AP - 002

STAGE 1 & 2 WORKPLANS

DATE:

Aug 21, 2000

Shell E&P Company
A Division of Shell Exploration & Production Company

Woodcreek
200 N Dairy Ashford
Houston, TX 77079

P.O. Box 576
Houston, TX 77001

VIA FEDERAL EXPRESS
AIRBILL NUMBER: 8187-0384-7366

AUG 24 2000

August 21, 2000

Mr. William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

SUBJECT: NOTICE OF DEFICIENCY
STAGE 2 ABATEMENT PLAN (AP-2)
WESGATE SUBDIVISION, GRIMES BATTERY AND TASKER ROAD

Dear Mr. Olson:

Shell Exploration and Production Company (SEPCo) is in receipt of the New Mexico Oil Conservation Division's (OCD) letter of July 31, 2000 concerning the above-mentioned subject. This letter is in response to the deficiencies listed in your letter.

1. Discrete Base of Excavation Samples – SEPCo agrees to the changes in the number of samples for each excavation segment per the OCD's request in the letter of July 31, 2000.

2. Appendix III Health & Safety Plan, MSDS Sheets (Appendix B) – Please find enclosed the requested Material Safety Data Sheets. Please insert in your copy of the Stage 2 Abatement Plan in Appendix B of the Health & Safety Plan.

3. Appendix III Health & Safety Plan, Notifications – SEPCo will add the appropriate OCD personnel to the notification list in any event which poses a threat to public health per the OCD's request in the letter of July 31, 2000.

This information should correct the listed deficiencies. If you have any questions, please call me at (281) 544-2322 or via electronic mail: wahamilton@shellus.com.

Sincerely,

Cliff P. Brunson /for Wayne A. Hamilton

Wayne A. Hamilton
Retained Properties Manager

cc: Chris Williams, NMOCD District 1 Supervisor, 2 copies
Cliff P. Brunson, BBC International, Inc.

MATERIAL SAFETY DATA SHEET

BENZENE (AMOCO/TOTAL)

MSDS No. 11697000 ANSI/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BENZENE (AMOCO/TOTAL)

MANUFACTURER/SUPPLIER:

Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Benzene	71-43-2	99.80
Toluene	108-88-3	0.20

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Danger! Extremely flammable. Causes eye and skin irritation. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. Harmful or fatal if liquid is aspirated into lungs. Danger! Contains Benzene. Cancer hazard. Can cause blood disorders. Harmful when absorbed through the skin.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Causes mild eye irritation.

SKIN CONTACT: Causes mild skin irritation. Causes skin irritation on prolonged or repeated contact. Harmful when absorbed through the skin.

INHALATION: Cancer hazard. Can cause blood disorders. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. See "Toxicological Information" section (Section 11.0).

INGESTION: Harmful or fatal if liquid is aspirated into lungs. See "Toxicological Information" section (Section 11.0).

HMIS CODE: (Health:2) (Flammability:3) (Reactivity:0)

NFPA CODE: (Health:2) (Flammability:3) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: 12°F(-11°C)

UEL: 8.0%

LEL: 1.5%

AUTOIGNITION TEMPERATURE: 928°F (498°C)

FLAMMABILITY CLASSIFICATION: Extremely Flammable Liquid.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Extremely flammable liquid. Vapor may explode if ignited in enclosed area.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames). Keep container closed. Use with adequate ventilation.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Remove mechanically or contain on an absorbent material such as dry sand or earth. Increase ventilation if possible. Wear respirator and spray with water to disperse vapors. Keep out of sewers and waterways.

7.0 HANDLING AND STORAGE

HANDLING: Use with adequate ventilation. Do not breathe vapors. Keep away from ignition sources (e.g., heat, sparks, or open flames). Ground and bond containers when transferring materials. Wash thoroughly after handling. After this container has been emptied, it may contain flammable vapors; observe all warnings and precautions listed for this product.

STORAGE: Store in flammable liquids storage area. Store away from heat, ignition sources, and open flame in accordance with applicable regulations. Keep container closed. Outside storage is recommended.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: Do not get in eyes. Wear eye protection.

SKIN: Do not get on skin or clothing. Wear protective clothing and gloves.

INHALATION: Do not breathe mist or vapor. If heated and ventilation is inadequate, use supplied-air respirator approved by NIOSH/MSHA.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Benzene	71-43-2	OSHA PEL: 1 ppm OSHA STEL: 5 ppm ACGIH TLV-TWA: 10 ppm
Toluene	108-88-3	OSHA PEL: 100 ppm (1989); 200 ppm (1971) OSHA STEL: 150 ppm (1989); Not established. (1971) OSHA Ceiling: 300 ppm (1971) ACGIH TLV-TWA: 50 ppm (skin)

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Liquid. Colorless. Sweet odor.

pH: Not determined.

VAPOR PRESSURE: 74.6 mm Hg at 20 °C

VAPOR DENSITY: Not determined.

BOILING POINT: 176°F(80°C)

MELTING POINT: 42°F(6°C)

SOLUBILITY IN WATER: Slight, 0.1 to 1.0%.

SPECIFIC GRAVITY (WATER=1): 0.88

10.0 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: 3.8 g/kg (rat).

INHALATION LC50: 10000 ppm (rat)

OTHER TOXICITY DATA: Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness, drowsiness, or excitation. Exposure to very high levels can result in unconsciousness and death.

Long-term overexposure to benzene has been associated with certain types of leukemia in humans. In addition, the International Agency for Research on Cancer (IARC) and OSHA consider benzene to be a human carcinogen. Chronic exposures to benzene at levels of 100 ppm and below have been reported to cause adverse blood effects including anemia. Benzene exposure can occur by inhalation and absorption through the skin.

Inhalation and forced feeding studies of benzene in laboratory animals have produced a carcinogenic response in a variety of organs, including possibly leukemia, other adverse effects on the blood, chromosomal changes and some effects on the immune system. Exposure to benzene at levels up to 300 ppm did not produce birth defects in animal studies; however, exposure to the higher dosage levels (greater than 100 ppm) resulted in a reduction of body weight of the rat pups (fetotoxicity). Changes in the testes have been observed in mice exposed to benzene at 300 ppm, but reproductive performance was not altered in rats exposed to benzene at the same level.

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Do not siphon by mouth.

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances. Residues and spilled material are hazardous waste due to ignitability.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name	Benzene
Hazard Class	3
Identification Number	UN1114
Packing Group	II
RQ	RQ

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name Not determined.

Air (ICAO/IATA)

Shipping Name Not determined.

European Road/Rail (ADR/RID)

Shipping Name Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4): This product is reportable under 40 CFR Part 302.4 because it contains the following substance(s):

Component/CAS Number	Weight %	Component Reportable Quantity (RQ)
Benzene 71-43-2	99.80	10 lbs.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part 370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

SARA TITLE III SECTION 313 (40 CFR Part 372): This product contains the following substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
Benzene 71-43-2	99.80

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Flammable liquid. Carcinogen. Irritant. CNS Effects. Target organ effects.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

Prepared by:

Environment, Health and Safety Department

Issued: November 14, 1995

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET

TOLUENE (AMOCO/TOTAL)

MSDS No. 11699000 ANSI/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: TOLUENE (AMOCO/TOTAL)

MANUFACTURER/SUPPLIER:

Amoco Chemical Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
Toluene	108-88-3	80
C9 Isoparaffins		9
C8 Isoparaffins		5
Benzene	71-43-2	2
Xylenes		2
Ethylbenzene	100-41-4	2

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Warning! Flammable. Causes eye irritation. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Inhalation causes headaches, dizziness, drowsiness, nausea, and respiratory irritation. If swallowed, causes headaches, dizziness, drowsiness and nausea, and may lead to unconsciousness. Harmful or fatal if liquid is aspirated into lungs. Danger! Contains Benzene. Cancer hazard. Can cause blood disorders. Harmful when absorbed through the skin.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Causes mild eye irritation.

SKIN CONTACT: Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Harmful when absorbed through the skin. Cancer hazard. Can cause blood disorders.

INHALATION: Inhalation causes headaches, dizziness, drowsiness, nausea, and respiratory irritation. See "Toxicological Information" section (Section 11.0).

INGESTION: If swallowed, causes headaches, dizziness, drowsiness and nausea, and may lead to unconsciousness. Harmful or fatal if liquid is aspirated into lungs.

