2) Leaking tube in CCl_4 vent condenser.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Changed to spare pump. 2) Shutdown condenser. TO PREVENT RECURRENCE: 1) Area around pumps will be curbed to contain future leaks of this nature. 2) Leaking condenser will be repaired and tested before being returned to service.

RIVER FLOW (CFS) 78,700 RIVER GAGE (LOCATION) Wheeling Wharf & Lower Pike Island

ESTIMATED RIVER VELOCITY 1.8 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 7 A.M., 3/29/77, Sistersville WATER PLANT

HAZARD ESTIMATE

TOXICITY TO HUMANS Mean lethal dose by ingestion is .5-10 ml. ("Clinical Toxicology of Commerical Products" - Gosselin, et. al. Page 92, 4th Editio

TOXICITY TO FISH LC-50 - 125 ppm Bluegill Sunfish ("Journal of Hazardous Materials" - March, 1977)

TASTE AND ODOR Colorless with strong characteristic odor.

NUISANCE Considered Minor

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for this quantity.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES Monitoring Program with reports to State & EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. R. Schrecongost of the EPA, Region III Wheeling Office was notified by telephone on March 28, 1977.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Ms. Mollendick for D. Foley

(SIGNATURE)

Allied Chemical

ATTACHMENT 8.6

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

April 11, 1977

Mr. Daniel J. Snyder, III
Regional Administrator
U.S. Environmental Protection Agency
Region III
Sixth & Walnut Streets
Philadelphia, Pa. 19106

RE: NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
SPECIALTY CHEMICALS DIVISION
ALLIED CHEMICAL CORPORATION
CARBON TETRACHLORIDE DISCHARGE
APRIL 2, 1977

Dear Mr. Snyder:

With reference to subject permit and the request of Mr. Alvin R. Morris (Acting Regional Administrator), in a telegram of February 26, 1977, we herewith notify you of a discharge of approximately 26 gallons (345 pounds) of carbon tetrachloride which occurred on April 2, 1977.

Details of the incident, the immediate corrective actions, and specific measures taken to prevent a recurrence are set forth in the attached report. In addition, the comprehensive spill prevention and control program outlined in our letter of April 4, 1977, is being expedited.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

DPD:CAR:cag

cc: Messrs. J. L. Ray
L. Parker
D. Foley
J. H. Hall, Jr.

Attachment

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

DISCHARGE OF APPROXIMATELY 26 GALLONS OF CARBON TETRACHLORIDE

APRIL 2, 1977

DETAILS OF INCIDENT:

On the afternoon of April 2, 1977, analysis of the 2:00 P.M. grab sample of Plant Outfall 001 showed a higher than normal level of CCl_4. Although plant personnel, alerted by this analysis, immediately began searching for the source of this excess CCl_4 in the plant sewer system, the exact source has not been definitely verified. However, the following incident is thought to be the cause:

At approximately 12:45 P.M. on April 2, 1977, the high level alarm on the CCl_4 reflux accumulator drum sounded. The high level appears to have been caused by a buildup of solids on the top trays of the column, restricting flow of reflux back down the column. Although steam to the reboiler was promptly shut off, material continued to vaporize up through the column and the accumulator drum overflowed through the vent line to the vent condenser. The vent condenser was valved off on the water side awaiting repairs (re: 3/28/77 incident). However, it is possible the discharge valve was leaking, resulting in some material entering the outfall via this route. The water out line has been separated and blanked to preclude a recurrence.

ESTIMATED QUANTITY:

The quantity of CCl_4 entering the Ohio River as a result of this incident is estimated at approximately 26 gallons or approximately

NPDES PERMIT NO. WV0004405
DISCHARGE OF APPROXIMATELY 26 GALLONS OF CARBON TETRACHLORIDE
APRIL 2, 1977

ESTIMATED QUANTITY: (Cont'd)

345 pounds greater than the quantity discharged in normal operation. The estimate is based on the analysis of twenty-four (24) grab samples covering the period from 8:00 A.M. April 2, 1977, to 8:00 A.M. April 4, 1977, (residual effect from the April 2, 1977, discharge).

CORRECTIVE ACTION:

1. A storm water catch basin enroute to the river was sucked out by vacuum truck on April 2, 1977, and April 5, 1977, in order to remove any CCl_4 which may have accumulated in it.

AGENCY NOTIFICATION:

The following agencies were notified of the incident at 10:00 P.M. on April 2, 1977:

1. EPA, Region III, Wheeling Field Office - Mr. Roland Schrecongost (Mr. Schrecongost was also notified of the 35 pound residual effect at 3:00 P.M. on April 4, 1977).

2. W. Va. Division of Water Resources, Parkersburg - Mr. D. Foley

PREVENTIVE MEASURES:

The following measures have been or will be taken to prevent a recurrence of this incident:

1. The water discharge line from the vent condenser was separated and blanked on April 4, 1977.

NPDES PERMIT NO. WV0004405
DISCHARGE OF APPROXIMATELY 26 GALLONS OF CARBON TETRACHLORIDE
APRIL 2, 1977

PREVENTIVE MEASURES: (Cont'd)

2. Stand-pipes will be installed in the three (3) storm water catch basins in this area to trap any separable heavy organics that might be present. This work is scheduled for completion by May 15, 1977.

3. The size of the accumulator drum which overflowed will be increased so that it will hold the entire contents of the distillation column.

4. Automatic steam shut-off valves will be installed on the distillation column. These will close in the event of electrical power loss.

5. Alarms to indicate still pump shutdown will be installed.

DPD:cag

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

ORIGINAL
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 11, 1977

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
W. Va. Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street, East
Charleston, W. Va. 25311

RE: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
CARBON TETRACHLORIDE DISCHARGE
APRIL 2, 1977

Dear Mr. Ray:

Attached report covers a discharge of approximately 26 gallons of carbon tetrachloride which occurred on April 2, 1977. Mr. D. Foley was notified of the incident by phone at 10:00 P.M. on April 2, 1977.

If you have any questions regarding this matter, please contact me.

Very truly yours,

C. A. Raymond
Plant Manager

CAR:cag

cc: Messrs. D. Foley
J. H. Hall, Jr.
D. J. Snyder
L. Parker

Attachments

STATE OF WEST VIRGINIA

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

~~ORIGINAL~~ (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supv.-Env. Control

DATE REPORTED April 2, 1977 TIME REPORTED 10:00 P.M.

SPILL STARTED (DATE) April 2, 1977 (TIME) 2:00 P.M. (Approx.)

SPILL STOPPED (DATE) April 2, 1977 (TIME) 2:15 P.M. (Estimated)

NAME OF MATERIAL SPILLED Carbon Tetrachloride

QUANTITY OF UNDILUTED MATERIAL LOST Approximately 345* POUNDS (26 gal.)

SOLUBILITY 900 ppm in water SPECIFIC GRAVITY 1.59

RIVER CONCENTRATION 2 ppb (calculated)

CAUSE OF SPILL Although not definitely substantiated, a leaking valve on the CCl_4 vent condenser involved in the 3/28/77 discharge is believed to be the source of the 4/2/77 discharge.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE

1) Accumulated CCl_4 removed by vacuum truck from manhole enroute to river.

2) Water out line from condenser has been separated and blanked.

