



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: TOLUENE

Manufacturer Information:

Sunoco, Inc. (R&M)
1735 Market Street LL

Philadelphia, Pennsylvania, 19103-7583

Product Use:

Chemical intermediate

Emergency Phone Numbers:

Chemtrec (800) 424-9300
Sunoco Inc. (800) 964-8861

Information:

Product Safety Information (888) 567-3066

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount (Vol%)
TOLUENE	108-88-3	100

EXPOSURE GUIDELINES (SEE SECTION 15 FOR ADDITIONAL EXPOSURE LIMITS)

	CAS No.	Governing Body	Exposure Limits		
TOLUENE	108-88-3	NIOSH	STEL	150	ppm
TOLUENE	108-88-3	ACGIH	TWA	20	ppm
TOLUENE	108-88-3	OSHA	TWA	200	ppm

3. HAZARDS IDENTIFICATION

• **EMERGENCY OVERVIEW**

Danger! Flammable liquid and vapor. Vapors may cause flash fire or explosion. Static accumulator. May form an ignitable vapor/air mixture. Harmful or fatal if swallowed. Pulmonary aspiration hazard. While ingesting or vomiting, may enter lungs and produce damage. Harmful if inhaled. High vapor concentrations may cause drowsiness. May cause skin irritation. Causes eye irritation. Can cause severe chronic toxicity.

Hazards Ratings:

Key: 0 = least, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

	Health	Fire	Reactivity	PPI
NFPA	2	3	0	
HMIS	2	3	0	X

- **POTENTIAL HEALTH EFFECTS**

- **PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

The following diseases or disorders may be aggravated by exposure to this product: skin, eye, liver, kidney, nervous system, respiratory system, lung (asthma-like conditions),

- **INHALATION**

High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness and even death). May cause headaches and dizziness. May cause serious disturbances of heart rhythm. Vapors irritating to eyes and respiratory tract. Repeated overexposure has caused a hearing loss in laboratory animals. Prolonged or repeated exposure may cause liver and kidney damage. Solvent "huffing/sniffing" (abuse) or intentional prolonged overexposure to high levels of vapors can produce abnormal behavior, convulsions, hallucinations, delirium, nervous system damage, serious disturbances of heart rhythm and sudden death.

LC50 (mg/l): no data

LC50 (mg/m3): no data

LC50 (ppm): no data

- **SKIN**

May be absorbed through the skin in harmful amounts. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash). Prolonged or repeated skin contact may cause irritation. Skin absorption of material may produce systemic toxicity.

Draize Skin Score: no data Out of 8.0

LD50 (mg/kg): no data

- **EYES**

Mildly irritating to the eyes.

- **INGESTION**

Harmful or fatal if swallowed. Pulmonary aspiration hazard. While ingesting or vomiting, may enter lungs and produce damage. May produce central nervous system effects, which includes dizziness, loss of balance and coordination, unconsciousness, coma and even death. Irritating to mouth, throat, and stomach.

LD50 (g/kg): no data

4. FIRST AID MEASURES

- **INHALATION**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and continue to monitor. Get immediate medical attention.

- **SKIN**

Wash with soap and water for 20 minutes. Get medical attention if irritation develops or persists. Wash clothing before reuse.

- **EYES**

Flush eye with water for 20 minutes. Get medical attention.

- **INGESTION**

Do not induce vomiting! Do not give liquids! Get medical attention immediately.

5. FIRE FIGHTING MEASURES

- **EXTINGUISHING MEDIA**

Water spray; Regular foam; Dry chemical; Carbon dioxide;

- **FIRE FIGHTING INSTRUCTIONS**

Use water spray. Use water spray to cool fire exposed tanks and containers. Wear structural fire fighting gear.

- **FLAMMABLE PROPERTIES**

STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers.

	Typical	Minimum	Maximum	Text Result	Units	Method
Flash Point	39.2			Closed Cup	F	N/A
Autoignition Temperature	896				F	N/A
Lower Explosion Limit	1.1				%	N/A
Upper Explosion Limit	7.1				%	N/A

6. ACCIDENTAL RELEASE MEASURES

Prevent ignition, stop leak and ventilate the area. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Vapor can be controlled using a water fog. Water streams should not be directed to the liquid as this will cause the liquid to boil and generate more vapor. Keep personnel upwind from leak. Use appropriate personal protective equipment as stated in Section 8 of this MSDS. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container.