HMIS CODE: (Health:2) (Flammability:3) (Reactivity:0)

NFPA CODE: (Health:2) (Flammability:3) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing and thoroughly clean and dry before reuse.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: 40°F(4°C)

UEL: 6.8%

LEL: 1.3%

AUTOIGNITION TEMPERATURE: 997°F (536°C)

FLAMMABILITY CLASSIFICATION: Flammable Liquid.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid. Vapor may explode if ignited in enclosed area.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames). Use with adequate ventilation. Keep container closed.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Remove mechanically or contain on an absorbent material such as dry sand or earth. Keep out of sewers and waterways.

7.0 HANDLING AND STORAGE

HANDLING: Do not breathe vapors. Do not get in eyes. Do not get on skin or clothing.

STORAGE: Store in flammable liquids storage area. Store away from heat, ignition sources, and open flame in accordance with applicable regulations. Keep container closed.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: Do not get in eyes. Wear chemical goggles.

SKIN: Avoid skin contact. Wear protective clothing and gloves.

INHALATION: Do not breathe mist or vapor. Use with adequate ventilation. If ventilation is inadequate, use NIOSH certified respirator that will protect against organic vapor and dust/mist.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
Toluene	108-88-3	OSHA PEL: 100 ppm (1989); 200 ppm (1971) OSHA STEL: 150 ppm (1989); Not established. (1971) OSHA Ceiling: 300 ppm (1971) ACGIH TLV-TWA: 50 ppm (skin)
C9 Isoparaffins		No exposure limit established
C8 Isoparaffins		No exposure limit established
Benzene	71-43-2	OSHA PEL: 1 ppm OSHA STEL: 5 ppm ACGIH TLV-TWA: 10 ppm
Xylenes		No exposure limit established
Ethylbenzene	100-41-4	OSHA PEL: 100 ppm (1989)(1971) OSHA STEL: 125 ppm(1989); Not established. (1971) ACGIH TLV-TWA: 100 ppm ACGIH TLV-STEL: 125 ppm

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Liquid. Clear. Colorless. Aromatic odor.

pH: Not determined.

VAPOR PRESSURE: 26 mm Hg at 25 °C

VAPOR DENSITY: 3.2

BOILING POINT: 231°F(111°C)

MELTING POINT: Not determined.

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER=1): 0.87

EVAPORATION RATE:

10.0 STABILITY AND REACTIVITY

STABILITY: Burning can be started easily.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: None identified.

HAZARDOUS DECOMPOSITION: Burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA: Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

This stream contains benzene, toluene, xylene and ethylbenzene.

Toluene: Toluene is readily absorbed via inhalation, ingestion, and somewhat through skin contact. In the liquid form, it causes mild skin irritation with a single exposure (PDIS: 4.8/8.0) and dermatitis following repeated exposures. Toluene also produces mild eye irritation (Draise score at 1.0 hour 13.7/110.0) which includes reversible corneal opacity and iritis. It is not a dermal sensitizer. Inhalation in humans has caused mild respiratory irritation (200 ppm), mild eye irritation (400 ppm), and lassitude and slight nausea (600 ppm). Drowsiness occurs at 800 ppm. Very high concentrations may result in paresthesia, dizziness, disturbances of vision, nausea, narcosis, and collapse. It does not induce the hematopoietic effects seen with benzene exposure. Rat oral LD50: 5000 mg/kg; rat inhalation LC50: 4000 ppm (4 hours).

Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness,

drowsiness, or excitation. Exposure to very high levels can result in unconsciousness and death.

Long-term overexposure to benzene has been associated with certain types of leukemia in humans. In addition, the International Agency for Research on Cancer (IARC) and OSHA consider benzene to be a human carcinogen. Chronic exposures to benzene at levels of 100 ppm and below have been reported to cause adverse blood effects including anemia. Benzene exposure can occur by inhalation and absorption through the skin.

Inhalation and forced feeding studies of benzene in laboratory animals have produced a carcinogenic response in a variety of organs, including possibly leukemia, other adverse effects on the blood, chromosomal changes and some effects on the immune system. Exposure to benzene at levels up to 300 ppm did not produce birth defects in animal studies; however, exposure to the higher dosage levels (greater than 100 ppm) resulted in a reduction of body weight of the rat pups (fetotoxicity). Changes in the testes have been observed in mice exposed to benzene at 300 ppm, but reproductive performance was not altered in rats exposed to benzene at the same level.

This product contains xylene. Xylene is readily absorbed through the skin. It is also absorbed when inhaled or ingested. Overexposure to xylene can cause eye and respiratory irritation, drowsiness, headache, fatigue, irritability, and gastrointestinal disturbances. Some liver damage and lung inflammation were seen in chronic studies in guinea pigs but not in rats. In rat reproduction studies, xylenes did not produce birth defects but were toxic to the embryo when toxicity to the mother was produced. In a mouse study, xylenes caused birth defects at doses that threatened the life of the mother. The doses which produced these effects were greatly in excess of the TLV. Rat oral LD50: 4300 mg/kg; rat inhalation LC50: 5000 ppm/4 hours.

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Do not siphon by mouth.

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Residues and spilled material are hazardous waste due to ignitability. Incineration at an EPA-permitted hazardous waste management facility as required by law. Do not landfill.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name Toluene
Hazard Class 3
Identification Number UN1294
Packing Group II
RQ RQ

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name Not determined.

Air (ICAO/IATA)

Shipping Name Not determined.

European Road/Rail (ADR/RID)

Shipping Name Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name Not determined.

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4): This product is reportable under 40 CFR Part 302.4 because it contains the following substance(s):

Component/CAS Number	Weight %	Component Reportable Quantity (RQ)
Benzene 71-43-2	2	10 lbs.
Ethylbenzene 100-41-4	2	1,000 lbs.
Xylenes	2	100 lbs.
Toluene 108-88-3	80	1,000 lbs.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part

370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

SARA TITLE III SECTION 313 (40 CFR Part 372): This product contains the following substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
Benzene 71-43-2	2
Ethylbenzene 100-41-4	2
Xylenes	2
Toluene 108-88-3	80

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Flammable liquid. CNS Effects.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

Prepared by:

Environment, Health and Safety Department

Issued: April 14, 1997

Supersedes: April 10, 1997

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for

all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

Ethyl Benzene
08780

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

MSDS Name: Ethyl Benzene
Catalog Numbers:
O2751 1, O2751-1, O27511
Synonyms:
Ethylbenzol, phenylethane
Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

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

CAS#	Chemical Name	%	EINECS#
100-41-4	Ethylbenzene	100	202-849-4

Hazard Symbols: XN F
Risk Phrases: 11 20

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

EMERGENCY OVERVIEW

Appearance: clear, colorless. Flash Point: 21 deg C.
Warning! Flammable liquid. Causes skin irritation. Causes eye irritation. May cause central nervous system depression. Aspiration hazard. May be absorbed through the skin. Causes digestive and respiratory tract irritation.
Target Organs: Central nervous system.
Potential Health Effects

Eye:
Causes moderate eye irritation. Vapors may cause eye irritation.

Skin:
Causes skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. May be absorbed through the skin. Contact with the liquid may cause erythema, exfoliation and vesiculation.

Ingestion:
May cause irritation of the digestive tract. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Inhalation:
Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. Vapors may cause dizziness or suffocation.

Chronic:
Chronic inhalation may cause effects similar to those of acute inhalation.

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

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately.

Skin:
Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:
Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Treat symptomatically and supportively.

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

General Information:
Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Flammable Liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.
Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.
Autoignition Temperature: 810 deg F (432.22 deg C)
Flash Point: 21 deg C (69.80 deg F)
NFPA Rating: health-2; flammability-3; reactivity-0
Explosion Limits, Lower: 0.8
Upper: 6.7

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

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Remove all sources of ignition. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

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

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

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

Engineering Controls:
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs

Ethylbenzene	100 ppm ; 434 mg/m3; 125 ppm STEL; 543 mg/m3 STEL	100 ppm TWA; 435 mg/m3 TWA 800 ppm IDLH (10 percent lower explosive limit)	100 ppm TWA; 435 mg/m3 TWA

OSHA Vacated PELs:
Ethylbenzene:
100 ppm TWA; 435 mg/m3 TWA

Personal Protective Equipment

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

Skin:
Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing:
Wear appropriate protective gloves and clothing to prevent skin exposure.

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

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

Physical State:	Liquid
Appearance:	clear, colorless
Odor:	aromatic odor
pH:	Not available.
Vapor Pressure:	7.1 mm Hg @ 20 C
Vapor Density:	3.7
Evaporation Rate:	<1 (butyl acetate=1)
Viscosity:	0.63 mPa s 20 C
Boiling Point:	277 deg F
Freezing/Melting Point:	-139 deg F
Decomposition Temperature:	Not available.
Solubility:	Insoluble.
Specific Gravity/Density:	0.9
Molecular Formula:	C8H10
Molecular Weight:	106.07

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

Chemical Stability:
Stable under normal temperatures and pressures.