RIVER FLOW (CFS) 85,000 RIVER GAGE (LOCATION) Wheeling Wharf & Lower Pike Island

ESTIMATED RIVER VELOCITY 2.2 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 3:30 AM, 4/3/77, Sistersville WATER PLANT

*310 pounds for 24 hr. period ending 8:00 A.M. 4/3/77
35 " " " " " " " " 4/4/77 (Residual effect from 4/2/77 discharge)
345 pounds total

HAZARD ESTIMATE

ORIGINAL (Red)

TOXICITY TO HUMANS Mean lethal dose by ingestion is 5-10 ml. ("Clinical Toxicology of Commercial Products - Gosselin et. al., Page 92, 4th Ed.)

TOXICITY TO FISH LC-50 - 125 ppm Bluefill Sunfish - Journal of Hazardous Materials, March, 1977

TASTE AND ODOR Colorless with strong characteristic odor.

NUISANCE Considered minor.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for this quantity.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES Monitoring Program with reports to State & EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. Roland W. Schrecongost of the EPA, Region III Wheeling Office was notified by telephone on 4/2/77.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

(SIGNATURE)

ATTACHMENT 8.7

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

July 27, 1977

Dr. Alvin R. Morris
Acting Regional Administrator
Environmental Protection Agency
Region III
Permits Application Section
Sixth & Walnut Streets
Philadelphia, Pa. 19106

Attention: Chief, Permits Branch

RE: NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
SPECIALTY CHEMICALS DIVISION
ALLIED CHEMICAL CORPORATION

Dear Dr. Morris:

We herewith notify you of an abnormal discharge of sodium chloride brine solution to the Ohio River via our Outfall 001. No NPDES effluent limitations are known to have been exceeded as a result of the discharge.

Details of the incident, the immediate corrective actions, and specific measures taken to prevent a recurrence are presented in the attached report.

If you have any questions regarding this matter, please contact me.

Very truly yours,

J. V. Muthig

J. V. Muthig
Plant Manager

JVM:DPD:cag

cc: R. C. George
J. L. Ray
J. H. Hall, Jr.
D. Foley

Attachment

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

(Red)

ABNORMAL DISCHARGE OF BRINE ON JULY 24, 1977

DETAILS OF INCIDENT:

At 9:00 P.M. on July 24, 1977, a 100,000 gallon steel tank containing saturated 25 percent sodium chloride brine ruptured and resulted in the discharge of approximately 64,000 gallons of brine to the Ohio River via Outfall 001. The failure occurred at the base of the cylindrical tank.

MATERIAL INVOLVED:

The material involved was purified brine solution from our brine purification process.

QUANTITY DISCHARGED:

The quantity of salt (sodium chloride) entering the Ohio River as a result of this incident is estimated at 160,000 pounds. This approximation was obtained by estimating the amount of brine in the tank at the time of rupture and subtracting the amount of brine consumed from the tank during the duration of the spill.

Based on the analysis of a twenty-four hour composite (for the period ending 8:30 A.M. July 25, 1977) from Outfall 001, this amount of salt did not exceed our NPDES Permit daily maximum total solids effluent limitation of 377,000 pounds per day (net). Also, additional analyses of this composite showed no violations of the other permit parameters.

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

ORIGINAL

ABNORMAL DISCHARGE OF BRINE ON JULY 24, 1977

PREVENTIVE MEASURES:

The following measures will be taken to prevent a recurrence of this incident:

1. The ruptured tank will be thoroughly examined and repaired.

2. Permanent secondary containment requirements will be evaluated and appropriate facilities provided.

3. A formalized preventive maintenance program is presently being set up to check all storage tanks yearly. The checks will consist of evaluations of thickness, external conditions, base and tank connections.

DPD:cag

NPDES PERMIT NO. WV0004405
MOUNDSVILLE SOUTH PLANT
ALLIED CHEMICAL CORPORATION

ABNORMAL DISCHARGE OF BRINE ON JULY 24, 1977

CORRECTIVE ACTION:

The following corrective actions were taken at the time of the rupture:

1. Feed to the tank was stopped immediately when the rupture was discovered.

2. Material in the tank was consumed during the duration of the spill in order to minimize loss.

3. Unsuccessful attempts were made to contain spill in the vicinity of the tank area.

AGENCY NOTIFICATIONS:

The following agencies were notified of the incident by telephone:

1. W. Va. Division of Water Resources, Parkersburg (Mr. D. Foley) July 24, 1977, 11:00 P.M.

2. EPA, Region III, Wheeling Field Office (Mr. L. Parker) July 25, 1977, 9:15 A.M.

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

July 27, 1977

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
W. Va. Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street, East
Charleston, W. Va. 25311

RE: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
BRINE SPILL (SODIUM CHLORIDE SOLUTION)

Dear Mr. Ray:

The attached report, "Industrial Spills and Hazard Alerts", considers an abnormal discharge of approximately 64,000 gallons of purified sodium chloride brine solution which occurred on July 24, 1977. This discharge resulted from the failure of a 100,000 gallon storage tank. Mr. D. Foley was notified of the incident by phone at 11:00 P.M. on July 24, 1977.

The following analysis of the twenty-four hour composite (for the period ending 8:30 A.M. July 25, 1977) from Outfall 001 indicate that no State permit limitations were known to have been exceeded:

	Net Contribution, lbs/day	
	7/25/77 Composite	Permit Limitation
Total Solids	324,185	377,000
Chlorides	163,041	171,659

If you have any questions regarding this matter, please contact me.

Very truly yours,

J. V. Muthig

J. V. Muthig
Plant Manager

JVM:cag

cc: Messrs. D. Foley, J. H. Hall, Jr., Dr. A. R. Morris, R. C. George

Attachment

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURC
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

ORIGINAL (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supv.-Env. Control

DATE REPORTED July 24, 1977 TIME REPORTED 11:00 P.M.

SPILL STARTED (DATE) July 24, 1977 (TIME) 9:10 P.M.

SPILL STOPPED (DATE) July 24, 1977 (TIME) 11:10 P.M.

NAME OF MATERIAL SPILLED Purified Sodium Chloride Brine Solution (Saturated)

QUANTITY OF UNDILUTED MATERIAL LOST (64,000 gallons) 640,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.200

RIVER CONCENTRATION 5 ppm NaCl (Estimated)

CAUSE OF SPILL Rupture of 100,000 gallon steel tank.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Feed to tank was stopped, 2) material in tank continued to be consumed during spill, 3) unsuccessful attempts were made to contain spill in the vicinity of the tank area. TO PREVENT RECURRENCE: 1) Tank will be examined and repaired. 2) appropriate containment requirements of storage area will be determined and effected.

RIVER FLOW (CFS) 49,000 RIVER GAGE (LOCATION) Wheeling Wharf and Lower Pike Island

ESTIMATED RIVER VELOCITY 0.6 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 12:10A.M. 7/27/77-Sistersville WATER PLANT

HAZARD ESTIMATE

Material spilled - sodium chloride - full strength.

ORIGINAL (Red)

TOXICITY TO HUMANS Lowest published toxic dose (TDL_o) 8200 mg/Kg/23 days

From U.S.D.H.E.W. 1974 Toxic Substances List.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm - From California Water Resources Control Board Water Quality Criteria - 1973.

