Material Safety Data Sheet

LA1375
Toluene

Revision Date: 02/24/2001 Date of Printing: 11/26/2001

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1375
Product Name: Toluene
Synonyms: Methylbenzene, Toluol
Chemical Family: Aromatic Hydrocarbon.
Application: Organic solvent.

Distributed By:

Vopak Canada Ltd.
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Richmond, BC
V6X 1W5

Vopak USA.
6100 Carillon Point
Kirkland, WA 98003
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Prepared By: The Safety, Health and Environment Department of Vopak Canada Ltd.

Emergency Telephone Number (CHEMTREC): (800) 424-9300

Telephone number for non-emergency questions concerning MSDS(Canada): (604) 303-2565 Vopak USA. Inc. Corporate Office Number: (425) 889-3400

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components:

Ingredients	Percent	LD50s and LC50s Route & Species:
Toluene 108-88-3	100	Inhalation LC50 Rat : 49 gm/m3/4HInhalation LC50 Mouse : 400 ppm/24HOral LD50 Rat : 636 mg/kgDermal LD50 Rabbit : 14100 uL/kg

Notes:
No additional remark.

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects:

Eye Contact:
Vapours are moderately irritating to the eyes.

Skin Contact:
Causes moderate skin irritation.

Inhalation:
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause severe inflammation of

the lung. In rare cases may sensitize heart muscle causing heart arrythmia. Solvent abusers exposed to high doses of aromatic solvents (e.g. toluene/xylene) show signs of hearing loss as well as damage to the brain, liver and kidney. Excessive exposure during pregnancy may be hazardous to the developing foetus.

Ingestion:
May be harmful if swallowed.

4. FIRST AID MEASURES

Eye Contact:
Flush eyes with water for at least 15 minutes while holding eyelids open. Obtain medical attention.

Skin Contact:
Flush affected skin with gently flowing lukewarm water for at least 20 minutes and remove contaminated clothing while rinsing. Wash contaminated skin with mild soap and water for 15 minutes. Get medical attention if irritation persists.

Inhalation:
None known.

Ingestion:
Do not induce vomiting. Guard against aspiration into lungs by having the individual turn on to their left side. Do not give anything by mouth to an unconscious person. Seek immediate medical attention. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs.

Notes To Physician:
The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Flash Point (C): >4 (F): >39.2
Flash Point Method: Tag Closed Cup
Autoignition Temperature (C): 480 (F): 896
Flammable Limits in Air - Lower (%): 1.2
Flammable Limits in Air - Upper (%): 7.1

Extinguishing Media:
Dry chemical. Carbon dioxide Foam Water mist

Special Exposure Hazards:
Vapour forms a flammable / explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Use water spray to cool containers. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure build-up which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Fight fire from maximum distance. Always stay away from ends of

containers due to explosive potential. Flammable Liquid. Do not use water except as a fog.

Special Protective Equipment:
Fire fighters must wear full face, positive pressure, self-contained breathing apparatus and appropriate protective clothing.

NFPA RATINGS FOR THIS PRODUCT ARE:
HEALTH 2, FLAMMABILITY 3 , REACTIVITY 0

HMIS RATINGS FOR THIS PRODUCT ARE:
HEALTH 2, FLAMMABILITY 3 , REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:
Wear appropriate protective equipment.

Environmental Precautionary:
Prevent entry into sewers or streams, dike if needed.

Procedure for Cleaning/Absorption:
Flammable liquid. Eliminate all ignition sources. Isolate spill and stop leak where safe. Try to work upwind of spill. Avoid direct contact with material. Saturated clothing should be immediately removed to avoid flammability hazard. Wear appropriate breathing apparatus (if applicable) and protective clothing. Dike and contain land spills; contain water spills by booming. Use water fog to knock down vapours; contain runoff. For large spills, remove by mechanical means and place in containers. Use absorbent materials. Flush area with water to remove trace residue.

7. HANDLING AND STORAGE

Handling:
Flammable. Do not cut, drill, grind, weld or perform similar operations on or near containers. Vapours may accumulate and travel to distant ignition sources and flashback. Empty containers may contain hazardous product residues. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Hot surfaces may be sufficient to ignite liquid even in the absence of sparks or flames. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Do not pressurize drum containers to empty them. Avoid breathing vapours and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Use good personal hygiene. Air-dry contaminated clothing in a well ventilated area before laundering.

Storage:
Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapour accumulation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:
Mechanical ventilation is recommended for all indoor situations to control fugitive emissions. Electrical and mechanical equipment should be explosion-proof. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit

value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit.

Respiratory Protection:
If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airbourne concentrations, use a NIOSH -approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

Gloves:
Impervious. Viton. Polyvinyl alcohol gloves.

Skin Protection:
In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn.

Eyes:
Chemical safety goggles and or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

Other Personal Protection Data:
Ensure that eyewash stations and safety showers are proximal to the work-station location.