Conditions to Avoid:
Incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials:
Oxidizing agents.

Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

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

RTECS#:
CAS# 100-41-4: DA0700000

LD50/LC50:
CAS# 100-41-4: Oral, rat: LD50 = 3500 mg/kg; Skin, rabbit: LD50 = 17800 mg/kg.

Carcinogenicity:
Ethylbenzene -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology:
No data available.

Teratogenicity:

No data available.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

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

Ecotoxicity:
Shrimp (mysidoposis bahia), LC50=87.6 mg/L/96hr. Sheepshead minnow LC50=275 mg/L/96hr. Fathead minnow LC50=42.3 mg/L/96hr in hard water &48.5 mg/L/96hr in softwater.
Environmental Fate:
Substance may absorb to sediment and bioconcentrate in fish.
Physical/Chemical:
Not available.
Other:
Not available.

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

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants:
None listed.
RCRA D-Series Chronic Toxicity Reference Levels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: None listed.
Not listed as a material banned from land disposal according to RCRA.

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

US DOT
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN Number: UN1175
Packing Group: II
IMO
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN Number: 1175
Packing Group: II
IATA
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN Number: 1175
Packing Group: II
RID/ADR
Shipping Name: ETHYLBENZENE
Dangerous Goods Code: 3(03B)
UN Number: 1175
Canadian TDG
Shipping Name: ETHYL BENZENE
Hazard Class: 3(9.2)
UN Number: UN1175
Other Information: FLASHPOINT 15C

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

US FEDERAL
TSCA
CAS# 100-41-4 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 100-41-4: Effective Date: June 19, 1987; Sunset Date: June 19, 1997
Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 100-41-4: final RQ = 1000 pounds (454 kg)

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 100-41-4: acute, chronic, flammable.

Section 313

This material contains Ethylbenzene (CAS# 100-41-4, 100%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 100-41-4 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 100-41-4 is listed as a Hazardous Substance under the CWA.
CAS# 100-41-4 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 100-41-4 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Ethylbenzene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F

Risk Phrases:

R 11 Highly flammable.
R 20 Harmful by inhalation.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 24/25 Avoid contact with skin and eyes.
S 29 Do not empty into drains.

WGK (Water Danger/Protection)

CAS# 100-41-4: 1

Canada

CAS# 100-41-4 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of B2, D2B, D2A.
CAS# 100-41-4 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 100-41-4: OEL-AUSTRALIA:TWA 100 ppm (435 mg/m3);STEL 125 ppm (545 mg/m3)
OEL-BELGIUM:TWA 100 ppm (434 mg/m3);STEL 125 ppm (543 mg/m3)
OEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3
OEL-DENMARK:TWA 50 ppm (217 mg/m3)
OEL-FINLAND:TWA 100 ppm (435 mg/m3);STEL 150 ppm (655 mg/m3)
OEL-FRANCE:TWA 100 ppm (435 mg/m3)
OEL-GERMANY:TWA 100 ppm (440 mg/m3);Skin
OEL-HUNGARY:TWA 100 mg/m3;STEL 200 mg/m3;Skin
OEL-JAPAN:TWA 100 ppm (430 mg/m3)
OEL-THE NETHERLANDS:TWA 100 ppm (435 mg/m3)

OEL-THE PHILIPPINES:TWA 100 ppm (435 mg/m3)
OEL-POLAND:TWA 100 mg/m3
OEL-RUSSIA:TWA 100 ppm;STEL 50 mg/m3
OEL-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (450 mg/m3)
OEL-SWITZERLAND:TWA 100 ppm (435 mg/m3);STEL 500 ppm
OEL-TURKEY:TWA 100 ppm (435 mg/m3)
OEL-UNITED KINGDOM:TWA 100 ppm (435 mg/m3);STEL 125 ppm
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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

MSDS Creation Date: 9/13/1995 Revision #5 Date: 12/12/1997

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

MATERIAL SAFETY DATA SHEET

AMOCO META-XYLENE

MSDS No. 01261000 ANSI/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: META-XYLENE

MANUFACTURER/SUPPLIER:

Amoco Chemical Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
M-Xylene	108-38-3	100

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Warning! Flammable. Causes mild eye irritation. Causes skin irritation. Harmful or fatal if liquid is aspirated into lungs. Inhalation causes headaches, dizziness, drowsiness, nausea, and respiratory irritation. If swallowed, causes headaches, dizziness, drowsiness and nausea, and may lead to unconsciousness.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Causes mild eye irritation.

SKIN CONTACT: Causes skin irritation.

INHALATION: Inhalation causes headaches, dizziness, drowsiness, nausea, and respiratory irritation.

INGESTION: Harmful or fatal if liquid is aspirated into lungs. If swallowed, causes headaches, dizziness, drowsiness and nausea, and may lead to unconsciousness.

HMIS CODE: (Health:2) (Flammability:3) (Reactivity:0)

NFPA CODE: (Health:2) (Flammability:3) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Flush eyes with plenty of water. Get medical attention if irritation persists.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: 81°F(27°C)

UEL: 7.0%

LEL: 1.1%

AUTOIGNITION TEMPERATURE: 924°F (496°C)

FLAMMABILITY CLASSIFICATION: Flammable Liquid.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid. Vapor may explode if

ignited in enclosed area.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames). Keep container closed. Use with adequate ventilation.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Remove mechanically or contain on an absorbent material such as dry sand or earth. Keep out of sewers and waterways.

7.0 HANDLING AND STORAGE

HANDLING: Do not cut, puncture, or weld on or near this container. Use with adequate ventilation.

STORAGE: Store in flammable liquids storage area. Store away from heat, ignition sources, and open flame in accordance with applicable regulations. Keep container closed.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: Do not get in eyes. Wear eye protection.

SKIN: Do not get on skin or clothing. Wear protective clothing and gloves.

INHALATION: Use with adequate ventilation. If ventilation is inadequate, use NIOSH/MSHA certified respirator that will protect against organic vapor and dust/mist.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
M-Xylene	108-38-3	OSHA PEL: 100 ppm (1989)(1971) OSHA STEL: 150 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 100 ppm ACGIH TLV-STEL: 150 ppm

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Liquid. Clear. White.

pH: Not determined.

VAPOR PRESSURE: 6.4

VAPOR DENSITY: 3.7

BOILING POINT: 282°F(139°C)

MELTING POINT: Not determined.

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER=1): 0.86

10.0 STABILITY AND REACTIVITY

STABILITY: Burning can be started easily.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: None identified.

HAZARDOUS DECOMPOSITION: None identified.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: greater than 14100 mg/kg (rabbit).

ORAL LD50: greater than 2500 mg/kg (rat).

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA: This product contains xylene. Xylene is readily absorbed through the skin. It is also absorbed when inhaled or ingested. Overexposure to xylene can cause eye and respiratory irritation, drowsiness, headache, fatigue, irritability, and gastrointestinal disturbances. Some liver damage and lung inflammation were seen in chronic studies in guinea pigs but not in rats. In rat reproduction studies, xylenes did not produce birth defects but were toxic to the embryo when toxicity to the mother was produced. In a mouse study, xylenes caused birth defects at doses that threatened the life of the mother. The doses which produced these effects were greatly in excess of the TLV. Rat oral LD50: 4300 mg/kg; rat inhalation LC50: 5000 ppm/4 hours.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

12.0 ECOLOGICAL INFORMATION

Ecological testing has not been conducted on this product.

13.0 DISPOSAL INFORMATION

Enclosed-controlled incineration is recommended unless directed otherwise by applicable ordinances.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name	Xylene
Hazard Class	3(9)
Identification Number	UN1307
Packing Group	III
RQ	RQ

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name Xylene
Class 3.3
Packing Group III
UN Number 1307

Air (ICAO/IATA)

Shipping Name Xylene
Class 3
Subsidiary Class UN1307
Packing Group III

European Road/Rail (ADR/RID)

Shipping Name Not determined.

Canadian Transportation of Dangerous Goods

Shipping Name Xylene
Hazard Class 3.3
Subsidiary Class 9.2
UN Number 1307
Packing Group III

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4): This product is reportable under 40 CFR Part 302.4 because it contains the following substance(s):

Component/CAS Number	Weight %	Component Reportable Quantity (RQ)
M-Xylene 108-38-3	100	1,000 lbs.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part 370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

SARA TITLE III SECTION 313 (40 CFR Part 372): This product contains the following

substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
M-Xylene 108-38-3	100

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Flammable liquid. Irritant. CNS Effects.