TASTE AND ODOR Salty - No odor

NUISANCE Considered minor.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES monitoring program. Report results to State and EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. Larry Parker of the EPA, Region III Wheeling Office was notified by telephone on July 25, 1977.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

J. V. Muthig

(SIGNATURE) J. V. Muthig
Plant Manager

Allied Chemical

ATTACHMENT 8.8

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

ORIGINAL (Red)

November 14, 1977

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, West Virginia 25311

Dear Mr. Ray:

We hereby notify you of a discharge of sodium chloride brine solution to the Ohio River which occurred on November 9, 1977. Although no NPDES/State effluent permit limitations were exceeded, and although the discharge did not enter the Ohio River via our Outfall 001, the discharge is being reported since it entered the river near our barge loading dock.

The discharge was caused by a break in a 6" line from our brine well. The pump house area where the incident occurred is presently being diked and the line was accidently struck by a back-hoe during excavation.

As indicated in the attached report, "Industrial Spills and Hazard Alerts", approximately 2,800 pounds of chloride were discharged to the Ohio River. Our average daily chloride loading is approximately 100,000 pounds and our daily maximum permit limitation is 171,659 pounds.

If you have any questions regarding this matter, please contact me.

Very truly yours,

J. V. Muthig

J. V. Muthig
Plant Manager

JVM:ps
Enc.

cc: Ray George, EPA
Doug Foley

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
VISION OF WATER RESOURCE
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Suprv.- Env. Control

DATE REPORTED 11/11/77 TIME REPORTED 10:10 A.M.

SPILL STARTED (DATE) 11/9/77 (TIME) 11:35 A.M.

SPILL STOPPED (DATE) 11/9/77 (TIME) 12:05 P.M.

NAME OF MATERIAL SPILLED Raw Sodium Chloride Brine Solution

QUANTITY OF UNDILUTED MATERIAL LOST (2000 gallons) 20,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.180

RIVER CONCENTRATION 0.45 ppm chloride (estimated change)

CAUSE OF SPILL Rupture of 6" line from brine well. The line was accidentally struck by a back-hoe during construction of a dike around the pump house.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE The pumping operation was shutdown. The area is being diked.

RIVER FLOW (CFS) 55,000 RIVER GAGE (LOCATION) Wheeling Wharf and Lower Pike Island

ESTIMATED RIVER VELOCITY 1.7 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 5:00 P.M. 10/10/77 Sistersvil WATER PLANT

HAZARD ESTIMATE

TOXICITY TO HUMANS Material spilled-sodium chloride-full strength. Lowest published toxic dose (TDL_0) 8200 mg/Kg/23 days. From U.S.D.H.E.W. 1974 Toxic Substances List.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm - From California Water Resources Control Board Water Quality Criteria - 1973.

TASTE AND ODOR Salty - No odor

NUISANCE Considered minor.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY Not applicable - area being diked to prevent any future discharge

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). U.S. EPA Wheeling Field Office notified 11/11/77 Discharge not considered significant(chloride contribution 2,800 pounds - South Plant daily chloride contribution averages approx. 100,000 pounds - State Permit is 171,659 pounds/day)

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT ---

(SIGNATURE) J. V. Muthig
Plant Manager

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

ATTACHMENT 8.9

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

April 11, 1978

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, West Virginia 25311

RE: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
DIESEL FUEL SPILL
APRIL 1, 1978

Dear Mr. Ray:

We hereby notify you of a discharge of an estimated 50 gallons of diesel fuel oil to the Ohio River which occurred at approximately 9:50 A.M. on April 1, 1978.

The discharge occurred when a plastic sight gauge on a diesel fuel oil storage tank was blown down by high winds. Although the fuel tank was contained, the end of the downed sight gauge fell over the containment wall.

As indicated in the attached report, "Industrial Spills and Hazard Alerts", it is estimated that approximately 150 gallons entered the plant sewer system. Of this quantity, it is estimated that approximately 50 gallons entered the Ohio River via Outfall 001 and that approximately 100 gallons was retained by booms installed in the Outfall 001 stilling pond.

The incident was reported to Mr. Foley of your Parkersburg office at 10:28 A.M. on April 1 and to the National Response Center in Washington, D. C., at 10:31 A.M. We called Mr. Foley again at 12:40 P.M. on April 1 to inform him of the status of the clean-up and oil collection operation.

ORIGINAL
(Red)

If you have any questions regarding this matter, please contact me.

Very truly yours,

J. V. Muthig
Manager

JVM:cag

cc: R. C. George, EPA, Wheeling
J. H. Hall, Div. of Water Resources, Charleston
D. Foley, Div. of Water Resources, Parkersburg

Attachment

STATE OF WEST VIRGINIA

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

ORIGINAL

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corporation, Moundsville South Plant

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) T. Harris/D. DeNoon (TITLE) Supvrs.-Env. Control

DATE REPORTED 4/1/78 TIME REPORTED 10:28 A.M./12:40 P.M.

SPILL STARTED (DATE) 4/1/78 (TIME) 9:50 A.M. (Estimated)

SPILL STOPPED (DATE) 4/1/78 (TIME) 10:10 A.M.

NAME OF MATERIAL SPILLED No. 2 Diesel Fuel Oil

QUANTITY OF UNDILUTED MATERIAL LOST 150 gal. to sewer-50 gal. to river POUNDS

SOLUBILITY Non-Miscible SPECIFIC GRAVITY 7.5 Lbs./Gal.

RIVER CONCENTRATION Not Applicable

CAUSE OF SPILL High winds dislodged plastic sight gauge that had been attached to the side of a diesel fuel tank. Although the fuel oil tank had secondary containment, the end of the sight gauge fell over the edge of the containment.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Flow of diesel fuel to sewer stopped immediately when noted. 2) In place containment boom permanently installed across outfall slowed the flow of diesel fuel to the river--outfall flow velocity was too high to achieve complete containment. 3) Sorbent boom was installed downstream of containment boom. 4) Sorbent pads placed across measuring weir to capture any diesel fuel that escaped the booms. 5) Diesel fuel collected behind the booms and in catch basins and manholes enroute to Outfall 001 was removed by

(Continued on bottom of page.)

RIVER FLOW (CFS) 94,000 RIVER GAGE (LOCATION) Wheeling Wharf & lower Pike Island

ESTIMATED RIVER VELOCITY 2.4 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 7:00 A.M. 4/2/78 Sistersville WATER PLANT

vacuum truck on 4/1/78 (1:15 P.M.) TO PREVENT RECURRENCE: 1) Plastic tubing replaced with armored sight glass.

HAZARD ESTIMATE

TOXICITY TO HUMANS Not considered toxic.

TOXICITY TO FISH Not considered toxic.

TASTE AND ODOR Significant concentrations of petroleum oils may impart unpleasant taste and odor to water--specific data unavailable.

NUISANCE Rainbow sheen, which dispersed within three hours, noted on river in vicinity of plant outfall.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY Not Applicable - Armored sight glass installed to prevent future discharge of the same nature.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). National Response Center, Washington, D. C. notified 4/1/78 at 10:31 A.M.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley

(SIGNATURE) J. V. Muthig, Manager

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

May 8, 1978

Region III EEB (35A 30)
Environmental Protection Agency
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Subject: Allied Chemical Corporation
Moundsville Complex
Oil Spill - April 1, 1978
Your Reference - WV-78-044

Dear Sirs:

This is in response to your letter of April 24, 1978, requesting information on an oil discharge from the Moundsvill Complex on April 1, 1978. As discussed on the telephone with Mr. Neil Wise of your office on May 2, a written report on this incident was sent to the W.Va. Department of Natural Resources on April 11, 1978. A copy of this report was sent to the Wheeling Field Office, USEPA.