7. HANDLING AND STORAGE

- **HANDLING**

Use only in a well-ventilated area. STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers. This liquid may accumulate static electricity even when transferred into properly grounded containers. Bonding and grounding may be insufficient to remove static electricity. Static electricity accumulation may be significantly increased by the presence of small quantities of water. Always bond receiving container to the fill pipe before and during loading, following NFPA-77 and/or API RP 2003 requirements. Automatic gauging devices and other floats in vessels or tanks which contain static accumulating liquids should be electrically bonded to the shell. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep the nozzle in contact with the container throughout the loading process. Do not fill any portable containers in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e. loading this material in tanks or shipping compartments that previously contained middle distillates or similar products). Non-equilibrium conditions may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigating efforts, including bonding and grounding. Wash thoroughly after handling. Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated contact with skin. Avoid contact with eyes.

- **STORAGE**

Keep away from heat, sparks, and flame. Store in a cool dry place. Keep container closed when not in use. NFPA class IB storage. Flash point is less than 73 degrees F and boiling point is greater than or equal to 100 degrees F. Consult NFPA and / or OSHA codes for additional information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Consult With a Health and Safety Professional for Specific Selections

- **ENGINEERING CONTROLS**

Use with adequate ventilation. Use explosion-proof ventilation equipment.

- **PERSONAL PROTECTION**

- **EYE PROTECTION**

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent).

- **GLOVES or HAND PROTECTION**

The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Protective gloves are recommended to protect against contact with product. Polyvinyl alcohol; Viton; Teflon;

- **RESPIRATORY PROTECTION**

Concentration in air determines the level of respiratory protection needed. Use only NIOSH certified respiratory equipment. Half-mask air purifying respirator with organic vapor cartridges is acceptable for exposures to ten

(10) times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable for exposures to fifty (50) times the exposure limit. Exposure should not exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit. If exposure is above the IDLH (Immediately Dangerous to Life and Health) or there is the possibility of an uncontrolled release, or exposure levels are unknown, then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA. Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

▪ **OTHER**

Where splashing is possible, full chemically resistant protective clothing and boots are required. The following materials are acceptable for use as protective clothing: Polyvinyl alcohol (PVA); Viton; Teflon; Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Remove contaminated clothing and wash before reuse. For non-fire emergencies, positive pressure SCBA and structural firefighter's protective clothing will provide only limited protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Property	Typical	Units	Text Result	Reference
Appearance		N/A	COLORLESS LIQUID.	
Boiling Point	231	F		
Bulk Density		lb/gal	no data	
Liquid Conductivity		pS/m	<1	
Melting Point		F	MINUS 139	
Molecular Weight	92.14	g/mole		
Octanol/Water Coefficient		N/A	no data	
pH		N/A	no data	
Specific Gravity	0.87	N/A		
Solubility In Water	0.047	wt %		
Odor		N/A	PLEASANT SWEET ODOR.	
Odor Threshold		ppm	no data	
Vapor Pressure	26	mmHg	@25 C	
Viscosity (F)		SUS	no data	
Viscosity (C)		CsT	no data	
% Volatile	100	wt %		

10. STABILITY AND REACTIVITY

• **STABILITY**

Stable

• **CONDITIONS TO AVOID**

Avoid static discharge Avoid heat, sparks and open flame.

• **INCOMPATIBILITY**

Strong oxidizers

• **HAZARDOUS DECOMPOSITION PRODUCTS**

Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.

• **HAZARDOUS POLYMERIZATION**

Will not polymerize.

11. ECOLOGICAL INFORMATION

No data available

12. DISPOSAL CONSIDERATIONS

Follow federal, state and local regulations. This material is a RCRA hazardous waste. Do not flush material to drain or storm sewer. Contract to authorized disposal service.