WHMIS Controlled Product Classification: B2, D2B.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (MITI): Listed on inventory.

AUSTRALIA INVENTORY (AICS): Listed on inventory.

KOREA INVENTORY (ECL): Listed on inventory.

CANADA INVENTORY (DSL): All of the components of this product are listed on the DSL.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

Prepared by:

Environment, Health and Safety Department

Issued: February 28, 1996

Supersedes: August 11, 1993

This material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

MATERIAL SAFETY DATA SHEET

PARA-XYLENE

MSDS No. 01263000 ANSI/ENGLISH

1.0 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PARA-XYLENE

MANUFACTURER/SUPPLIER:

Amoco Chemical Company
200 East Randolph Drive
Chicago, Illinois 60601 U.S.A.

EMERGENCY HEALTH INFORMATION:
1 (800) 447-8735

EMERGENCY SPILL INFORMATION:
1 (800) 424-9300 CHEMTREC (USA)

OTHER PRODUCT SAFETY INFORMATION:
(312) 856-3907

2.0 COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Range % by Wt.
P-Xylene	106-42-3	100

(See Section 8.0, "Exposure Controls/Personal Protection", for exposure guidelines)

3.0 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Warning! Flammable. Causes eye and skin irritation. Can be harmful if high concentrations are inhaled. Harmful or fatal if liquid is aspirated into lungs.

POTENTIAL HEALTH EFFECTS:

EYE CONTACT: Causes eye irritation.

SKIN CONTACT: Causes skin irritation.

INHALATION: Can be harmful if high concentrations are inhaled. See "Toxicological Information" section (Section 11.0).

INGESTION: Harmful or fatal if liquid is aspirated into lungs. See "Toxicological Information" section (Section 11.0).

HMIS CODE: (Health:2) (Flammability:3) (Reactivity:0)

NFPA CODE: (Health:2) (Flammability:3) (Reactivity:0)

4.0 FIRST AID MEASURES

EYE: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

SKIN: Wash exposed skin with soap and water. Remove contaminated clothing and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

INGESTION: If swallowed, do NOT induce vomiting. Get immediate medical attention.

5.0 FIRE FIGHTING MEASURES

FLASHPOINT: 81°F(27°C) ASTM D56

UEL: 7.0%

LEL: 1.1%

AUTOIGNITION TEMPERATURE: 924°F (496°C) (approximate)

FLAMMABILITY CLASSIFICATION: Flammable Liquid.

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid. Vapor may explode if ignited in enclosed area.

FIRE-FIGHTING EQUIPMENT: Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

PRECAUTIONS: Keep away from sources of ignition (e.g., heat and open flames). Keep container closed. Use with adequate ventilation.

HAZARDOUS COMBUSTION PRODUCTS: Incomplete burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

6.0 ACCIDENTAL RELEASE MEASURES

Remove or shut off all sources of ignition. Remove mechanically or contain on an absorbent material such as dry sand or earth. Keep out of sewers and waterways.

7.0 HANDLING AND STORAGE

HANDLING: Keep away from ignition sources (e.g., heat, sparks, or open flames). Keep container closed. Use with adequate ventilation.

STORAGE: Store in flammable liquids storage area. Store away from heat, ignition sources, and open flame in accordance with applicable regulations. Keep container closed.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE: Do not get in eyes. Wear chemical goggles.

SKIN: Avoid skin contact. Wear protective clothing and gloves.

INHALATION: Do not breathe mist or vapor. Use with adequate ventilation. If ventilation is inadequate, use NIOSH/MSHA certified respirator that will protect against organic vapor and dust/mist.

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guidelines.

EXPOSURE GUIDELINES:

Component	CAS#	Exposure Limits
P-Xylene	106-42-3	OSHA PEL: 100 ppm (1989)(1971) OSHA STEL: 150 ppm (1989); Not established. (1971) ACGIH TLV-TWA: 100 ppm ACGIH TLV-STEL: 150 ppm

9.0 CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR: Liquid. Clear. Sweet odor.

pH: Not determined.

VAPOR PRESSURE: 6.4 mm Hg at 20 °C

VAPOR DENSITY: 3.7

BOILING POINT: 282°F(139°C)

MELTING POINT: 56°F(13°C)

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER=1): 0.86

10.0 STABILITY AND REACTIVITY

STABILITY: Burning can be started easily.

CONDITIONS TO AVOID: Keep away from ignition sources (e.g. heat, sparks, and open flames).

MATERIALS TO AVOID: Avoid chlorine, fluorine, and other strong oxidizers.

HAZARDOUS DECOMPOSITION: Burning can produce carbon monoxide and/or carbon dioxide and other harmful products.

HAZARDOUS POLYMERIZATION: Will not occur.

11.0 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

EYE IRRITATION: Testing not conducted. See Other Toxicity Data.

SKIN IRRITATION: Testing not conducted. See Other Toxicity Data.

DERMAL LD50: Testing not conducted. See Other Toxicity Data.

ORAL LD50: Testing not conducted. See Other Toxicity Data.

INHALATION LC50: Testing not conducted. See Other Toxicity Data.

OTHER TOXICITY DATA: In humans, overexposure to xylene can cause headache, fatigue, dizziness, listlessness, confusion, irritability, gastrointestinal disturbances (nausea and loss of appetite), flushing of the face, and a feeling of increased body heat. Exposure to xylene vapors above recommended exposure limits (100 ppm - TWA) can cause irritation of the eyes, nose and throat as well as tightening of the chest and staggering gait. Severe overexposure to xylene has been reported to cause irregular heartbeat or rapid incoordinate contractions of the heart, tremors, central nervous system depression, and unconsciousness. Lethality has resulted upon exposure to 10,000 ppm. The odor threshold for xylene is reported to be 1 ppm.

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lung can occur while vomiting after ingestion of this product.

The oral LD50 for xylene is 4300 mg/kg (rat). The inhalation LC50 is 6350 ppm in rats exposed for 4 hours and 3907 ppm in mice exposed for 6 hours.

No significant treatment related effects were seen following inhalation exposure of rats and dogs exposed t0 810 ppm for 13 weeks, whereas liver damage and lung inflammation were reported in guinea pigs exposed to 300 ppm for a total of 64 exposures (4 hours der day, 6 days per week).

Xylenes were not teratogenic in rats exposed via inhalation to 100 and 400 ppm, however, adverse effects upon the unborn have been reported at exposure levels producing toxicity in the mother. Xylenes have produced negative results in various genetic toxicity tests, including the AMES assay, mouse lymphoma assay in vitro, rat bone marrow cytogenetic assay in vivo, and a dominant lethal assay.

No component of this product present at levels greater than 0.1% as a carcinogen by NTP, IARC or OSHA.

12.0 ECOLOGICAL INFORMATION

Ecotoxicity Test Data:

Para-xylene (p-xylene, or 4-xylene) is toxic to fish and other aquatic life. Published test results of the acute toxicity of of p-xylene for several aquatic species show that concentrations of 2 to 10 mg/L are

acutely toxic to most species tested. Acute toxicity endpoints ranged from 2 to 35 mg/L, with a geometric mean of 7 mg/L. The para-isomer appears to be slightly more toxic than the meta- and ortho-isomers.

Biodegradation Potential:

Xylenes have been shown to be readily biodegradable in water using standard protocols with inocula including sewage, activated sludge, and seawater. Field data indicates biodegradation in several situations. However, reports suggest that p-xylene may persist in some groundwater situations. Rates of degradation are expected to vary with environmental conditions and the extent of adaptation of the microbial population.

Bioconcentration Potential:

P-xylene is not expected to bioconcentrate or bioaccumulate. A bioconcentration factor of 138 to 158 is predicted using the estimated octanol-water partition coefficient (log Kow) of 3.12 to 3.2. A bioconcentration factor of 20 was reported for eels. Metabolism and excretion of xylenes has been demonstrated in several organisms, generally via production of toluic acid. Significant bioconcentrations is unlikely if bioconcentration factors are less than 1000 and the chemical is metabolized.

Other Ecological Information:

P-xylene is expected to volatilize from water and soil with a relatively high Henry's law constant of 0.32, yielding an estimated half-life in water of less than 1 week. Sorption to soil is low to moderate, with the Koc of ortho-xylene being 48-68. Abiotic degradation in air occurs through reaction with photochemically produced hydroxyl radicals, resulting in typical losses of 67-86% per day. Xylenes are likely to move with groundwater from soils and to volatilize from both soil and surface waters.