Most of the information requested in your letter of April 24, is contained in this report. However, we are submitting the following information in response to questions (5) and (6).

a) Question 5 - List type and total storage capacities at the facility for any oil related products.

Type - No. 2 Fuel Oil

Total Storage Capacity - 1,190,000 gallons

Type - Transformer Oil

Total Capacity - 50,000 gallons (approximately)

b) Question 6 - Does the facility have a Spill Prevention and Countermeasure Plan certified and implemented in accordance with 40 CFR 112?

Yes. The Moundsville North Plant has had an SPCC plan since July, 1974. Due to the consolidation of the North and South Plants, the SPCC plan is being revised and updated to include the oil used in the South Plant electric transformers.

Very truly yours,

J. V. Muthig

J. V. Muthig
Plant Manager

JVM:ps

ORIGINAL
(Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

JUL 21 1978

RECEIVED
JUL 2 1 19
CCGD2 mv

Commander (mep)
Second Coast Guard District
1430 Olive Street
St. Louis, Missouri 63103

Re: Assessment of Civil Penalties pursuant to
33 U.S.C. 1321(b)(6); EPA Case No. WV-78-044

Gentlemen:

Enclosed for your consideration is information relating to a violation of 33 U.S.C. 1321(b)(3) which occurred on April 1, 1978. The violation is a result of a discharge of approximately 50-150 gallons of diesel fuel into Ohio River. It is recommended that civil penalties be considered against the following:

Allied Chemical Corp.
Box E
Moundsville, WV 26041

If there are any questions, or if we can provide additional assistance, please call Neil Wise at (215) 597-9317.

Sincerely yours,

Howard J. Lamp'l, Chief
Environmental Emergency Branch

Enclosure

cc: Office of Water Enforcement
Enforcement Division (EN338)

EEB - 1 (Rev. 3/78)

Case # WV-78-044

(O,HM) _____

SPCC # _____

(N,T) _____

INCOMING SPILL REPORT

Received By: Howard J. Lamp'l Date: 4/1/78 Time: 1035

Reported By: NRC - Ted Harrison

Organization: Allied Chemical Phone: 304/845-5670

Address: Moundsville South Plant, P.O. Box E
Moundsville, WV 26041

Spiller Name: Allied Chemical Phone: 304/845-5670

Address: Moundsville South Plant, P.O. Box E
Moundsville, WV 26041

Location Locality: State Rt. 2

Address: 3 miles south of Moundsville

County: Marshall State: West Virginia

Stream (Nearest): Ohio River

Spill Data Date: 4/1/78 Time: 1010

Material: #2 fuel - diesel

Source: Gauging device Cause: High winds

Total Spilled: 200 In Stream: 50-150 Escaping: ?

Countermeasures Containment: Boom Clean-up: Vac truck

Notification (Name, #, Date, Time)

ENF: _____ A&H: _____

Front Off: _____ Pub. Aff: _____

OTS: _____ Field Off: _____

USCG: _____ State/Local: _____

WSB: _____ Other: _____

HQ's: _____ Regions: _____

Basin Comm: _____ S&A: _____

Comments (reverse)

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (mv)
SECOND COAST GUARD DISTRICT
1430 OLIVE STREET
ST. LOUIS, MO 63103

•314-425-4655
2P83416
18 August 1978

•Allied Chemical Corp.
Box E
Moundsville, WV 26041

Gentlemen:

The U. S. Environmental Protection Agency has forwarded to this office an investigative report which alleges an incident has occured in violation of the Federal Water Pollution Control Act as amended by the Clear Water Act of 1977.

Date	Facility
1 APR 1978	Gauging Device (Storage Tank)
Location	**Pollutant**
Ohio River, Marshall County, WV	#2 Diesel Fuel

The statute which may be applicable is 33 USC 1321(b)(3), which prohibits the discharge of oil or hazardous substance in harmful quantities into the waters of the United States. 33 USC 1321(b)(6) requires assessment of a civil penalty for every violation of 33 USC 1321(b)(3).

This notification is given to afford you the opportunity to conduct an investigation of your own. After our evaluation of the report, you will be notified if penalty action is warranted. This letter requires no response.

Sincerely,

J. L. ROBINSON
Lieutenant, U. S. Coast Guard
Violations Branch
By direction of the District Commander

Encl:- 1) Summary of Possible Actions under Section 311, Federal Water Pollution Control Act.

Copy to:
EPA III (WV-78-044)

SUMMARY OF POSSIBLE ACTIONS UNDER
SEC' N 311, FEDERAL WATER POLLUTION CONTR ACT

THIS SUMMARY IS NEITHER A NOTICE OF VIOLATION NOR NOTICE OF THE INTENT TO TAKE ACTION UNDER THE PENALTY OR COLLECTION PROVISIONS OUTLINED BELOW. YOU SHOULD BE AWARE THAT THERE ARE SEVERAL PENALTY PROVISIONS IN SECTION 311 OF THE FEDERAL WATER POLLUTION CONTROL ACT (33 USC 1321). THESE PROVISIONS ARE NOT MUTUALLY EXCLUSIVE, THAT IS, THE IMPOSITION OF ONE DOES NOT PRECLUDE ACTION TAKEN UNDER ANOTHER PROVISION. THE FOLLOWING PROVISIONS MAY APPLY TO THE INCIDENT DESCRIBED IN THE ACCOMPANYING LETTER:

1. Section 311(B)(2)(III): Assessment of a civil penalty for the discharge of a non-removable hazardous substance.

   APPLIES TO: All harmful quantity discharges of non-removable hazardous substances.

   ADMINISTERED BY: Environmental Protection Agency

   LIABILITY: Either $500-$5000 or up to $5,000,000 depending on the cause and severity of the discharge.

2. Section 311(B)(5): Referral to the U. S. Attorney for prosecution for failure to notify the federal government of a discharge of oil or hazardous substance.

   APPLIES TO: All harmful quantity discharges of oil or a hazardous substance.

   ADMINISTERED BY: Coast Guard or Environmental Protection Agency.

   LIABILITY: $10,000 and/or up to 1 year's imprisonment.

3. Section 311(B)(6): Assessment of a civil penalty for the discharge of oil or a hazardous substance in a harmful quantity into waters of the United States.

   APPLIES TO: All harmful quantity discharges of oil or hazardous substances.

   ADMINISTERED BY: Coast Guard

   LIABILITY: $5,000 for each discharge.

4. Section 311(F): Recovery of federal funds expended for the removal of a discharge.

   APPLIES TO: All harmful quantity discharges of oil or hazardous substances in which the federal government took clean-up or mitigating action.

   ADMINISTERED BY: Coast Guard (Referred to the U. S. Attorney for collection).

   LIABILITY: Higher of the following limits, up to the actual cost of clean-up:

   Inland Oil Barge, as defined at Section 311(A)(15): $125/gross ton or $125,000

   All other vessels: $150/gross ton or $150,000

   Facilities: $50,000,000

5. Section 311(j): Assessment of a civil penalty for violations of pollution control and prevention regulations.

   APPLIES TO: Facilities transferring oil in bulk to or from vessels with a capacity greater than 250 barrels of that oil (33 CFR 154,156)

   Vessels (33 CFR 155,156)

   Non-transportation related facilities with above-ground storage of at least 660 gallons in any single container or 1320 gallons total, or an underground capacity of at least 42,000 gallons (40 CFR 112)

   ADMINISTERED BY: Coast Guard (33 CFR 154-156)

   Environmental Protection Agency (40 CFR 112)

   LIABILITY: $5,000 for each violation.

