



SAFETY DATA SHEET

SDS01188
TOLUENE

Preparation Date: 17/May/2019

Version: 3

1. IDENTIFICATION

Product identifier

Product Name TOLUENE

Other means of identification

SDS Number SDS01188

Synonyms Methylbenzene, Toluol

Recommended use of the chemical and restrictions on use

Recommended Use Organic solvent.

Restricted Uses No information available

Initial Supplier Identifier

Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC V6X 1W5
Telephone: 1-866-686-4827

Emergency telephone number

24 Hour Emergency Phone Number (CANUTEC): 1-888-226-8832 (1-888-CAN-UTEC)

2. HAZARD IDENTIFICATION

Hazardous Classification of the substance or mixture

Flammable liquids	Category 2
Skin corrosion/irritation	Category 2
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1

Label elements

Hazard pictograms**Signal Word: Danger****Hazard statements**

Highly flammable liquid and vapor

Causes skin irritation

May cause drowsiness or dizziness

May cause damage to organs through prolonged or repeated exposure

May be fatal if swallowed and enters airways

Suspected of damaging fertility or the unborn child

Precautionary Statements**Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

Use only outdoors or in a well-ventilated area

Do not breathe dust/fume/gas/mist/vapors/spray

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground/bond container and receiving equipment

Use non-sparking tools

Use explosion-proof electrical/ ventilating / lighting/ equipment

Take action to prevent static discharges

Response

IF exposed or concerned: Get medical advice/attention

IF ON SKIN: Wash with plenty of soap and water

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash before reuse

Call a POISON CENTER or doctor if you feel unwell

IF INHALED: Remove person to fresh air and keep comfortable for breathing

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

IF SWALLOWED: Immediately call a POISON CENTER or doctor

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

Store locked up

Store in a well-ventilated place. Keep cool

Store in a closed container

Disposal

Dispose of contents/container to an approved waste disposal plant

Harmful to aquatic life with long lasting effects

Unknown acute toxicity No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Chemical Name	CAS No	Weight-%	Synonyms
Toluene	108-88-3	80 - 100%	Toluene

Notes:

The actual percentage concentration has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation

Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact

Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion

Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical advice/attention.

Self-protection of the first aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed:

Causes moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis. Vapors are moderately irritating to the respiratory passages. The liquid when accidentally aspirated into the lungs can cause severe inflammation of the lung. Vapors are moderately irritating to the eyes. Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema). May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have

associated repeated and prolonged overexposure to solvents will permanent brain and nervous system damage. May be harmful if swallowed

Indication of any immediate medical attention and special treatment needed:

Note to physicians

The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. 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

Suitable Extinguishing Media

Use DRY chemicals, CO₂, alcohol foam or water spray.

Specific hazards arising from the substance or mixture

Flammable Liquid. Do not allow runoff to enter waterways or sewer. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back.

Hazardous combustion products

Material does not decompose at ambient temperatures.

Special protective equipment and precautions for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up

Prevent further leakage or spillage if safe to do so.

7. HANDLING AND STORAGE

Precautions for safe handling

Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel

protective equipment. Handling Temperature: Ambient. Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100×10^{-12} Siemens per meter) and is considered a semi conductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semi conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapor accumulation. Prevent electrostatic charge buildup by using common bonding and grounding techniques. Store at ambient temperature. Store in accordance with good industrial practices. Suitable

Containers/Packing: Drums; Barges; Tank Cars; Tank Trucks

Suitable Materials and Coatings: Carbon steel; Teflon; Stainless steel;

Unsuitable Materials and Coatings: Polystyrene; Natural rubber; Butyl rubber; Ethylene-propylene-diene monomer (EPDM).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical Name	Alberta OEL	British Columbia OEL	Ontario	Quebec OEL	Exposure Limit - ACGIH	Immediately Dangerous to Life or Health - IDLH
Toluene 108-88-3	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm Adverse reproductive effect	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin	20 ppm TLV-TWA	500 ppm

Consult local authorities for recommended exposure limits

Appropriate engineering controls

Engineering controls

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Electrical and mechanical equipment should be explosion proof. Firewater monitors and deluge systems are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical safety glasses with side shields or splash proof goggles.

Hand protection

Appropriate chemical resistant gloves should be worn.

Skin and body protection

Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Oil resistant apron.

Respiratory protection

If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in

accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

General hygiene considerations

Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state	Liquid
Color	Colorless.
Odor	Aromatic
Odor threshold	0.16-37 ppm

PROPERTIES

Values

Remarks • Method

pH	No data available	None known
Melting point / freezing point	-95 °C / -139 °F	
Initial boiling point/boiling range	110 °C / 230 °F	
Flash point	>=4 °C / >39.2 °F	Closed cup. ASTM D56
Evaporation rate	2.4	
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit:	7.1%	
Lower flammability limit:	1.1%	
Vapor pressure	7 kPa (52.5 mm Hg) @ 38°C	
Relative vapor density	>1 @ 101 kPa	
Specific Gravity	0.87	
Water solubility	Negligible in water.	
Solubility in other solvents	No data available	
Partition coefficient	2.7	
Autoignition temperature	>500 °C / >932 °F	
Decomposition temperature	No data available	None known
Kinematic viscosity	0.65 cSt @ 25°C	
Dynamic viscosity	No data available	None known
Explosive properties	No information available.	
Oxidizing properties	No information available.	
Molecular weight	92.13	
VOC Percentage Volatility	No information available	
Liquid Density	No information available	
Bulk density	No information available	

10. STABILITY AND REACTIVITY

Reactivity/Chemical Stability

Stable.