The potential for long-term ecological effects to intermittent environmental releases is expected to be minimal. However, repeated discharges may cause long-term adverse effects in the aquatic environment.

13.0 DISPOSAL INFORMATION

Disposal must be in accordance with applicable federal, state, or local regulations. Residues and spilled material are hazardous waste due to ignitability.

The container for this product can present explosion or fire hazards, even when emptied! To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

14.0 TRANSPORTATION INFORMATION

U.S. DEPT OF TRANSPORTATION

Shipping Name Xylenes
Hazard Class 3
Identification Number UN1307
Packing Group III
RQ RQ (Para-Xylene)

INTERNATIONAL INFORMATION:

Sea (IMO/IMDG)

Shipping Name Xylenes
Class 3.3
Packing Group III
UN Number UN1307

Air (ICAO/IATA)

Shipping Name Xylenes
Class 3
Subsidiary Class UN1307
Packing Group III

European Road/Rail (ADR/RID)

Shipping Name Xylenes
Class 3
Item 31°(C)

Canadian Transportation of Dangerous Goods

Shipping Name Xylenes
Hazard Class 3.3
Subsidiary Class 9.2
UN Number UN1307
Packing Group III

15.0 REGULATORY INFORMATION

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4): This product is reportable under 40 CFR Part 302.4 because it contains the following substance(s):

Component/CAS Number	Weight %	Component Reportable Quantity (RQ)
P-Xylene 106-42-3	100	100 lbs.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355): This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part 370): This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

SARA TITLE III SECTION 313 (40 CFR Part 372): This product contains the following substance(s), which is on the Toxic Chemicals List in 40 CFR Part 372:

Component/CAS Number	Weight Percent
P-Xylene 106-42-3	100

U.S. INVENTORY (TSCA): Listed on inventory.

OSHA HAZARD COMMUNICATION STANDARD: Flammable liquid. Irritant.

EC INVENTORY (EINECS/ELINCS): In compliance.

JAPAN INVENTORY (MITI): Not determined.

AUSTRALIA INVENTORY (AICS): Not determined.

KOREA INVENTORY (ECL): Not determined.

CANADA INVENTORY (DSL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16.0 OTHER INFORMATION

Prepared by:

Environment, Health and Safety Department

Issued: March 28, 1997

Supersedes: February 27, 1996

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

Please reduce your browser font size for better viewing and printing.

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 202-483-7616

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

O-XYLENE

MSDS Number: X2200 --- *Effective Date: 10/01/99*

1. Product Identification

Synonyms: o-Dimethyl benzene; 1,2 dimethyl benzene; 1,2 xylene; o-xylol
CAS No.: 95-47-6
Molecular Weight: 106.18
Chemical Formula: C6H4(CH3)2
Product Codes: X518

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
o-Xylene	95-47-6	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

DANGER! HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES SEVERE EYE IRRITATION. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT. CHRONIC EXPOSURE CAN CAUSE ADVERSE LIVER, KIDNEY, AND BLOOD EFFECTS. FLAMMABLE LIQUID AND VAPOR.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 3 - Severe (Flammable)
Reactivity Rating: 0 - None
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER.
Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:
Inhalation of vapors may be irritating to the nose and throat. Inhalation of high concentrations may result in nausea, vomiting, headache, ringing in the ears, and severe breathing difficulties which may be delayed in onset. Substernal pain, cough, and hoarseness are also reported. High vapor concentrations are anesthetic and central nervous system depressants.

Ingestion:
Ingestion causes burning sensation in mouth and stomach, nausea, vomiting and salivation. Minute amounts aspirated into the lungs can produce a severe hemorrhagic pneumonitis with severe pulmonary injury or death.

Skin Contact:
Skin contact results in loss of natural oils and often results in a characteristic dermatitis. May be absorbed through the skin.

Eye Contact:
Vapors cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.

Chronic Exposure:
Chronic inhalation can cause headache, loss of appetite, nervousness and pale skin. Repeated or prolonged skin contact may cause a skin rash. Repeated exposure of the eyes to high concentrations of vapor may cause reversible eye damage. Repeated exposure can damage bone marrow, causing low blood cell count. May damage the liver and kidneys.

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

---

4. First Aid Measures

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

Ingestion:
Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention

immediately. If vomiting occurs, keep head below hips to prevent aspiration into lungs.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

5. Fire Fighting Measures

Fire:

Flash point: 32C (90F) CC
Autoignition temperature: ca. 463C (ca. 865F)
Flammable limits in air % by volume:
lel: 1.0; uel: 7.0
Flammable.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Contact with strong oxidizers may cause fire. Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.

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6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker SOLUSORB(R) solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limits (Xylene)
100 ppm (TWA)
-ACGIH Threshold Limit Value (TLV):
100 ppm (TWA), 150 ppm (STEL)

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

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a half-face organic vapor respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator.
WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

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

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Clear, colorless liquid.
Odor:
Characteristic odor.
Solubility:
Insoluble in water.
Specific Gravity:
0.88 @ 20C / 4 C
pH:
Not applicable.
% Volatiles by volume @ 21C (70F):
100
Boiling Point:
144C (291F)
Melting Point:
-25C (-13F)
Vapor Density (Air=1):
3.7
Vapor Pressure (mm Hg):
7 @ 20C (68F)
Evaporation Rate (BuAc=1):
1

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Involvement in a fire causes formation of carbon monoxide and unidentified organic components.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Strong oxidizing agents and strong acids.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Toxicological Data:
O-Xylene:investigated as a reproductive effector.

Mixed Xylenes: Oral rat LD50: 4300 mg/kg; Inhalation rat LC50: 5000 ppm/4H; Skin Rabbit LD50: > 1700 mg/kg; Irritation, skin rabbit: 500 mg/24-hour, moderate (Standard Draize); Irritation, eye rabbit 87 mg, mild (Standard Draize). Investigated as a tumorigen, mutagen, reproductive effector.

Reproductive Toxicity:

May cause teratogenic effects.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
o-Xylene (95-47-6)	No	No	3

12. Ecological Information

Environmental Fate:

Following data for xylene: When released into the soil, this material may evaporate to a moderate extent. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released into water, this material may evaporate to a moderate extent. When released into water, this material may biodegrade to a moderate extent. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life of less than 1 day. This material is not expected to significantly bioaccumulate. (mixed xylenes: octanol / water partition coefficient 3.1 - 3.2; bioconcentration factor = 1.3, eels)

Environmental Toxicity:

For xylene: This material is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: XYLENES
Hazard Class: 3

UN/NA: UN1307
Packing Group: III
Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: XYLENES
Hazard Class: 3.3
UN/NA: UN1307
Packing Group: III
Information reported for product/size: 20L

International (Air, I.C.A.O.)

Proper Shipping Name: XYLENES
Hazard Class: 3
UN/NA: UN1307
Packing Group: III
Information reported for product/size: 20L

---

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------------------------------

Ingredient	TSCA	EC	Japan	Australia
o-Xylene (95-47-6)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\---------------------------------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
o-Xylene (95-47-6)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\---------------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
o-Xylene (95-47-6)	No	No	Yes	No

--------\Federal, State & International Regulations - Part 2\---------------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
o-Xylene (95-47-6)	1000	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Pure / Liquid)

Australian Hazchem Code: 3[Y]
Poison Schedule: S6

WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **2** Flammability: **3** Reactivity: **0**
Label Hazard Warning:
DANGER! HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES SEVERE EYE IRRITATION. CAUSES IRRITATION TO SKIN AND RESPIRATORY TRACT. CHRONIC EXPOSURE CAN CAUSE ADVERSE LIVER, KIDNEY, AND BLOOD EFFECTS. FLAMMABLE LIQUID AND VAPOR.
Label Precautions:
Keep away from heat, sparks and flame.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use only with adequate ventilation.
Avoid breathing vapor.
Wash thoroughly after handling.
Label First Aid:
Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 3, 14.
Disclaimer:
****

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INFORMATION.
****

Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)

D F GOLDSMITH CHEMICAL & METAL -- MERCURY (METALLIC MERCURY) (QUICK SILVER) - MERC
MATERIAL SAFETY DATA SHEET
NSN: 6810002817453
Manufacturer's CAGE: 27368
Part No. Indicator: A
Part Number/Trade Name: MERCURY (METALLIC MERCURY) (QUICK SILVER)