Copy to: File

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
Commander (dj)
Second Coast Guard
District
1430 Olive Street
St. Louis, MO 63103
Tel. (314) 425-4655

ORIGINAL
(Red)

RECEIVED
NOV 14 1979
J.V.M.

2P83416

NOV 8 1979

J. V. Muthig, Specialty Chemicals Division
Allied Chemical Corp.
Box E
Moundsville, WV 26041

RE: Oil Pollution Case 2P83416, sight gauging device; oil discharge into Ohio River, Marshall County, West Virginia, on or about 1 April 1978

Dear Mr. Muthig:

We have received a report alleging that a violation of Section 311(b)(3) of the Federal Water Pollution Control Act (or FWPCA, 33 USC 1321(b)(3)) has occurred. The specific allegation is that on or about 1 April 1978, oil was discharged in a harmful quantity from a plastic sight gauge at your Moundsville Complex into the Ohio River, a navigable water of the United States (33 CFR 2.05-25(a)(3)(i)). Jurisdictional waters for the purpose of enforcing the Federal Water Pollution Control Act encompass navigable waters, tributaries thereto, and other waters over which the Federal Government may exercise Constitutional authority (33 CFR 2.05-25(b)). As the owner, operator, or person-in-charge of the referenced facility on that date, you may be liable for a civil penalty of not more than $5,000 for each discharge in violation of the Act.

This letter constitutes notice of a reported violation and the offer of a hearing as provided by Section 1321(b)(6) of the FWPCA. These proceedings are governed by 33 CFR 1.07 and provide you the opportunity to examine the material available to me in this case and to respond in person, through counsel, or in writing before any actual penalty is assessed.

Section 1321(b)(6) of the FWPCA requires that, for each violation of the discharge prohibition, the owner, operator, or person-in-charge of the facility or vessel from which the oil is discharged "shall be assessed a civil penalty." In determining the amount of the assessment I must consider (1) the appropriateness of the penalty to the size of the business of the owner or operator, (2) the effect of the penalty on the owner's or operator's ability to continue in business, and (3) the gravity of the violation. Under the terms of the Act, fault or culpability is not a factor in determining whether or not there has been a violation, but this is considered in weighing the gravity or seriousness of the violation.

2P91025

After a careful review of the enclosed investigation report, I have made a preliminary determination that $150.00 would be an appropriate penalty in this case, based in part upon evidence in the report of the discharge of an estimated 150 gallons of oil, allegedly when a plastic sight gauge on a diesel fuel oil storage tank was blown down by high winds. The action taken to mitigate the effects of the discharge has also been considered in determining the appropriateness of the penalty.

I urge you to submit information which would clarify the perceived gravity of the violation, the size of your business, and the effect of this penalty on your ability to continue in business. Other relevant matter would, of course, include evidence that you were not the owner, operator, or person-in-charge of the facility or vessel, as alleged, or that no violation occurred.

If desired, a personal-appearance hearing should be requested in writing. The request must specify the issues which are in dispute, but the specification of issues may be amended at any time up to ten days before the hearing. Alternatively, you may submit written evidence and arguments in lieu of a personal-appearance hearing.

If you submit any material containing financial or commercial information or trade secrets which you feel is exempt from public disclosure, please identify such material and state your reasons for believing it to be exempt in order that the material may be protected in accordance with the law.

If we have no response from you within thirty days of your receipt of this letter, we will consider that the amount stated will have no significant effect on your ability to remain in business, and that you have waived your right to a hearing. A penalty will be assessed on the basis of the evidence then before me.

If you choose, you may pay the penalty I have preliminarily determined to be appropriate, in which case that amount will become the assessed penalty and the case will be closed. To do this, your remittance should be made payable to "U.S. Coast Guard" and submitted with the enclosed copy of this letter to Commander (f), Second Coast Guard District, 1430 Olive Street, St. Louis, Missouri 63103, marked "Attention: Collection Clerk."

Sincerely,

T. R. GRANT
Captain, U. S. Coast Guard
Hearing Officer

Encl: (1) Report of Investigation

Copies to:
EPA Region III, Philadelphia (WV-78-004)
CGDTWO (fac) Collection Clerk

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 15, 1979

Commander (f)
Second Coast Guard District
1430 Olive Street
St. Louis, Missouri 63103

Attention: Collection Clerk

RE: OIL POLLUTION CASE 2P83416

Dear Commander:

Regarding the above reference matter, enclosed is our check for $150.00 in full payment of the penalty assessed. It is our understanding that this case will be closed upon your receipt of this remittance.

As a matter of clarification, it was estimated that only 50 gallons of the 150 gallons of diesel fuel oil spilled actually entered the Ohio River. Approximately 100 gallons was retained by booms installed in the Outfall 001 stilling pond and was subsequently removed by vacuum truck. Captain Grant's November 8, 1979, letter indicated that 150 gallons was discharged.

Your consideration of this matter is appreciated.

Very truly yours,

J. V. Muthig

J. V. Muthig
Manager

JVM:cag

Enclosure

FROM (See return mailing address on reverse)

Commander, Second Coast Guard District (mep)

DATE

3 December 1979

REFERENCE YOUR COMMUNICATION (File number, date, subject or other identification)

Your check in the amount of $150.00 covering the penalty in this case.

ACTION TAKEN

☐ REPLY WILL BE FURNISHED ON OR ABOUT 2P83416

☐ WE HAVE SENT YOUR COMMUNICATION TO:

☐ FOR DIRECT REPLY

☐ TO OBTAIN INFORMATION

☐ FOR COMPLIANCE WITH YOUR REQUEST

REMARKS This satisfies the penalty assessment for the discharge of oil into the Ohio River on 1 APR 1978. The civil penalty case is now closed.

NAME, GRADE AND TITLE

L. RILEY, BY DIRECTION

SIGNATURE (by direction)

L Riley

D OF TRANSP., USCG, CG-4217 (REV. 5-78)
PR OUS EDITIONS ARE OBSOLETE

ACKNOWLEDGMENT/REFERRAL

ATTACHMENT 8.10

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. J. L. Ray, Assistant Chief
Surveillance, Analysis Enforcement Branch
WV Department of Natural Resources
1201 Greenbrier Street
Charleston, WV 25311

SUBJECT: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
BRINE SPILL - 12/1/78

Dear Mr. Ray:

We hereby notify you of a discharge of an estimated 1,000 gallons of saturated sodium chloride brine solution to the Ohio River on December 1, 1978.

This discharge resulted from the failure of a polyethylene line used to transfer waste brine solution from the brine saturation process to the mercury treatment facilities. As indicated by the following data, no discharge permit limitations were exceeded because of this incident.

Parameter	(a) Outfall 001 Composite Sample 22 hours ending 10:50 AM 12/2/78	(b) Contribution from discharge of 1,000 gallons of saturated brine	Total Columns (a) & (b)	Permit Limitation
Mercury (lbs.)	0.05	0.07	0.12	0.25
Chlorides (lbs.)	109,900	1,500	111,400	171,650

A completed "Industrial Spills and Hazards Alert" report is attached. This incident was reported by telephone to Helen Thompson of your Fairmont Office at 11:55 AM on December 1, 1978.

