



Safety Data Sheet

Section 01 - Identification

Product Identifier	Toluene
Other Means of Identification	Methylbenzol, Methylbenzene, Toluol, and Phenylmethane.
Product Use and Restrictions on Use	Used as a solvent in paints, resins, lacquers, inks, and adhesives. Used in the manufacturing of other chemicals.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
Prepared By	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
24-Hour Emergency Phone	Phone: 1 (306) 664 – 2522

Section 02 - Hazard Identification

GHS-Classification

Skin Corrosion/Irritation	Category 2
Aspiration Hazard	Category 1
STOT-Single Exposure	Category 3
STOT-Repeated Exposure	Category 2
Reproductive Toxicity	Category 2

Physical Hazards

Flammable Liquid	Category 2
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Danger

Hazard Statements

H315 – Causes skin irritation.
H304 – May be fatal if swallowed and enters airways.
H336 – May cause drowsiness or dizziness.
H361 – Suspected of damaging fertility or the unborn child.
H373 – May cause damage to the nervous system, liver and kidneys through prolonged or repeated exposure.
H225 – Highly flammable liquid and vapour.

Pictograms



Precautionary Statements

P201 – Obtain special instructions before use.

P202 – Do not handle until all safety precautions have been read and understood.

P403 + P235 – Store in a well-ventilated place. Keep cool.

P210 – Keep away from heat, sparks, open flames, and hot surfaces. — No smoking.

P233 – Keep container tightly closed.

P405 – Store locked up.

P240 – Ground/bond container and receiving equipment.

P241 – Use explosion-proof electrical, ventilating, lighting, and equipment.

P242 – Use only non-sparking tools.

P243 – Take precautionary measures against static discharge.

P370 + P378 – In case of fire: Use foam, CO₂, dry chemical, and water fog for extinction.

P260 – Do not breathe mist, vapours or spray.

P271 – Use only outdoors or in a well-ventilated area.

P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P280 – Wear protective gloves, protective clothing, eye protection, and face protection.

P264 – Wash hands thoroughly after handling.

P308 + P313 – IF exposed or concerned: Get medical advice/attention.

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin

P321 – Specific treatment: If the victim is conscious, give 2 to 4 cups of water or milk to dilute the substance.

P301 + P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331 – Do NOT induce vomiting.

P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Toluene	108-88-3	68-100%	
Water	7732-18-5	<32%	

Section 04 - First Aid Measures

Inhalation	Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention if difficulty in breathing persists.
Skin Contact / Absorption	Remove contaminated clothing. Rinse skin with lukewarm, gently flowing water and non-abrasive soap for 30 minutes. Seek medical attention if irritation occurs or persists. Completely decontaminate clothing, shoes and leather goods before re-use or discard.
Eye Contact	Flush immediately with water for at least 30 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. If irritation persists, seek medical attention.
Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Seek immediate medical attention.
Additional Information	NOTE: This product is suspected of causing damage to fertility or the unborn child. Take proper precautions to ensure your own safety before assisting others.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media	Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog. Water may be effective for cooling, but may not be effective for extinguishing a fire because it will not cool toluene below its flash point. Firefighting foams, such as multipurpose alcohol-resistant foams, are recommended for most flammable liquid fires.
Unsuitable Extinguishing Media	Not Available.

Specific Hazards Arising From the Chemical During a fire, irritating/toxic gases, such as carbon monoxide, carbon dioxide, reactive hydrocarbons, and aldehyde may be generated. Vapour can accumulate in confined spaces resulting in a flammability and toxicity hazard. Closed containers may rupture violently and suddenly release large amounts of product when exposed to fire or excessive heat for a sufficient period of time.

Special Protective Equipment and Precautions for Fire-Fighters Wear NIOSH-approved self-contained breathing apparatus and protective gear.

Further Information Not Available.

Section 06 - Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Flush with water to remove any residue.

Environmental Precautions Prevent spillage from entering drains, surface, and groundwater.

Methods and Materials for Containment and Cleaning Up Contain spill with earth, sand, or similar stable, non-combustible material.
SMALL SPILLS: Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered labelled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product.
LARGE SPILLS: Contact fire and emergency services and supplier for advice.

Section 07 - Handling and Storage

Precautions for Safe Handling This material is a FLAMMABLE LIQUID, POSSIBLE TERATOGEN/EMBRYOTOXIN and a SKIN IRRITANT. It is also a CONFINED SPACE HAZARD. If toluene is released, immediately evacuate the area until the severity of the release can be determined. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.

Conditions for Safe Storage Store in a cool well-ventilated area out of direct sunlight and away from heat and ignitions sources. Keep quantity stored as small as possible. Keep storage areas clear of burnable materials. Storage facilities should be made of fire-resistant materials. Use a grounded, non-sparking ventilation system, approved explosion-proof equipment and intrinsically safe electrical systems.

Incompatibilities Nitric acid, sulfuric acid, potassium chlorate, strong oxidizing agents, nitrogen tetroxide, tetranitromethane, silver perchlorate, sulfur dichloride, sulfuric acid, uranium hexafluoride.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Toluene	OSHA	PEL-TWA	100ppm
	OSHA	PEL-STEL	150ppm
	ACGIH	TLV-TWA	20ppm

Engineering Control(s)

Ventilation Requirements Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other	Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.
<u>Protective Equipment</u>	
Eyes/Face	Chemical goggles and a face shield if necessary should be worn while product is being handled. Contact lenses should not be worn; they may contribute to severe eye injury.
Hand Protection	Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
Skin and Body Protection	Body suits, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. Impervious boots of chemically resistant material should be worn at all times.
Respiratory Protection	NIOSH RECOMMENDATIONS FOR TOLUENE CONCENTRATIONS IN AIR: UP TO 500 ppm: Chemical cartridge respirator with organic vapour cartridge(s); or powered air-purifying respiratory with organic vapour cartridge(s); or gas mask with organic vapour canister; or SAR; or full-facepiece SCBA. EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATION OR IDLH CONDITIONS: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
Thermal Hazards	Not Available.

