

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Shandon Xylene

PART NUMBER: 230008

GENERAL USE: Solvent

PRODUCT DESCRIPTION: Clear flammable liquid.

Thermo
ELECTRON CORPORATION

MANUFACTURER'S NAME (Distributor in the Americas)
Thermo Electron Corporation

DATE PREPARED: September 17, 2003

SUPERSEDES: November 1, 2001

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ADDRESS (NUMBER, STREET, P.O. BOX)
171 Industry Drive

TELEPHONE NUMBER FOR INFORMATION
(412) 788-1133

(CITY, STATE AND ZIP CODE)
Pittsburgh, PA 15275

COUNTRY
USA

EMERGENCY TELEPHONE NUMBER

CHEM • TEL (800) 255-3924 Outside USA (813) 248-0585

DISTRIBUTOR'S NAME (Outside the Americas)
Thermo Electron Corporation

ADDRESS (NUMBER, STREET, P.O. BOX)
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TELEPHONE NUMBER FOR INFORMATION
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Runcorn, Cheshire WA7 1PR

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United Kingdom

EMERGENCY TELEPHONE NUMBER

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SECTION 2 - HAZARDOUS INGREDIENTS

| HAZARDOUS COMPONENTS | % (by weight) | CAS # | EINECS # | Hazard Symbol | RISK PHRASES Full Text Section 16 |
|------------------------|------------------|-----------|-----------|------------------|--------------------------------------|
| Xylene (mixed) (a,b,c) | 100 | 1330-20-7 | 215-535-7 | Xn, F | R-10, 20/21, 38 |

(a,c) See Section 15

(b) Indicates that the Resource Conservation and Recovery Act (RCRA) has determined the waste for this chemical is listed as hazardous and must be handled according to regulations in 40 CFR 260-281.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Colorless flammable liquid, potentially hazardous vapors. Can cause eye and skin irritation upon contact. Inhalation of vapors can cause anesthetic effect leading to death in poorly ventilated areas. Hazard symbols for this product - F, Xn Risk Phrases - R10 20/21 38

POTENTIAL HEALTH EFFECTS

INHALATION: High concentrations are irritating to the respiratory tract; may cause headache, dizziness, nausea, vomiting and malaise. Xylene causes central nervous system effects, anemia, liver and kidney effects, and eye damage after repeated or prolonged exposure to high concentrations.

SKIN: Brief contact may cause slight irritation; prolonged contact may cause moderate irritation or dermatitis. Xylene causes central nervous system effects, anemia, liver and kidney effects, and eye damage after repeated or prolonged exposure to high concentrations

EYES: High vapor concentration or contact may cause irritation and discomfort.

INGESTION: May result in vomiting; aspiration of vomitus into the lungs must be avoided; DO NOT induce vomiting. Minute amounts aspirated into the lungs can produce severe lung injury, chemical pneumonitis, pulmonary edema or death.

CARCINOGENICITY NTP? No IARC MONOGRAPHS? No OSHA REGULATED? No

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SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; provide oxygen if breathing is difficult; if affected person is not breathing, administer CPR and seek emergency medical attention.

SKIN: Remove contaminated clothing; wash affected area with soap and water; launder contaminated clothing before reuse; if irritation persists, seek medical attention.

EYES: Remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open; if irritation persists, seek medical attention.

INGESTION: DO NOT induce vomiting; if vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs; seek immediate medical attention. Vomiting may be induced only under the supervision of a physician.

SECTION 5 - FIRE FIGHTING MEASURES

GENERAL HAZARDS: Product is flammable. Products of combustion include compounds of carbon, hydrogen and oxygen, including carbon monoxide. Vapors may cause a flash fire or ignite explosively. Vapors may travel a considerable distance to a source of ignition and flash back.

EXTINGUISHING MEDIA
Carbon dioxide, water fog, dry chemical, chemical foam

FIRE FIGHTING PROCEDURES
Firefighters must wear full facepiece self - contained breathing apparatus in positive pressure mode. Do not use solid stream of water since stream will scatter and spread fire. Fine water spray can be used to keep fire - exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers can explode due to buildup of pressure when exposed to extreme heat. Do not use direct stream of water on pool fires as product may reignite on water surface. Caution - Material is flammable!

HAZARDOUS COMBUSTION PRODUCTS
Smoke, fumes, oxides of carbon

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: CAUTION - FLAMMABLE - Evacuate and ventilate area; confine and absorb into absorbent; place material into approved containers for disposal; for spills in excess of allowable limits (RQ) notify the National Response Center (800) 424 - 8802; refer to CERCLA 40 CFR 302 and SARA Title III, Section 313 40 CFR 372 for detailed instructions concerning reporting requirements. Do not discharge into lakes, ponds, streams or public waters.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container closed when not in use; protect containers from abuse; protect from extreme temperatures. CAUTION - FLAMMABLE - keep away from all sources of ignition. "Empty" containers may contain residue which may form explosive vapors. Do not weld or cut near empty container that has not been professionally reconditioned. Use non-sparking tools when opening and closing containers. Maintain well ventilated work areas to minimize exposure when handling this material.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

| HAZARDOUS COMPONENTS | NIOSH | | | | ACGIH | | | |
|------------------------|---------|-----------|----------|------------|---------|-----------|----------|------------|
| | TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 | TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 |
| Xylene (mixed) (a,b,c) | 100 | 435 | 150 | 655 | 100 | 434 | 150 | 651 |