If you have any questions, please contact me.

Very Truly Yours,

J. V. Muthig

J. V. Muthig
Plant Manager

JVM:DPD/clp

cc: Mr. David Atchinson, Fairmont Office, WVDNR

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

ORIGINAL (Red)

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corp. Specialty Chemicals Division

LOCATION (CITY Moundsville, WV (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supervisor-Environmental Contro

DATE REPORTED 12/1/78 TIME REPORTED 11:55 AM

SPILL STARTED (DATE) 12/1/78 (TIME) 11:00 AM

SPILL STOPPED (DATE) 12/1/78 (TIME) 11:15 AM

NAME OF MATERIAL SPILLED Saturated sodium chloride brine solution containing 0.066 pounds mercury.

QUANTITY OF UNDILUTED MATERIAL LOST (1,000 gallons) 10,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.200

RIVER CONCENTRATION 0.000031 ppm mercury and 1.2 ppm NACl during the 15 minute duration of discharge (estimated change due to discharge).

CAUSE OF SPILL Failure of polyethylene pump-out line from brine saturation area to mercury treatment facilities.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE To stop spill: 1) Pump was immediately shutdown, 2) Residual brine collected around manhole enroute to Outfall 001 was removed by vacuum truck on 12/1/78 (11:30 AM), 3) Ruptured line was repaired on 12/1/78. To prevent recurrence: 1) Investigate means to improve integrity of pump-out line.

RIVER FLOW (CFS) 38,000 RIVER GAGE (LOCATION) Wheeling Wharf and lower Pike Island

ESTIMATED RIVER VELOCITY 0.5 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 11:00 PM, 12/3/78, Sistersville WTR PLANT

HAZARD ESTIMATE

TOXICITY TO HUMANS Material spilled - sodium chloride - full strength. Lowest published toxic dose (TDL_o) 8200 mg/Kg/23 days. From U.S.D.H.E.W. 1974 Toxic substances list.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm - From California Water Resources Control Board, Water Quality Critoria - 1973.

TASTE AND ODOR Salty - No odor

NUISANCE Considered minor

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY

Continue NPDES Monitoring Program. Report results to State and EPA.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). No other agencies were notified since no state or NPDES Permit limitations were exceeded.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mr. D. Foley, Parkersburg Office and Helen Thompson - Fairmont Office

(SIGNATURE)

J. V. Muthig

J. V. Muthig
Plant Manager

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

ATTACHMENT 8.11

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 13, 1979

Mr. J. L. Ray, Assistant Chief
Surveillance Analysis Enforcement Branch
W. Va. Department of Natural Resources
1201 Greenbrier Street
Charleston, West Virginia 25311

SUBJECT: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
BRINE SPILL - AUGUST 8, 1979

Dear Mr. Ray:

This letter confirms and supplements our August 8, 1979, telephone notification to the W. Va. Department of Natural Resources regarding the discharge of an estimated 24,000 gallons of 25% sodium chloride brine solution to the Ohio River which occurred on August 8, 1979.

The discharge was caused by the failure of a 4" steel riser leading to a safety rupture disc on the raw brine header from the production brine wells to the pump house facility. The discharge entered the river near our barge loading dock.

Approximately 36,000 pounds of chloride were discharged to the Ohio River as a result of this incident. Our average net daily chloride discharge to the Ohio River is approximately 100,000 - 150,000 pounds and our daily maximum permit limitation is 171,659 pounds.

A completed "Industrial Spills and Hazards Alert" report is attached. This incident was reported by telephone to Mrs. Deborah Cheetham of your Fairmont Office at 7:23 A.M. on August 8, 1979.

If you have any questions, please contact me.

Very truly yours,

J. V. Muthig
Manager

JVM:cag

cc: Mr. David Atchinson, Fairmont Office, WVDNR
Mr. Ben Wilmoth, EPA, Region III, Wheeling Field Office

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corp., Specialty Chemicals Division

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supervisor - Envir. Control

DATE REPORTED 8/8/79 TIME REPORTED 7:23 A.M.

SPILL STARTED (DATE) 8/8/79 (TIME) 3:00 A.M.

SPILL STOPPED (DATE) 8/8/79 (TIME) 5:00 A.M.

NAME OF MATERIAL SPILLED saturated sodium chloride brine solution

QUANTITY OF UNDILUTED MATERIAL LOST (24,000 gallons) 240,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.200

RIVER CONCENTRATION 7 ppm NaCl during the two hour duration of discharge (estimated change due to discharge)

CAUSE OF SPILL Failure of a 4" steel riser on the raw brine header from the production brine wells to the pump house.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Production brine system was immediately shutdown when leak was detected at 5:00 A.M., 2) a new 4" connection was installed on 8/8/79. TO PREVENT RECURRENCE: 1) The entire brine well system has been inspected by the Plant Maintenance Department.

RIVER FLOW (CFS) 18,000 RIVER GAGE (LOCATION) Wheeling Wharf and lower Pike Island

ESTIMATED RIVER VELOCITY 0.5 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 3:00 P.M., 8/10/79, Sistersville WATER PLANT

HAZARD ESTIMATE

TOXICITY TO HUMANS Material spilled - sodium chloride - full strength. Lowest published toxic dose (TDL_0) 8200 mg/Kg/23 days. From U.S. D.H.E.W. 1974 Toxic Substances List.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm from California Water Resources Control Board, Water Quality Criteria 1973.

TASTE AND ODOR Salty - No odor.

NUISANCE Considered minor.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY None required in this case.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). Mr. Ben Wilmoth, U.S. EPA, Region III, Wheeling Field Office, was also notified by telephone of the incident.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mrs. Deborah Cheetham - Fairmont Office

(SIGNATURE)

J. V. Muthig

J. V. Muthig, Manager

Allied Chemical

Specialty Chemicals Division
P.O. Box E
Moundsville, West Virginia 26041
(304) 845-5670

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ATTACHMENT 8.12

September 21, 1979

Mr. J. L. Ray, Assistant Chief
Surveillance Analysis Enforcement Branch
W. Va. Department of Natural Resources
1201 Greenbrier Street
Charleston, West Virginia 25311

SUBJECT: ALLIED CHEMICAL CORPORATION
MOUNDSVILLE SOUTH PLANT
BRINE SPILL - SEPTEMBER 18, 1979

Dear Mr. Ray:

This letter confirms and supplements our September 18, 1979, telephone notification to the W. Va. Department of Natural Resources regarding the discharge of an estimated 4,600 gallons of 25% sodium chloride brine solution to the Ohio River which occurred on September 18, 1979.

The discharge was caused by an operator's error. During a routine brine filter backwash a valve was inadvertently left open, resulting in 40,000 gallons of saturated sodium chloride brine solution being drained from storage. Although the brine was discharged to a contained area, an estimated 4,600 gallons spilled over the containment curbing and entered Outfall 001. The remainder of the spilled brine was transferred to our mercury treatment facilities.

As indicated by the following data, the incident resulted in our discharge permit limitation for mercury being exceeded. Our discharge permit limitation for chlorides was not exceeded.

Parameter	Outfall 001 Composite Sample 24 Hours Ending 9:22 AM 9/19/79	Contribution from Discharge of 4,600 Gal. of Saturated Brine	Permit Limitation
Mercury (Lbs.)	0.44	0.24	0.25
Chlorides (Lbs.)	82,789	7,000	171,650

A completed "Industrial Spills and Hazards Alert" report is attached. This incident was reported by telephone to Deborah Cheetham of your Fairmont Office at 11:32 P.M. September 18, 1979.