Section 09 - Physical and Chemical Properties

Appearance

Physical State	Liquid
Colour	Transparent
Odour	Benzene-like
Odour Threshold	0.16-37 - ppm (Detect) 1.9 - 69ppm (Recognition)

Property

pH	Not Applicable.
Melting Point/Freezing Point	-95°C
Initial Boiling Point and Boiling Range	110.6°C
Flash Point	4°C
Evaporation Rate	2.0
Flammability	Flammable liquid.
Upper Flammable Limit	7.1%
Lower Flammable Limit	1.2%
Vapour Pressure (mm Hg, 20°C)	22
Vapour Density (Air=1)	3.18

Relative Density	Not Available.
Solubility(ies)	Sparingly soluble in water. Soluble in most organic solvents such as ethanol, acetone, diethyl ether, ethyl alcohol, benzene, chloroform, and glacial acetic acid.
Partition Coefficient: n-octanol/water	Log P _{ow} = 2.73
Auto-ignition Temperature	480°C
Decomposition Temperature	Not Available.
Viscosity	0.586 mPa·s @ 20°C
Explosive Properties	Can release vapours that form explosive mixtures with air at, or above, 4°C.
Specific Gravity (Water=1)	0.867 at 20°C
% Volatiles by Volume	Not Available.
Formula	C ₇ H ₈
Molecular Weight	92.14

Section 10 - Stability and Reactivity

Reactivity	Not Available
Stability	Normally stable.
Possibility of Hazardous Reactions	None known.
Conditions to Avoid	Electrostatic discharge, sparks, open flames, heat and other ignition sources.
Incompatible Materials	Nitric acid, sulfuric acid, potassium chlorate, strong oxidizing agents, nitrogen tetroxide, tetranitromethane, silver perchlorate, sulfur dichloride, sulfuric acid, uranium hexafluoride.
Hazardous Decomposition Products	During a fire, carbon monoxide, carbon dioxide, reactive hydrocarbons and aldehydes may be generated.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Toluene	2600-7500mg/kg (rat)	12125mg/kg (rabbit)	7100 ppm/4h (mouse)

Chronic Toxicity – Carcinogenicity

Component	IARC
Toluene	Not classified as a human carcinogen.

Skin Corrosion/Irritation	Moderate skin irritant. Absorption of toluene through the skin may contribute significantly to the overall exposure.
Ingestion	There are case reports of accidental ingestion of toluene causing severe central nervous system depression and death.

Inhalation	Inhalation of vapours can affect the central nervous system. Symptoms may include slight drowsiness and headache, fatigue and dizziness, numbness, mild nausea, mental confusion and incoordination. Higher concentrations can result in unconsciousness and death.
Serious Eye Damage/Irritation	Very mild eye irritant.
Respiratory or Skin Sensitization	Not expected to be a skin or respiratory sensitizer.
Germ Cell Mutagenicity	There is insufficient information available to conclude that toluene is mutagenic.
Reproductive Toxicity	Suspected of causing damage to fertility of the unborn child.
STOT-Single Exposure	May cause drowsiness or dizziness through inhalation or ingestion.
STOT-Repeated Exposure	Repeated exposure may cause damage to the liver and kidneys. Solvent abuse has caused severe impairment of the central nervous system and kidney damage.
Aspiration Hazard	Not Available.
Synergistic Materials	Not Available.

Section 12 – Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Toluene	EC ₅₀ (Green algae, 72hr): 9.4mg/L	LC ₅₀ (Pimephales promelas, 96hr): 34.27mg/L	EC ₅₀ (Daphnia magna, 48hr): 6mg/L
Biodegradability	Biodegradation is expected to occur rapidly in soil surfaces and water.		
Bioaccumulation	Product is expected to have low bioaccumulation potential.		
Mobility	Toluene is expected to have high to moderate mobility in soil.		
Other Adverse Effects	Not Available.		

Section 13 – Disposal Considerations

Waste From Residues/Unused Products	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 – Transport Information

UN Number	UN1294	
UN Proper Shipping Name	TOLUENE	
Transport Hazard Class(es)	3	
Packaging Group	II	
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.	
Special Precautions	Not Available	
Transport in Bulk	Not Available	
Additional Information	<u>Packing Group</u> II	<u>Limited Quantity Index</u> 1 L

TDG

Other	Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.
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TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 14 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 – Regulatory Information

NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 – Other Information

Preparation Date August 14, 2015

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution[®] initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

- 1) CHEMINFO
- 2) eChemPortal
- 3) TOXNET
- 4) Transportation of Dangerous Goods Canada
- 5) HSDB
- 6) ECHA
- 7) PAN

ClearTech Industries Inc. - Locations

Corporate Head Office: 1500 Quebec Avenue, Saskatoon, SK, S7K 1V7

Phone: 1(306) 664 – 2522

Fax: 1(888) 281-8109

www.cleartech.ca

24 Hour Emergency Number - All Locations – 1(306) 664-2522