Hazardous Components:

Ingredients	Percent	ACGIH 2000 - Time Weighted Averages	OSHA - Vacated PELs - Time Weighted Averages
Toluene 108-88-3	100	Not available.	100 ppm TWA; 375 mg/m TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid Mobile.
Color: Clear
Odor: Aromatic Hydrocarbon
pH: Not Available.
Specific Gravity: 0.871
Boiling Point (C): 111 (F): 231.8
Freezing Point (C): -95 (F): -139
Vapor Pressure: 23 mm Hg
Vapor Density: 3.5
% Volatile by Volume: Not Available.
Evaporation Rate: 2.24
Solubility: Slight
VOCs (lbs/gallon): Not Available.
Viscosity: Not Available.
Molecular Weight: 92.13

10. STABILITY AND REACTIVITY

Chemical Stability:
Stable

Hazardous Polymerization:
Will not occur.

Conditions to Avoid:
Avoid excessive heat, open flames and all ignition sources.

Materials to Avoid:
Avoid natural, butyl and neoprene rubbers. Avoid prolonged contact with nitrle rubber and PVC. Oxidizing agents.

Hazardous Decomposition Products:
Carbon monoxide. Carbon dioxide.

Additional Information:
No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure
Ingestion:
May be harmful if swallowed.

Skin Contact:
Causes moderate skin irritation.

Inhalation:
Vapours are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause severe inflammation of the lung. In rare cases may sensitize heart muscle causing heart arrythmia. Solvent abusers exposed to high doses of aromatic solvents (e.g. toluene/xylene) show signs of hearing loss as well as damage to the brain, liver and kidney. Excessive exposure during pregnancy may be hazardous to the developing foetus.

Eye Contact:
Vapours are moderately irritating to the eyes.

Aggravated Conditions:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

Carcinogenicity Comment:
None.

Other:
Prolonged exposures to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated contact with the skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.

Acute Test:
Acute Oral LD50:
Not Available.

Acute Dermal LD50:
Not Available.

Acute Inhalation LC50:
Not Available.

Primary Irritation Effect:

Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

Carcinogenicity:
Toxicity tests carried out for chronic effects and mutagenicity have been negative.

Genotoxicity:
Not Available.

Reproductive/Developmental Toxicity:
Not Available.

Teratogenicity:
Not Available.

Embryotoxicity:
Not Available.

Mutagenicity:
Toxicity tests carried out for chronic effects and mutagenicity have been negative.

12. ECOLOGICAL INFORMATION

Mobility:
Not Available.

Persistence:
Not Available.

Bioaccumulative:
Not Available.

Ecotoxicological Information:
Acute Fish Toxicity:
Not Available.

Acute Crustaceans Toxicity:
Not Available.

Acute Algae Toxicity:
Not Available.

Chemical Fate Information:
Not Available.

Other Information:
Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Spill areas must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Biodegrades (slow). Rapid volatilization. Not expected to bioconcentrate.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method:
Waste management priorities (depending on volumes and concentration of waste) are : 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licensed

waste disposal facility. Do not attempt to combust waste on site.
Incinerate at a licensed waste disposal site with approval of
environmental authority.

Contaminated Packaging:
Waste materials must be disposed of in accordance with your municipal,
state, provincial and federal regulations.

14. TRANSPORT INFORMATION

DOT (U.S.):
- DOT Shipping Name: Toluene
- Hazard Class: 3
- UN/NA Number: UN1294
- DOT Packing Group: II
- DOT Reportable Quantity (lbs): 1000
- Marine Pollutant: No.

ICAO/IATA:
- IATA Proper Shipping Name: Toluene
- Hazard Class: 3
- UN/NA Number: UN1294
- DOT Packing Group: II
- IATA Label: Flammable liquid.
- Remarks: No additional remark.

IMDG:
- IMDG Proper Shipping Name: Toluene
- Hazard Class: 3
- Packing Group: II
- EMS No.: 3-07
- MFAG Table No.: Not applicable.
- Marine Pollutant: No.
- IMDG Flash Point (C): 7
- IMDG Label: Flammable liquid.
- Remarks: No additional remark.

TDG (Canada):
- TDG Proper Shipping Name: Toluene
- Hazard Class: 3
- UN Number: UN1294
- Packing Group: II
- Note: No additional remark.
- Marine Pollutant: No.

15. REGULATORY INFORMATION

TSCA Inventory Status:
Listed on Inventory: YES

DSL Canadian Inventory Status:
All ingredients comply with the Canadian Domestic Substances List

U.S. Regulatory Rules

CERCLA/SARA - Section 302 Extremely Haz
This product complies with CERCLA/SARA - Section 302

SARA (311, 312) Hazard Class:
This product complies with SARAHZ

Toluene 100 108-88-3
CERCLA/SARA - Section 313 Listed

California Proposition 65:
The Cal Prop regulations apply to the product

MA Right to Know Law:
Not Listed:

New Jersey Right-to-Know List:
Listed.

Pennsylvania Right to Know List:
This product does not comply with PARTK

Canada - WHMIS Classification:
B2 FLAMMABLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

The following sections have been revised:
Nothing has been revised.

Additional Information:
None

Disclaimer:
NOTICE TO READER:
Vopak, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Vopak Sales Office.

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