If you have any questions, please contact me.

Very truly yours,

J. V. Muthig

J. V. Muthig
Manager

JVM:cg

cc: Mr. David Atchinson, Fairmont Office, WVDNR

Attachment

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier St., Charleston, W. Va. 25311 Phone: 348-2107

INDUSTRIAL SPILLS AND HAZARD ALERTS

SECTION I

RECORD OF INDUSTRIAL REPORT
(APPLICABLE ANYWHERE IN STATE)

NAME OF REPORTING COMPANY Allied Chemical Corp., Specialty Chemicals Division

LOCATION (CITY Moundsville (RIVER BASIN) Ohio

PERSON REPORTING (NAME) D. P. DeNoon (TITLE) Supervisor - Envir. Control

DATE REPORTED 9/18/79 TIME REPORTED 11:32 P.M.

SPILL STARTED (DATE) 9/18/79 (TIME) 9:00 P.M.

SPILL STOPPED (DATE) 9/18/79 (TIME) 9:30 P.M.

NAME OF MATERIAL SPILLED Saturated sodium chloride brine solution containing approx. 0.24 pounds mercury.

QUANTITY OF UNDILUTED MATERIAL LOST (Est. 4,600 gal.) 46,000 POUNDS

SOLUBILITY Miscible SPECIFIC GRAVITY 1.200

RIVER CONCENTRATION 0.000046 ppm mercury and 2.2 ppm NaCl during the 30 min. duration of discharge (est. change due to discharge)

CAUSE OF SPILL Operator error - A valve was inadertently left open during a routine backwash of a brine filter, resulting in the discharge of approx. 40,000 gallons of brine. Although the brine was discharged into a contained area, approx. 4,600 gallons spilled over and entered Outfall 001.

ACTION TAKEN TO STOP SPILL AND PREVENT RECURRENCE TO STOP SPILL: 1) Valve was closed when the discharge was detected. TO PREVENT RECURRENCE: 1) Investigate means to improve integrity of the containment/pump-out system, 2) operators will be retrained--re: correct operating procedures.

RIVER FLOW (CFS) 46,500 RIVER GAGE (LOCATION) Wheeling Wharf and lower Pike Island

ESTIMATED RIVER VELOCITY 0.5 MILES/HOUR

ESTIMATED TIME OF ARRIVAL AT (LOCATION) 9:00 AM, 9/21/79, Sistersville WATER PLANT

HAZARD ESTIMATE

TOXICITY TO HUMANS Material spilled - sodium chloride - full strength. Lowest published toxic dose (TDL_o) 8200 mg/Kg/23 days. From J.S. D.H.E.W. 1974 Toxic Substances List.

TOXICITY TO FISH No harmful effect reported for concentrations of less than 400 ppm from California Water Resources Control Board, Water Quality Criteria 1973.

TASTE AND ODOR Salty - No Odor.

NUISANCE Considered minor.

COMPANY'S RECOMMENDATION FOR SAFEGUARDING PUBLIC WATER SUPPLIES (IF SAFEGUARDS ARE NEEDED) None required for quantity involved.

COMPANY'S PLAN FOR MONITORING (SAMPLING & ANALYSIS), IF DEEMED NECESSARY None required in this case.

COMMENTS (INDICATE HERE IF SIGNIFICANCE OF SPILL WAS NOT GREAT ENOUGH TO WARRANT NOTIFICATION OF OTHER AGENCIES). No other agencies were notified.

STATE WATER RESOURCES DIVISION REPRESENTATIVE TAKING REPORT Mrs. Deborah Cheetham - Fairmont Office

(SIGNATURE)

J. V. Muthig

J. V. Muthig, Manager

ATTACHMENT 6.13

INDUSTRIAL CHEMICALS DIVISION

Moundsville South Plant

SUBJECT: Chlorine Release - NORIMAC Activation 7:20 a.m. Saturday, April 20, 1974, Moundsville South Plant

At approximately 7:20 a.m. Saturday, April 20, 1974, the 2" expansion loop ruptured on the discharge side of #3 Chlorine Receiver during chlorine transfer operations to the organic section of the plant. A heavy fog lay over the plant area at the time and a 5 mph wind from the NE carried the chlorine vapors in the fog bank southward toward the adjacent Moundsville Country Club. Foreman Harold Bennett and Liquid Chlorine Operator Fred Lautar proceeded to secure the receiver valving. No plant injuries were noted following the release.

At 7:27 a.m., Patrolman, John Wagner initiated a NORIMAC (Northern Ohio River Industrial Mutual Aid Council) activation call on the NORIMAC "hotline" telephone system requesting road blocks be set up to divert traffic away from the plant on both sides of the Ohio River (W. Va. State Route 2 and Ohio State Route 7). Additional calls were made to U.S. Locks 13-14 to notify river traffic in the area. The Baltimore & Ohio Railroad was notified regarding rail traffic through the NORIMAC "hotline" as they are a participating member. NORIMAC member plants were requested to stand by for possible assistance.

The West Virginia State Police, Ohio Highway Patrol, Moundsville City Police Department, Marshall County Sheriff's Department, and other municipal police departments proceeded with the traffic diversion plan to divert traffic away from the Moundsville South Plant. Southbound traffic on W. Va. State Route 2 was diverted at the southern limits of Moundsville at the King Cole Restaurant by 7:54 a.m. Northbound traffic on Route 2 was diverted at the intersection of Birch Run and Route 2 some 10 miles south of the plant entrance. Additional

patrol cars were positioned at (1) Round Bottom Hill and Route 2 (Terrace Motel) (2) Round Bottom Hill south and Allied Plant entrance on Route 2 and (3) south exit of Route 2 at Washington Lands (Reed property). An additional W. Va. State Police car was also stationed at the plant gate at 7:47 a.m.

On the Ohio side Route 7 traffic was being diverted in Powhatan by the city police and in Shadyside by city police and Ohio Highway Patrol. A second Ohio Highway Patrol car patroled Ohio Route 7 between Powhatan and Shadyside.

By 7:45 a.m., D. DeNoon, Supervisor-Chemical Control was at the plant and proceeded to the Washington Lands-Moundsville Country Club area which adjoins the east and south boundary of the plant. A slight chlorine odor was noticeable in the atmosphere at the Country Club. The Washington Lands Community area was clear of chlorine odor.

Sampling of the atmosphere by Mr. DeNoon indicated the following:

1. Southern Washington Lands near end of 4-lane section of Route 2 - - - - - - - - - - - - - - - - - 0.2 ppm Cl_2
2. Route 2 near Consolidation Coal Co. office - - - - - - - 0.1 ppm Cl_2
3. Route 2 at Ohio Power Kammer Plant entrance - - - - - - 0.1 ppm Cl_2
4. Route 2 - 1-mile north of Consolidation Coal Co. - - - 0.2 ppm Cl_2

The dense fog bank with the residual chlorine extended from the southern end of Washington Lands to the Kammer Plant and was very slowly drifting south. (Approx. 3-mile stretch.) The fog was so thick at the time sample was being taken at Kammer that plant could not be seen from Route 2.