General Information

Item Name: MERCURY, ACS
Company's Name: D.F.GOLDSMITH CHEMICAL & METAL CORP. *
Company's Street: 909 PITNER AVE. *
Company's City: EVANSTON *
Company's State: IL
Company's Country: US
Company's Zip Code: 60202 *
Company's Emerg Ph #: 312-869-7800 *
Company's Info Ph #: 312-869-7800 *
Distributor/Vendor # 1: INLAND PACKAGING (502-737-6757)
Distributor/Vendor # 1 Cage: 66172
Distributor/Vendor # 2: PORT REFINERY CO. INC. (ADDRESS UNKNOWN)
Record No. For Safety Entry: 002
Tot Safety Entries This Stk#: 007
Status: SEU
Date MSDS Prepared: 01SEP90
Safety Data Review Date: 02APR92
Supply Item Manager: CX
MSDS Preparer's Name: UNKNOWN
Preparer's Company: UNKNOWN
Preparer's St Or P. O. Box: UNKNOWN
Preparer's City: UNKNOWN
MSDS Serial Number: BDTCN
Specification Number: O-C-265
Spec Type, Grade, Class: ACS
Hazard Characteristic Code: T6
Unit Of Issue: BT
Unit Of Issue Container Qty: 500 GRAMS
Type Of Container: BOTTLE
Net Unit Weight: 500 GM

Ingredients/Identity Information

Proprietary: NO
Ingredient: MERCURY (SARA III)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: OV4550000
CAS Number: 7439-97-6
OSHA PEL: S, C, 0.1 MG/M3
ACGIH TLV: S, 0.05 MG/M3; 9192
Other Recommended Limit: NOT ESTABLISHED

Physical/Chemical Characteristics

Appearance And Odor: SILVER-WHITE,HEAVY MOBILE LIQUID METAL, NO ODOR
Boiling Point: 675F,357C
Melting Point: -38F,-39C
Vapor Pressure (MM Hg/70 F): 0.0012
Vapor Density (Air=1): 7.0
Specific Gravity: 13.6
Solubility In Water: INSOLUBLE
Percent Volatiles By Volume: 0
Corrosion Rate (IPY): UNKNOWN

==========
Fire and Explosion Hazard Data
==========
Flash Point: NONE
Extinguishing Media: USE CARBON DIOXIDE, FOAM, DRY CHEMICAL, OR WATER FOG.
Special Fire Fighting Proc: FIRE FIGHTERS SHOULD USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT WHEN FIGHTING CHEMICAL FIRE. USE WATER SPRAY TO COOL NEARBY CONTAINERS EXPOSED TO FIRE.
Unusual Fire And Expl Hazrds: CONTAINERS MAY BURST WHEN EXPOSED TO HEAT OF FIRE. USE WATER IN FLOODING AMOUNTS AS A FOG. AVOID BREATHING CORROSIVE AND POISONOUS VAPORS. KEEP UPWIND.
==========
Reactivity Data
==========
Stability: YES
Cond To Avoid (Stability): DOES NOT IGNITE READILY. FLAMMABLE, POISONOUS GASES MAY ACCUMULATE IN TANKS & HOPPER CARS. MAY IGNITE COMBUSTIBLES.
Materials To Avoid: ACETYLINIC COMPOUNDS; AMMONIA; BORON; DIIODOPHOSPHIDE; ETHYLENE OXIDE; REACTIVE METALS; METHYL AZIDE; AND OXIDIZERS
Hazardous Decomp Products: THERMAL DECOMPOSITION PRODUCTS INCLUDE TOXIC MERCURY VAPORS AND OXYGEN.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE
==========
Health Hazard Data
==========
LD50-LC50 Mixture: LD50 (ORAL RAT) IS UNKNOWN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE: SKIN:IRRITATION. ABSORBED THROUGH IMMEDIATE NECROSIS IN MOUTH, THROAT, ESOPHAGUS & STOMACH. DEATH MAY OCCURE. INHALATION:DYSPNEA, COUGH, FEVER, NAUSEA & VOMITING, DIARRHEA, STOMATITIS, SALIVATION & METALLIC TASTE. CHRONIC: CNS DISTURBANCES.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: MERCURY IS NOT LISTED BY IARC, NTP, OR OSHA AS A CARCINOGEN.
Signs/Symptoms Of Overexp: TREMORS, CONVULSIONS & OTHER CNS DISTURBANCES, PNEUMONITIS, CHEST PAINS, DYSPNEA, COUGHING, STOMATITIS, GINGIVITIS AND LOOSENING OF TEETH, SALIVATION, LOSS OF MEMORY, METALLIC TASTE, DIZZINESS, CLUMSINESS, SLURRED SPEECH, DIARRHEA, PAIN & NUMBNESS IN EXTREMITIES, NEPHRITIS, ANXIETY, HEADACHE, WEIGHT LOSS, AND INSOMNIA.
Med Cond Aggravated By Exp: PERSONS WITH A HISTORY OF ALCOHOLISM, CHRONIC KIDNEY DISEASE OR KNOWN ALLERGY TO MERCURY MAY BE AT INCREASED RISK FROM EXPOSURE.
Emergency/First Aid Proc: INHALATION:REMOVE TO FRESH AIR. IF NOT BREATHING GIVE CPR/OXYGEN. GET MEDICAL ATTENTION. EYE:IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MINUTES HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION. SKIN:REMOVE CONTAMINATED CLOTHING. WASH SKIN WITH PLENTY OF SOAP & WATER. INGESTION:GET IMMEDIATE MEDICAL ATTENTION. GASTRIC LAVAGE WITH A 5% SOLUTION OF SODIUM FORMALDEHYDE SULFOXYLATE.
==========
Precautions for Safe Handling and Use
==========
Steps If Matl Released/Spill: SMALL SPILL:PICK UP WITH VACUUM EQUIPMENT SPECIFICALLY DESIGNED FOR MERCURY PICK UP OR USE MERCURY SPILL KIT. LARGE SPILL:EVACUATE AND VENTILATE AREA. IF POSSIBLE, STOP LEAK. DIKE TO RETAIN. VACUUM UP FREE LIQUID. DO NOT TOUCH SPILLED MATERIAL.
Neutralizing Agent: NONE
Waste Disposal Method: RETURN TO RECLAMATION CENTER.
Precautions-Handling/Storing: STORE IN SEALED UNBREAKABLE POLYETHYLENE CONTAINERS IN A COOL, DRY, WELL VENTILATED AREA AWAY FROM HEAT. PROTECT

CONTAINERS FROM PHYSICAL DAMAGE.
Other Precautions: THIS CHEMICAL IS SUBJECT TO SARA SECTION 313 REPORTING. PROVIDE PREPLACEMENT AND PERIODIC MEDICAL EXAMS FOR THOSE REGULARLY EXPOSED TO MERCURY, WITH EMPHASIS ON CNS, SKIN, LUNGS, LIVER, KIDNEYS AND G.I. TRACT.

Control Measures

Respiratory Protection: IF VENTILATION DOES NOT MAINTAIN INHALATION EXPOSURES BELOW PEL(TLV), USE NIOSH/MSHA APPROVED RESPIRATORS AS PER CURRENT 29 CFR 1910.134, INSTRUCTIONS/WARNINGS AND NIOSH-RESPIRATOR DECISION LOGIC-PUBLICATION NUMBER 87.108.
Ventilation: PROVIDE SUFFICIENT GENERAL/LOCAL EXHAUST VENTILATION IN PATTERN/VOLUME TO CONTROL INHALATION EXPOSURES BELOW OSHA'S PEL.
Protective Gloves: RUBBER
Eye Protection: CHEMICAL SAFETY GOGGLES
Other Protective Equipment: SEPARATE WORK AND STREET CLOTHING. STORE WORK CLOTHING IN SPECIAL LOCKERS. SHOWER BEFORE CHANGING TO STREET CLOTHES.
Work Hygienic Practices: OBSERVE GOOD PERSONAL HYGIENE PRACTICES AND RECOMMENDED PROCEDURES.
Suppl. Safety & Health Data: DO NOT GET ON SKIN, IN EYES OR ON CLOTHING. DO NOT BREATHE VAPORS.