Possibility of hazardous reactions

No additional remark.

Hazardous polymerization

Will not occur.

Conditions to avoid

Avoid excessive heat, open flames and all ignition sources.

Incompatible materials

Oxidizing agents. Avoid natural, butyl and neoprene rubbers. Avoid prolonged contact with nitrile rubber and PVC (Toluene).

Hazardous decomposition products

Material does not decompose at ambient temperatures.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Inhalation**

Vapors are moderately irritating to the respiratory passages. The liquid when accidentally aspirated into the lungs can cause severe inflammation of the lung. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents will permanent brain and nervous system damage.

Eye contact

Vapors are moderately irritating to the eyes.

Skin contact

Causes moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.

Ingestion

May be harmful if swallowed. Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

Information on toxicological effects**Symptoms**

Prolonged exposures to high vapor 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. Toluene is a moderate skin irritant, based on animal evidence. Prolonged contact is more irritating due to the defatting action of this solvent and dermatitis (dry, red skin) may result. Liquid toluene is absorbed through the skin slowly. Toluene is a mild eye irritant, based on animal evidence. The main effect of inhaling toluene vapor is on the central nervous system (CNS). Symptoms are related to exposure concentration. Symptoms may include slight drowsiness, headache, irritation of the nose, throat and respiratory tract, fatigue, dizziness, drunkenness (giddiness), numbness, mild nausea, mental confusion, incoordination, unconsciousness and death. Toluene is readily absorbed following ingestion producing CNS depression. Symptoms will be similar to those described for inhalation. Acute oral exposure to toluene in rats has been reported to cause temporary visual dysfunction, urinary bladder effects and altered immune function. Toluene may be aspirated, which is the inhalation of a chemical into the lungs, during ingestion or vomiting. Severe lung irritation, damage to the lung tissues and death may result. Most studies reporting kidney damage in people result from solvent abuse (for example, glue-sniffing). There is some evidence to suggest that long-term exposure to toluene may affect hearing. The effect of toluene on hearing loss is potentiated by acetylsalicylic acid and n-hexane to produce irreversible auditory damage. Chronic inhalation causes color vision impairment in humans. Exposure to other solvents such as benzene, xylene and ethanol (alcohol) slows the rate of clearance of toluene from the body, thereby enhancing the toxicity of toluene.

Numerical measures of toxicity**Acute toxicity**

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2,600.00 mg/kg
ATEmix (dermal) 12,000.00 mg/kg

Unknown acute toxicity No information available

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Toluene 108-88-3	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Causes moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.

Serious eye damage/eye irritation

Vapors are moderately irritating to the eyes.

Respiratory or skin sensitization

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

No information available.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Toluene 108-88-3	Not available	Group 3	Not available	Not available

Legend

IARC (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive toxicity

TOLUENE: Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects.

Specific target organ systemic toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ systemic toxicity - repeated exposure

May cause damage to organs.

Aspiration hazard

May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Ecotoxicity - Freshwater Algae Data	Ecotoxicity - Fish Species Data	Toxicity to microorganisms	Crustacea
Toluene	12.5 mg/L EC50	11.0 - 15.0 mg/L LC50	Not available	EC50: 5.46 - 9.83mg/L

108-88-3	Pseudokirchneriella subcapitata 72 h static 433 mg/L EC50 Pseudokirchneriella subcapitata 96 h	(Lepomis macrochirus) 96 h static 14.1 - 17.16 mg/L LC50 (Oncorhynchus mykiss) 96 h static 15.22 - 19.05 mg/L LC50 (Pimephales promelas) 96 h flow-through 5.89 - 7.81 mg/L LC50 (Oncorhynchus mykiss) 96 h flow-through 50.87 - 70.34 mg/L LC50 (Poecilia reticulata) 96 h static 12.6 mg/L LC50 (Pimephales promelas) 96 h static 28.2 mg/L LC50 (Poecilia reticulata) 96 h semi-static 5.8 mg/L LC50 (Oncorhynchus mykiss) 96 h semi-static 54 mg/L LC50 (Oryzias latipes) 96 h static	(48h, Daphnia magna) EC50: =11.5mg/L (48h, Daphnia magna)
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Persistence and degradability No information available.

Bioaccumulation No information available.

Component Information

Chemical Name	Partition coefficient
Toluene 108-88-3	2.7

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Empty containers should be recycled or disposed of through an approved waste management facility. Empty containers retain product residue (liquid and/or vapor) and can be dangerous.

14. TRANSPORT INFORMATION

TDG (Canada):

UN Number UN1294
Shipping name Toluene
Class 3
Packing Group II
Marine pollutant No.

DOT (U.S.)

UN Number UN1294
Shipping name Toluene
Class 3

Packing Group
Marine pollutant

II
Not available

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Regulatory Rules

Chemical Name	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Toluene - 108-88-3	Not Listed	Listed	Listed

International Inventories

TSCA

All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

DSL/NDSL

All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

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

16. OTHER INFORMATION

NFPA:	Health hazards 2	Flammability 3	Instability 0	Physical and chemical properties -
HMIS:	Health hazards 2 *	Flammability 3	Physical hazards 0	Personal protection X

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.

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End of Safety Data Sheet