13. TRANSPORT INFORMATION

<u>Governing Body</u>	<u>Mode</u>	<u>Proper Shipping Name</u>
DOT	Ground	Toluene
IMDG	Marine	Toluene
IATA	Air	Toluene

<u>Governing Body</u>	<u>Mode</u>	<u>Hazard Class</u>	<u>UN/NA No.</u>	<u>Label</u>
DOT	Ground	3 (Flammable liquid)	1294	
IMDG	Marine	Class 3.2	1294	
IATA	Air	Class 3	1294	

14. REGULATORY INFORMATION

This product is subject to the reporting requirements of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). This information must be included in all MSDSs that are copied and distributed for this material.

<u>Regulatory List</u>	<u>Component</u>	<u>CAS No.</u>
ACGIH - Occupational Exposure Limits - Carcinogens	TOLUENE	108-88-3
ACGIH - Occupational Exposure Limits - TWAs	TOLUENE	108-88-3
CAA (Clean Air Act) - HON Rule - Organic HAPs	TOLUENE	108-88-3
CAA (Clean Air Act) - HON Rule - SOCMIs Chemicals	TOLUENE	108-88-3
CAA (Clean Air Act) - VOCs in SOCMIs	TOLUENE	108-88-3
CAA - 1990 Hazardous Air Pollutants	TOLUENE	108-88-3
California - Prop. 65 - Developmental Toxicity	TOLUENE	108-88-3
California - Prop. 65 - Reproductive - Female	TOLUENE	108-88-3
Canada - WHMIS - Ingredient Disclosure	TOLUENE	108-88-3
CERCLA/SARA - Haz Substances and their RQs	TOLUENE	108-88-3
CERCLA/SARA - Section 313 - Emission Reporting	TOLUENE	108-88-3
CWA (Clean Water Act) - Hazardous Substances	TOLUENE	108-88-3
CWA (Clean Water Act) - Priority Pollutants	TOLUENE	108-88-3
CWA (Clean Water Act) - Toxic Pollutants	TOLUENE	108-88-3
DEA - List II Essential Chemicals	TOLUENE	108-88-3
IARC - Group 3 (not classifiable)	TOLUENE	108-88-3
Inventory - Australia (AICS)	TOLUENE	108-88-3
Inventory - Canada - Domestic Substances List	TOLUENE	108-88-3
Inventory - China	TOLUENE	108-88-3
Inventory - European EINECS Inventory	TOLUENE	108-88-3
Inventory - Japan - (ENCS)	TOLUENE	108-88-3
Inventory - Korea - Existing and Evaluated	TOLUENE	108-88-3
Inventory - New Zealand	TOLUENE	108-88-3
Inventory - Philippines Inventory (PICCS)	TOLUENE	108-88-3
Inventory - TSCA - Sect. 8(b) Inventory	TOLUENE	108-88-3
Massachusetts - Right To Know List	TOLUENE	108-88-3
New Jersey - Department of Health RTK List	TOLUENE	108-88-3
New Jersey - Env Hazardous Substances List	TOLUENE	108-88-3
New Jersey - Special Hazardous Substances	TOLUENE	108-88-3
OSHA - Final PELs - Ceiling Limits	TOLUENE	108-88-3
OSHA - Final PELs - Time Weighted Averages	TOLUENE	108-88-3

Pennsylvania - RTK (Right to Know) List	TOLUENE	108-88-3
Pennsylvania - RTK - Environmental Hazard List	TOLUENE	108-88-3
U.S. - DOT - Hazardous Substances and RQs (App A)	TOLUENE	108-88-3

Title III Classifications Sections 311,312:

- Acute: **YES**
- Chronic: **YES**
- Fire: **YES**
- Reactivity: **NO**
- Sudden Release of Pressure: **NO**

15. OTHER INFORMATION

Follow all MSDS/label precautions even after container is emptied because it may retain product residue. Intentional misuse (sniffing) can cause damage to the brain, liver and kidneys and may cause sudden death. WHMIS Classification: Class B Division 2 - Flammable Liquids; Class D Division 2 - Materials Causing Other Toxic Effects; Class D Division 2 Subdivision B - Toxic Material;