Transportation Data

Trans Data Review Date: 92093
DOT PSN Code: IWD
DOT Symbol: A,W
DOT Proper Shipping Name: MERCURY
DOT Class: 8
DOT ID Number: UN2809
DOT Pack Group: III
DOT Label: CORROSIVE
IMO PSN Code: JKJ
IMO Proper Shipping Name: MERCURY
IMO Regulations Page Number: 8191
IMO UN Number: 2809
IMO UN Class: 8
IMO Subsidiary Risk Label: -
IATA PSN Code: PYF
IATA UN ID Number: 2809
IATA Proper Shipping Name: MERCURY
IATA UN Class: 8
IATA Label: CORROSIVE
AFI PSN Code: PYF
AFI Prop. Shipping Name: MERCURY
AFI Class: 8
AFI ID Number: UN2809
AFI Pack Group: I
AFI Basic Pac Ref: 12-13

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 02APR92
MFR Label Number: UNKNOWN
Label Status: F
Common Name: MERCURY (METALLIC MERCURY) (QUICK SILVER)
Chronic Hazard: YES
Signal Word: WARNING!
Acute Health Hazard-Moderate: X

Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE-SKIN:IRRITATION, ANURIA. EYE:IRRITATION, CORNEAL INJURY/BURNS. INGESTION:IMMEDIATE NECROSIS IN MOUTH,THROAT, ESOPHAGUS & STOMACH. DEATH MAY OCCURE. INHALATION:DYSPNEA,COUGH,FEVER, NAUSEA & VOMITING, DIARRHEA. CHRONIC:CNS DISTURBANCES. STORE IN SEALED UNBREAKABLE POLYETHYLENE CONTAINERS IN A COOL, DRY, WELL VENTILATED AREA. FIRST AID-INHALATION:REMOVE TO FRESH AIR, GIVE CPR/OXYGEN IF NEEDED. GET MEDICAL HELP. EYE:FLUSH WITH WATER FOR 15 MINUTES HOLDING EYELIDS OPEN. GET MEDICAL HELP. SKIN:WASH SKIN WITH SOAP & WATER. INGESTION:GET IMMED MEDICAL HELP. GASTRIC LAVAGE WITH A 5% SOLUTION OF SODIUM FORMALDEHYDE SULFOXYLATE.
Protect Skin: Y
Protect Respiratory: Y
Label Name: D.F.GOLDSMITH CHEMICAL & METAL CORP. *
Label Street: 909 PITNER AVE. *
Label City: EVANSTON *
Label State: IL
Label Zip Code: 60202 *
Label Country: US
Label Emergency Number: 312-869-7800,CHEMTREC 800-424-9300
Year Procured: 1992

NORLAB -- HYDROGEN SULFIDE
MATERIAL SAFETY DATA SHEET
NSN: 683000N052507
Manufacturer's CAGE: 0HB80
Part No. Indicator: A
Part Number/Trade Name: HYDROGEN SULFIDE

==========

General Information

==========

Company's Name: NORLAB
Company's P. O. Box: 380
Company's City: AMHERST
Company's State: OH
Company's Country: US
Company's Zip Code: 44001
Company's Emerg Ph #: 800-247-9422
Company's Info Ph #: 800-247-9422
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 01DEC91
Safety Data Review Date: 15SEP94
MSDS Serial Number: BVPBC
Hazard Characteristic Code: NK

==========

Ingredients/Identity Information

==========

Proprietary: NO
Ingredient: HYDROGEN SULFIDE (SARA III)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: MX1225000
CAS Number: 7783-06-4
OSHA PEL: 20 PPM, C
ACGIH TLV: 10 PPM;15 PPM STEL

Proprietary: NO
Ingredient: SUPDAT:AREA W/OUT RISK. ALLOW FIRE TO BURN OUT. FIRE BRIGADES MUST COMPLY W/OSHA.
Ingredient Sequence Number: 02
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: CNDTNS (STAB):PRIOR TO USE.
Ingredient Sequence Number: 03
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: EXPLO HAZ:REIGNIT. TOX, FLAMM, CORR VAPS MAY SPREAD FROM SPILL. TOX, EXPLO ATM MAY LINGER. BEFORE ENTERING AREA, (ING 5)
Ingredient Sequence Number: 04
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 4:ESP CONFINED AREAS, CHECK ATM W/APPROP DEVICE. VAPS ARE IRRIT. CONT MAY CAUSE BURNS TO SKIN & EYES. NO PART(ING 6)
Ingredient Sequence Number: 05

NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 5:OF CNTNR SHOULD BE SUBJECTED TO TEMP >52C (125F). PROD DEADENS SENSE OF SMELL. SOME MEANS OF DETECTING (ING 7)
Ingredient Sequence Number: 06
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 6:PRESENCE OTHER THAN SMELL SHOULD BE READILY AVAIL. MOST CNTNRS PROVIDED W/PRESS RELIEF DEVICE DESIGNED TO (ING 8)
Ingredient Sequence Number: 07
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 7:VENT CONTENTS WHEN EXPOS TO ELEVATED TEMP. NOTE:REVERSE FLOW INTO CYL MAY CAUSE RUPT.
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: MATLS TO AVOID:NITROGEN, ORG CMPDS, OXIDIZING AGENTS, RUBBER & WATER. FOR COMPLETE LIST, CONTACT NEHC (FP N).
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: EFTS OF OVEREXP:PHOTOPHOBIA & HALOS AROUND LIGHTS. SEV OVEREXP CAN LEAD TO CONJ & CORNEAL INJURY. CHRONIC:RPTD (ING 11)
Ingredient Sequence Number: 10
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 10:OVEREXP MAY CAUSE NAUS, VOMIT, WT LOSS, PERSISTENT LOW BLOOD PRESS, LOSS OF SENSE OF SMELL. SURVIVORS OF (ING 12)
Ingredient Sequence Number: 11
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 11:OVEREXP SOMETIMES EXHIBIT EFTS SUCH AS AMNESIA, NEUROASTHENIA, DISTURB OF EQUILIBRIUM/MORE SERIOUS BRAIN (ING 13)
Ingredient Sequence Number: 12
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 12:STEM & CORTICAL DAMAGE.
Ingredient Sequence Number: 13
NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: FIRST AID PROCS:PLENTY OF WATER FOR AT LST 15 MINS. SEE MD, PREF OPTHALMOLOGIST, IMMED. NOTE TO MD:OBSERVE (ING 15)
Ingredient Sequence Number: 14
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 14:FOR DELAYED ONSET OF PULM EDEMA. NO SPEC ANTIDOTE. TREATMENT OF OVEREXP SHOULD BE DIRECTED AT CONTROL OF (ING 16)
Ingredient Sequence Number: 15
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 15:SYMPTOMS & THE CLINICAL CONDITION.
Ingredient Sequence Number: 16
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: SPILL PROC:W/OUT RISK. VENT AREA OF LEAK/MOVE LEAKING CNTNR TO WELL VENT AREA. PVNT RUNOFF FROM CONTAM SURROUND ENVIRON.
Ingredient Sequence Number: 17
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: HNDLG/STOR PROCS:FROM HEAT/SPKS/OPEN FLAME. GROUND ALL EQUIP. ONLY USE SPK PROOF TOOLS & EXPLO PROOF EQUIP. KEEP(ING 19)
Ingredient Sequence Number: 18
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 18:AWAY FROM OXIDIZING AGENTS. STORE & USE W/ADEQ VENT AT ALL TIMES. USE ONLY IN CLSD SYS OF CORR RESIST (ING 20)
Ingredient Sequence Number: 19
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
REVERSE FLOW INTO CYL MAY CAUSE RUPTURE. USE CHECK (ING 21)
Ingredient Sequence Number: 20
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 20:VALVE/OTHER PROT APPAR IN ANY LINE/PIPING FROM CYL TO PVNT REVERSE FLOW. WHEN TWO/MORE GASES/LIQ GASES (ING 22)
Ingredient Sequence Number: 21
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 21:ARE MIXED, HAZ PROPERTIES MAY COMBINE TO CREATE ADDTN UNEXPECTED HAZ. OBTAIN & EVAL SFTY INFO FOR EACH (ING 23)
Ingredient Sequence Number: 22
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 22:BEFORE PRDCG MIXT. CONSULT INDUS HYGIENIST/OTHER TRAINED PERS WHEN SFTY EVAL OF MIXT IS MADE. GASES & (ING 24)
Ingredient Sequence Number: 23
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 23:LIQS HAVE PROPS WHICH CAN CAUSE SERIOUS INJURY/DEATH. READ & UNDERSTAND ALL LBLS & INSTRUCTIONS SUPPLIED (ING 25)
Ingredient Sequence Number: 24
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 24:W/ALL CONTAINERS.
Ingredient Sequence Number: 25
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS GAS AT NORM TEMP & PRESS. ODOR OF ROTTEN EGGS. DEADENS SENSE OF SMELL.
Boiling Point: -77F,-60C
Melting Point: -122F,-86C
Vapor Pressure (MM Hg/70 F): 252 PSIG
Vapor Density (Air=1): 1.189 @15C
Specific Gravity: 0.8 (H*2O=1)
Evaporation Rate And Ref: HIGH (BUTYL ACETATE=1)
Solubility In Water: SLIGHT.
Percent Volatiles By Volume: 100