John Budinscak, Supervisor-Safety & Hygiene was notified at home at approximately 7:30 a.m. and notified the following personnel before leaving home:

R. Amedro, Superintendent-Production

W. Silber, Supervisor-ECS

R. Ford, Superintendent-Employee Relations

Upon arriving at the plant, Mr. Budinscak proceeded to sample the atmosphere along Route 2 in the following areas:

8:45 a.m.	Reed property-south exit of Rt 2, Washington Lands	0	ppm Cl_2
	End of 4-lane, south end of Washington Lands, Rt 2	0	ppm Cl_2
	Consolidation Coal Company office - Rt 2	4mm = 0.2	ppm Cl_2
	Ohio Power Kammer Plant entrance - Rt 2	2mm = 0.1	ppm Cl_2
9:12 a.m.	Mountaineer Carbon Plant entrance - Rt 2	0	ppm Cl_2
9:20 a.m.	Consolidation Coal Company office - Rt 2	0	ppm Cl_2

Consolidation Coal Company emergency headquarters dispatcher, Willie Sutton, called at 8:35 a.m. to advise of strong smell in area of Consolidation office - mine on Route 2 and was advised that area was being sampled. Consolidation Coal Company office is located approximately 4-miles south of the plant along State Route 2 and Ohio Power Kammer Plant is approximately 5-mile south of the plant on State Route 2. The village of Powhatan, Ohio is west and across the Ohio River from the Consolidation Coal Company office.

At 9:10 a.m. the NORIMAC activation - road blocks were removed with an all-clear call on the "hotline" telephone.

After alert had been lifted, D. DeNoon and R. Amedro proceeded to Powhatan, Ohio (9:30 - 10:30 a.m.). Samples were taken at northern and southern limits of the community and although Cl_2 odor was noticeable, none was detected on the MSA 82399 tubes (<0.1 ppm).

R. Ford arrived at the plant at approximately 8:30 a.m. - fielded several incoming calls and after alert was lifted, contacted the news media listed below to advise more information would be coming shortly.

9:13 a.m.	WEIF Radio, Moundsville, notified alert was lifted
9:17 a.m.	WWVA Radio, Bob Cain notified alert was lifted. Cain advised their information came from State Police - they did call Wagner at plant, but he issued no information.
9:20 a.m.	Moundsville Echo - talked to Mary Voltz - deadline at 10:30 a.m. for publication.
9:24 a.m.	Wheeling Intelligencer - Joe Hoffman/Al Molnar advised alert lifted and would get back with more as soon as possible

At this same time, T. Capps, notified R. Nelepovitz of the incident and arranged for the notification of appropriate Division and Corporate personnel. Subsequently, a call was received from N. Herington.

The following news release was prepared and given to all news media by R. Ford at times indicated below:

"At approximately 7:30 a.m. this morning, a chlorine gas release occurred at the Moundsville South Plant of Allied Chemical Corporation. The leak resulted from a broken line on a storage vessel and was quickly secured by plant personnel. Due to local weather conditions, which retarded the dispersing of the fumes, an emergency NORIMAC alert was activated, and traffic was blocked on Routes 2 and Ohio 7 as a precautionary measure. This alert was lifted at 9:10 a.m. after checks of the surrounding area indicated there were no hazardous conditions in existence.

No injuries have been reported and an investigation of the incident is underway by plant officials".

10:06 a.m. - WEIF, Moundsville Radio Station

10:10 a.m. - News Register, Wheeling - Calloway

10:20 a.m. - Moundsville Echo - Mary Voltz

10:26 a.m. - UPI, Charleston, W. Va. - Carl Lilly (343-7569)

10:30 a.m. - WWVA, Wheeling - Bob Cain - taped report

10:35 a.m. - API, Charleston, W. Va. - Roger Peterson (346-0897)

11:20 a.m. - WOMP Radio, Bellaire, Ohio - Howard Monroe

11:37 a.m. - Times-Leader, Martins Ferry, Ohio - Ruth Weslake

At 10 a.m. American Coal Company, Powhatan, Ohio (795-5500) was contacted by J. Budinscak and Mr. Warble (Vice-President) was notified that plant situation was secured, but a slight chlorine odor might be prevalent in the area. Mr. Warble expressed appreciation for the call and stated that an odor was prevalent in area.

At 10:30 a.m. T. H. Capps, Manager, advised Mayor Wright of Powhatan by phone (795-4382) at her home regarding the situation - Mrs. Wright advised that she had received several complaints regarding the odor and was appreciative of the

call to advise that the situation was corrected.

At 10:45 a.m. Consolidation Coal Company emergency dispatcher Sutton was contacted by J. Budinscak and advised of the sampling in the Consolidation office area. Mr. Sutton stated that some of the men at the mine complained of eyes watering, but stayed indoors until the fog dispersed - several employees were late for work due to the roadblock.

On Monday, April 22, R. Ford met with the principal of the Washington Lands' School (Mrs. Miller) and her staff to discuss the incident and explain the plant and NORIMAC procedures. The discussion covered NORIMAC in general and the specific actions which would be taken to protect the school if in session during an emergency situation. The group asked a few questions and seemed impressed with the emergency programs and organizations which exist.

INVESTIGATION/CORRECTIVE ACTION

The expansion loop which failed is to be cut for examination. Basis findings, an operations time limit will be considered for expansion loops on all receivers and barge storage tanks. Revision of pressure test procedures will also be considered.

ORIGINAL

MOUNDSVILLE DAILY ECHO

Moundsville, W. Va.

Saturday, April 20, 1974

NORIMAC Alert Cancelled

At approximately 7:30 a.m. this morning a chlorine gas release occurred at the Moundsville south plant of Allied Chemical Corp. Officials of the company stated that the leak resulted from a "broken line on a storage vessel" and was quickly secured by plant personnel.

Due to local weather conditions which retarded the dispersal of the fumes an emergency alert of the Northern Ohio River Industrial Mutual Aid Council (NORIMAC) was activated and traffic was blocked on Route 2 in West Virginia and Route 7 in Ohio as a precautionary measure.

The alert was lifted at 9:10 a.m. after checks of the surrounding area indicated there was no hazardous conditions in existence, officials said.

No injuries have been reported and an investigation of the incident is underway by plant officials.

NEWS-REGISTER—Wheeling, W. Va.—Sunday, April 21, 1974

Line Break Brings Chlorine Gas Alert

Traffic was halted Saturday morning on W. Va. Route 2 and Ohio Route 7 when a break in a chlorine line caused an emission of chlorine gas from the South Plant of Allied Chemicals Corp. south of Moundsville.

An emergency alert of the Northern Ohio River Industrial Mutual Aid Council (NORIMAC) was put into effect to protect passersby on the highways on both sides of the Ohio River.

Robert Ford, superintendent of employe relations at the plant, said there were no reported injuries and few telephone calls from area residents complaining about the gas.

He said the leak resulted from a broken line on a storage vessel and was quickly secured by plant personnel.

He said that due to weather conditions that caused the gas to stay close to the ground the alert was ordered and traffic was blocked by the West Virginia State Police and the Ohio Highway Patrol as a precautionary measure.

Ford said the break took place at approximately 7:30 a.m. and that the alert was canceled at 9:10 a.m. after checks of surrounding areas showed there were no hazardous conditions.

Ford said the response to the NORIMAC alert, which went to area law enforcement agencies and other industrial plants was "excellent."

liedSignal

101 Columbia Road
Morristown, NJ 07962-1057

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