



NFPA 704 (Section 16)

**MATERIAL SAFETY DATA SHEET****Toluene****MSDS No. 1813****1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-99)**

**HOVENSA L.L.C.**  
**1 Estate Hope**  
**Christiansted, VI 00820-5652**

**EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300**  
**COMPANY CONTACT (business hours): Safety Department (340) 692-3000**

**SYNONYMS:** Methyl Benzene  
 See Section 16 for abbreviations and acronyms.

**2. COMPOSITION and INFORMATION ON INGREDIENTS (rev. Apr-98)**

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRATION PERCENT BY WEIGHT
Toluene CAS NUMBER: 108-88-3	OSHA PEL-TWA/CEILING/PEAK: 200/300/500 ppm ACGIH TLV-TWA: 50 ppm, A4, skin	100

**3. HAZARDS IDENTIFICATION (rev. Jan-99; Tox-98)**

**EMERGENCY OVERVIEW  
 DANGER!**

**FLAMMABLE - IRRITANT - ABSORBED THROUGH THE SKIN - CENTRAL NERVOUS SYSTEM -  
 HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD**

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects. Excessive exposure may affect the liver and kidneys.

**EYES**

Moderate to severe irritant. Contact with liquid or vapor may cause irritation.

**SKIN**

Moderate to severe irritant. May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

**INGESTION**

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

**INHALATION**

Excessive exposure may cause irritation to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

Effects to the liver, kidneys, blood, central nervous system, and the developing fetus have been reported from large, acute (short) and/or repeated or prolonged exposures.



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### **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Pre-existing chronic respiratory disease, liver or kidney dysfunction, or blood, cardiovascular and central nervous system disorders may be aggravated by exposure.

### **4. FIRST AID MEASURES (rev. Apr-98; Tox-98)**

#### **EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

#### **SKIN**

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

#### **INGESTION**

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

#### **INHALATION**

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

### **5. FIRE FIGHTING MEASURES (rev. Jan-99)**

#### **FLAMMABLE PROPERTIES:**

FLASH POINT: 40 °F (4°C)  
AUTOIGNITION TEMPERATURE: 896 °F (480 °C)  
OSHA/NFPA FLAMMABILITY CLASS: 1B (flammable liquid)  
LOWER EXPLOSIVE LIMIT (%): 1.2%  
UPPER EXPLOSIVE LIMIT (%): 7.1%

#### **FIRE AND EXPLOSION HAZARDS**

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

#### **EXTINGUISHING MEDIA**

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

#### **FIRE FIGHTING INSTRUCTIONS**

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing



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the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

### **6. ACCIDENTAL RELEASE MEASURES** (rev. Apr-98)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

### **7. HANDLING and STORAGE** (rev. Apr-98)

#### **HANDLING PRECAUTIONS**

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

#### **STORAGE PRECAUTIONS**

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

#### **WORK/HYGIENIC PRACTICES**

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.



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### 8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Apr-98)

#### ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

#### EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

#### SKIN PROTECTION

Gloves constructed of Viton are recommended for heavy exposure; Viton, nitrile or PVC recommended for intermittent exposure. Chemical protective clothing such as of E.I. DuPont TyChem®, Barricade® or equivalent recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

#### RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

### 9. PHYSICAL and CHEMICAL PROPERTIES (rev. Mar-95)

#### APPEARANCE

A clear, water-like liquid

#### ODOR

A sweet, aromatic odor.

#### ODOR THRESHOLD

0.2 - 5 ppm

#### BASIC PHYSICAL PROPERTIES

BOILING RANGE:	231 °F (111 °C)
VAPOR PRESSURE:	22 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	3.2
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.86
EVAPORATION RATE:	High
PERCENT VOLATILES:	100 %
SOLUBILITY (H <sub>2</sub> O):	Insoluble to slightly soluble

### 10. STABILITY and REACTIVITY (rev. Mar-95)

**STABILITY:** Stable. Hazardous polymerization will not occur.

#### CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers.

#### HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.



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11. TOXICOLOGICAL PROPERTIES (rev. Apr-98; Tox-98)

ACUTE TOXICITY

Acute Oral LD50 (rats): 2.6 to 7.5 g/kg Acute inhalation LC50: 8,000 ppm (rat; 4 hours)
Eye irritation (human): 400 ppm Primary dermal irritation (rabbits): mild to moderate

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: NO NTP: NO ACGIH: NO

Breathing large amounts of toluene for short periods of time adversely effect the human nervous system, the kidneys, liver, and the heart. Repeatedly breathing large amounts of toluene as when "sniffing glue" or paint can cause permanent brain damage. Human exposure studies and animal studies suggest that exposure to large amounts of toluene during pregnancy can adversely effect the developing fetus.

Mutagenicity: negative

12. ECOLOGICAL INFORMATION (rev. Apr-98)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS (rev. Apr-98)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Apr-98)

DOT PROPER SHIPPING NAME: Toluene
DOT HAZARD CLASS & PACKING GROUP: 3, PG II
DOT IDENTIFICATION NUMBER: UN 1294
DOT SHIPPING LABEL: FLAMMABLE LIQUID

15. REGULATORY INFORMATION (rev. Apr-98)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

Toluene is a CERCLA Section 103 "hazardous substance" subject to CERCLA and SARA Section 304 reporting requirements.

Reportable Quantity: 1000 pounds

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH X CHRONIC HEALTH X FIRE X SUDDEN RELEASE OF PRESSURE -- REACTIVE --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER) and CONCENTRATION WT. PERCENT. Row 1: Toluene (108-88-3) 100



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CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-99)

NFPA® HAZARD RATING HEALTH: 2 Moderate
FIRE: 3 Serious
REACTIVITY: 0 Minimal

HMIS® HAZARD RATING HEALTH: 3 \* High
FIRE: 3 Serious
REACTIVITY: 0 Minimal
\* Chronic

SUPERSEDES MSDS DATED: 04/23/98

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH American Conference of Governmental Industrial Hygienists
AIHA American Industrial Hygiene Association
ANSI American National Standards Institute (212)642-4900
API American Petroleum Institute (202)682-8000
CERCLA Comprehensive Emergency Response, Compensation, and Liability Act
DOT U.S. Department of Transportation [General Info: (800)467-4922]
EPA U.S. Environmental Protection Agency
HMIS Hazardous Materials Information System
IARC International Agency For Research On Cancer
MSHA Mine Safety and Health Administration
NFPA National Fire Protection Association (617)770-3000
NIOSH National Institute of Occupational Safety and Health
NOIC Notice of Intended Change (proposed change to ACGIH TLV)
NTP National Toxicology Program
OPA Oil Pollution Act of 1990
OSHA U.S. Occupational Safety & Health Administration
PEL Permissible Exposure Limit (OSHA)
RCRA Resource Conservation and Recovery Act
REL Recommended Exposure Limit (NIOSH)
SARA Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA Self-Contained Breathing Apparatus
SPCC Spill Prevention, Control, and Countermeasures
STEL Short-Term Exposure Limit (generally 15 minutes)
TLV Threshold Limit Value (ACGIH)
TSCA Toxic Substances Control Act
TWA Time Weighted Average (8 hr.)
WEEL Workplace Environmental Exposure Level (AIHA)
WHMIS Workplace Hazardous Materials Information System (Canada)



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