Fire and Explosion Hazard Data

Flash Point: FLAMMABLE GAS
Lower Explosive Limit: 4.0%
Upper Explosive Limit: 46%
Extinguishing Media: CO2, DRY CHEMICAL, WATER SPRAY OR FOG.
Special Fire Fighting Proc: USE NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP (FP N). EVAC ALL PERS FROM DANGER AREA. IMMED COOL CNTNRS W/WATER SPRAY FROM MAX DIST, TAKE CARE NOT TO (SUPDAT)
Unusual Fire And Expl Hazrds: FLAMM, TOX, CORR GAS. FORMS EXPLO MIXT W/AIR & OXIDIZING AGENTS. CNTNR MAY RUPTURE DUE TO HEAT OF FIRE. DO NOT EXTING FLAMES DUE TO POSS OF EXPLO (ING 4)

Reactivity Data

Stability: YES
Cond To Avoid (Stability): MAY FORM EXPLO MIXT W/AIR. KEEP AWAY FROM HEAT, SPKS & OPEN FLAME. COMPATABILITY W/PLASTICS SHOULD BE CONFIRMED (ING 3)
Materials To Avoid: CONT W/AMMONIA, BASES, COPPER & AIR, FLUORINE, LEAD,

LEAD OXIDE, MERCURY, NITRIC ACID, NITROGEN TRIFLUORIDE, (ING 9)
Hazardous Decomp Products: THERMAL DECOMPOSITION OR BURNING MAY PRODUCE SULFUR OXIDES, SULFUR HYDROGEN.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE:INGEST:HIGHLY UNLIKELY. PROD IS A GAS AT NORM TEMP & PRESS BUT FROSTBITE OF LIPS & MOUTH MAY OCCUR FROM CONT W/ LIQ. INHAL:MAY BE FATAL. CAUSES RESP PARALYSIS BY DEPRESS OF CNS ACTIVITY. EFTS INCL HDCH, DIZZ, VERTIGO, GIDD, CONFUSN, CHEST PAINS, OLFACTORY FATG, UNCON & DEATH. RHINITIS, PHARYNGITIS(EFTS OF OVEREXP)
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT
Signs/Symptoms Of Overexp: HLTH HAZ:BRONCH, PNEUM, PULM EDEMA & CYANITIS MAY OCCUR. LACK OF OXYGEN CAN CAUSE DEATH. SKIN:CAUSES IRRIT SEEN AS LOC REDNESS & SWELL. LIQ MAY BE CORR & CAUSE FROSTBITE. EYE:CAUSES IRRIT, EXCESS REDNESS OF CONJUNCTIVA. PRLNG EXPOS TO VAP TO LOW CONCS MAY CAUSE PAINFUL CONJ, BLURRED VISION, EXCESSIVE TEARING, (ING 11)
Med Cond Aggravated By Exp: BREATHING OF VAPOR AND/OR MIST MAY AGGRAVATE ASTHMA AND INFLAMMATORY OR FIBROTIC PULMONARY DISEASE.
Emergency/First Aid Proc: INGEST:NOT APPLIC:PROD IS A GAS AT NORM TEMP & PRESS. SKIN:REMOVE CONTAM CLTHG & FLUSH SKIN W/PLENTY OF WATER. IMMED WARM FROSTBITE AREA W/WARM WATER (NOT TO EXCEED 105F). IN CASE OF MASSIVE EXPOS, REMOVE CLTHG WHILE SHOWERING W/WARM WATER. CALL MD. WASH CLTHG BEFORE REUSE. INHAL:REMOVE TO FRESH AIR. GIVE ARTF RESP IF NOT BRTHG. GIVE OXYGEN IF BRTHG DFCLT. CALL MD IMMED. EYE:IMMED FLUSH W/(ING 14)

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: IMMED EVACUATE ALL PERS FROM DANGER AREA. TOX, CORR, FLAMM GAS. FORMS EXPLO MIXT W/AIR. USE NIOSH/MSHA APPRVD SCBA & PROT CLTHG WHERE NEEDED. REMOVE ALL SOURCES OF IGNIT IF W/OUT RISK. REDUCE VAPS W/FOG/FINE WATER SPRAY. SHUT OFF LEAK IF (ING 17)
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. KEEP PERSONNEL AWAY. DISCARD ANY PRODUCT, RESIDUE, DISPOSABLE CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
Precautions-Handling/Storing: DO NOT BREATHE GAS. DO NOT GET LIQ/VAPS INTO EYES, ON SKIN/CLTHG. USE PIPING & EQUIP ADEQ DESIGNED TO W/STAND PRESS TO BE ENCOUNTERED. KEEP (ING 18)
Other Precautions: NEVER WORK ON PRESS SYS. IF LEAK, CLOSE CYL VALVE, BLOW DOWN SYS BY VENTING TO SAFE PLACE, THEN REPAIR LEAK. HYDROGEN SULFIDE DEADENS SENSE OF SMELL. SOME MEANS OF DETECTING PRESENCE OTHER THAN SMELL SHOULD BE READILY AVAILABLE.

Control Measures

Respiratory Protection: SELECT IN ACCORDANCE W/OSHA 29 CFR 1910.134. RESPIRATORS SHALL BE ACCEPTABLE TO MSHA AND NIOSH.
Ventilation: LOCAL:EXPLO PROOF,CORR RESIST.SPECIAL:USE ONLY IN CLOSED SYS. EXPLO PROOF,CORR RESIST,FORCED DRAFT FUME HOOD PREFERRED.
Protective Gloves: NEOPRENE, BUTYL RUBBER, PVC.
Eye Protection: ANSI APPRVD CHEM WORKERS GOGGLES (FP N).
Other Protective Equipment: METATARSAL SHOES FOR CYL HNDLG. PROT CLTHG WHERE NEEDED. SELECT I/A/W OSHA 29 CFR 1910.132 & 1910.133.

Work Hygienic Practices: SAFETY SHOWERS & EYE WASH FOUNTAINS SHOULD BE IMMEDIATELY AVAILABLE.
Suppl. Safety & Health Data: FIRE FIGHT PROC:EXTING FLAMES. REMOVE IGNIT SOURCES IF W/OUT RISK. IF FLAMES ACCIDENTALLY EXTING, EXPLO RE-IGNIT MAY OCCUR, TAKE APPROP MEASURES, EG. TOTAL EVAC. REAPPROACH W/EXTREME CAUT. REDUCE CORR VAPS W/WATER SPRAY/FOG. STOP FLOW OF GAS IF W/OUT RISK WHILE CONTINUING WATER SPRAY. REMOVE ALL CNTNRS FROM FIRE(ING 2)

Transportation Data

Disposal Data

Label Data

Label Required: YES
Technical Review Date: 15SEP94
Label Status: G
Common Name: HYDROGEN SULFIDE
Chronic Hazard: YES
Signal Word: DANGER!
Acute Health Hazard-Severe: X
Contact Hazard-Moderate: X
Fire Hazard-Severe: X
Reactivity Hazard-Moderate: X
Special Hazard Precautions: FLAMM GAS. FORMS EXPLO MIXT W/AIR & OXIDIZING AGENTS. ACUTE:INHAL:MAY BE FATAL. RESP PARALYSIS BY DEPRESS OF CNS, HDCH, DIZZ, GIDD, CONFUSN, CHEST PAINS, UNCON & DEATH. RHINITIS, BRONCH, PNEUM, PULM EDEMA & CYANITIS MAY OCCUR. SKIN:CAUSES IRRIT, LOC REDNESS & SWELL. LIQ MAY BE CORR & CAUSE FROSTBITE. EYE:CAUSES IRRIT, EXCESS REDNESS. VAP MAY CAUSE PAINFUL CONJ, BLURRED VISION, EXCESS TEARING, PHOTOPHOBIA & HALOS AROUND LIGHTS. SEV OVEREXP CAN LEAD TO CONJ & CORNEAL INJURY. SURVIVORS OF OVEREXP SOMETIMES EXHIBIT AMNESIA, BRAIN STEM & CORTICAL DMG. CHRONIC:NAUS, VOMIT, WT LOSS, LOW BLOOD PRESS, LOSS OF SENSE OF SMELL.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: NORLAB
Label P.O. Box: 380
Label City: AMHERST
Label State: OH
Label Zip Code: 44001
Label Country: US
Label Emergency Number: 800-247-9422