PERSONAL PROTECTION:
RESPIRATORY PROTECTION (SPECIFY TYPE): None required while threshold limits (Section 2) are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

PROTECTIVE GLOVES: Neoprene or rubber gloves with cuffs.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety eyebath nearby

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--|
| APPEARANCE AND ODOR Colorless liquid, characteristic hydrocarbon odor | VAPOR PRESSURE 9.5 mm Hg @ 20° C |
| pH Not applicable | SPECIFIC GRAVITY (WATER = 1) 0.871 |
| BOILING POINT / BOILING RANGE 281° F (138° C) | SOLUBILITY IN WATER Negligible |
| FLASH POINT 80° F (26.7° C) TCC | VISCOSITY Not specified |
| FLAMMABLE LIMITS LEL: 1% UEL: 7% | VAPOR DENSITY (AIR = 1) > 1 |
| AUTOIGNITION TEMPERATURE 980° F (527° C) | EVAPORATION RATE (n-Butyl acetate = 1) 0.75 |

SECTION 10 - STABILITY AND REACTIVITY

| | |
|--|--|
| STABILITY UNSTABLE: STABLE: XXX | CONDITIONS TO AVOID: Extreme temperatures, open flames, sparks |
| INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids | |
| HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced. | |
| HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: XXX | CONDITIONS TO AVOID: None |

SECTION 11 - TOXICOLOGICAL INFORMATION

| Hazardous Components | CAS # EINECS # | LD50 of Ingredient (Specify Species and Route) | LC50 of Ingredient (Specify Species) |
|------------------------|------------------------|---|---|
| Xylene (mixed) (a,b,c) | 1330-20-7 215-535-7 | 4300 mg / kg Oral - rat | 5000 ppm / 4H Inhalation - rat |
| | | | |
| | | | |
| | | | |
| | | | |
| (a,c) See Section 15 | | | |

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: According to the European Waste Catalogue, waste codes are application specific and should be assigned by the user based on the application for which the product is used. Dispose of in accordance with Local, State, and Federal Regulations. This product may produce hazardous vapors or fumes in a closed disposal container creating a dangerous environment. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

SECTION 14 - TRANSPORT INFORMATION

| | |
|--|---|
| PROPER SHIPPING NAME: Xylenes | IATA HAZARD CLASS / Pack Group: 3 / III |
| DOT HAZARD CLASS / Pack Group: 3 / III | IMDG HAZARD CLASS: 3 / III |
| REFERENCE: 49 CFR 173.150, .202, .242 | RID/ADR Dangerous Goods Code: 3 |
| UN / NA IDENTIFICATION NUMBER: UN 1307 | UN TDG Class / Pack Group: 3 / III |
| LABEL: FLAMMABLE LIQUID | |
| HAZARD SYMBOLS: F | |

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

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PRODUCT NAME: Shandon Xylene
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SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (USA - Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories
Immediate health, Fire hazard

313 Reportable Ingredients:

(a) A "Yes" in the SARA TITLE III column in Section 2 indicates a toxic chemical subject to annual reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CERCLA (USA - Comprehensive Response Compensation and Liability Act)

(c) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has notification requirements for releases or spills to the environment of the Reportable Quantity (RQ for this mixture = 1,000 lbs) or greater amounts, according to 40 CFR 302.

CPR (Canadian Controlled Products Regulations)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number and listed on the Canadian Ingredient Disclosure List are shown in Section 2.

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List)

Components of this product identified by CAS number are listed on the DSL or NDSL and may or may not be listed in Section 2 of this document. Only ingredients classified as "hazardous" are listed in Section 2 unless otherwise indicated.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

WGK Water Quality Index: 2

RISK PHRASES:

R10 Flammable.
R20/21 Harmful by inhalation and in contact with skin
R38 Irritating to skin.

SYMBOL(S) REQUIRED FOR LABEL

Flammable Harmful



SAFETY PHRASES:

S25 Avoid contact with eyes
S36/37 Wear suitable protective clothing and gloves

SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text

R10 Flammable.
R20/21 Harmful by inhalation and in contact with skin
R38 Irritating to skin.

HMIS HAZARD RATINGS

| | | | |
|-------------------------------|---|------------------------|-------------|
| HEALTH | 2 | 0 = INSIGNIFICANT | 3 = HIGH |
| FLAMMABILITY | 3 | 1 = SLIGHT | 4 = EXTREME |
| REACTIVITY | 0 | 2 = MODERATE | |
| PERSONAL PROTECTIVE EQUIPMENT | B | Safety Glasses, Gloves | |

REVISION SUMMARY:

This MSDS has been revised in the following sections: No revisions available

MSDS Prepared by: Chem-Tel, Inc.
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The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.