Safety Data Sheet

Version 7.0
Revision Date: 07/02/2019

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name:	**Toluene-d_8**
Product ID:	Toluene-d8
Product use:	For laboratory research purposes.
Supplier / Manufacturer:	Polymer Source, Inc.
Address:	124 Avro street, Dorval (Montreal), Quebec H9P 2X8, Canada
Telephone: Toll free: Fax: Emergency phone: E-mail:	(+1) 514-421-5517 1-866-422-9842 (+1) 514-421-5518 (+1) 514-887-5517 info@polymersource.com

2. HAZARDS IDENTIFICATION

Emergency overview:

Target organs: Liver, kidney, brain, bladder.

WHMIS classification:

B2. Flammable liquid.

D2A. Very toxic material causing other toxic effects: Teratogen.

D2B. Toxic material causing other toxic effects: Reproductive hazard. Moderate skin irritant. Moderate eye irritant.

GHS classification:

Flammable liquids (Category 2),
Acute toxicity, Inhalation (Category 4),
Skin irritation (Category 2),
Eye irritation (Category 2A),
Reproductive toxicity (Category 2),
Specific target organ toxicity – single exposure (Category 2),
Specific target organ toxicity – single exposure (Category 3),
Aspiration hazard (Category 1),
Acute aquatic toxicity (Category 2).

GHS Label elements, including precautionary statements:

Pictogram:

Signal word: Danger

	Hazard statements:	H225. Highly flammable liquid and vapour.
		H304. May be fatal if swallowed and enters airways.
		H315. Causes skin irritation.
		H319. Causes serious eye irritation.
		H332. Harmful if inhaled.
		H336. May cause drowsiness or dizziness.
		H361. Suspected of damaging fertility or the unborn child.
		H371. May cause damage to organs.
		H401. Toxic to aquatic life.
	Precautionary statements:	P210. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
		P260. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
		P281. Use personal protective equipment as required.
		P301 + P310. *IF SWALLOWED:* Immediately call a Poison Center / Doctor.
		P305 + P351 + P338. *IF IN EYES:* Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P331. Do NOT induce vomiting.
HMIS classification:	Health hazard:	2
	Chronic health hazard:	*
	Flammability:	3
	Physical hazards:	0
Potential health effects:	Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
	Skin:	May be harmful if absorbed through skin. Causes skin irritation.
	Eyes:	Causes eye irritation.
	Ingestion:	May be harmful if swallowed. Aspiration hazard if swallowed: Can enter lungs and cause damage.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Formula:	Deuterated toluene:	C_7D_8
Molecular weight:	100.19 g/mol	
Synonyms:	Deuterated toluol, deuterated methylbenzene.	
Concentration:	≤ 100 %	
CAS registry number:	Toluene-d_8:	2037-26-5
EC number:		218-009-5

4. FIRST AID MEASURES

General advice:	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact:	Wash off with soap and plenty of water. Consult a physician.
In case of eye contact:	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed:	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability:	Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat / sparks / open flame / hot surface. No smoking.
Suitable extinguishing media:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for firefighters:	Wear self contained breathing apparatus for firefighting if necessary.
Hazardous combustion products:	Hazardous decomposition products formed under fire conditions: Carbon oxides.
Explosion data:	Sensitivity to mechanical impact: no data available
	Sensitivity to static discharge: no data available
Further information:	Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up:	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (See section 13).

7. HANDLING AND STORAGE

Precautions for safe handling:	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition. No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store under inert gas. Hygroscopic.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters:

Components	*Value*	*Control parameters*	*Basis*	*Remarks*
Toluene-d_8 (CAS-No.: 2037-26-5)	TWA	20 ppm	Canada. British Columbia OEL.	Adverse reproductive effect.
		50 ppm 188 mg/m^3	Canada. Alberta, Occupational Health and Safety Code (Table 2: OEL).	Substance may be readily absorbed through intact skin.
				Substance may be readily absorbed through intact skin.
	TWAEV	20 ppm	Canada. Ontario OEL.	
		50 ppm 188 mg/m^3	Québec. Regulation respecting occupational health and safety (Schedule 1, Part 1: Permissible exposure values for airborne contaminants).	Skin (percutaneous).
	TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV).	

Personal protective equipment:

- Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
- Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
- Skin and body protection: Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

- Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Specific engineering controls: Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form:	Liquid
	Colour:	no data available
Safety data:	pH:	no data available
	Melting point / Freezing point:	no data available
	Boling point:	b.p.(lit.): 110 °C (230 °F)
	Flash point:	(lit.): 4 °C (39 °F) – closed cup
	Ignition temperature:	(lit.): 535 °C (995 °F)
	Auto-ignition temperature:	(lit.): 535 °C (995 °F)
	Lower explosion limit:	(lit.): ca. 1.2 % (V)
	Upper explosion limit:	(lit.): ca. 7 % (V)
	Vapour pressure:	(lit.): 29.1 hPa (21.8 mmHg) at ca. 20 °C (68 °F)
	Density:	(lit.): 0.943 g/mL at 25 °C (77 °F)
	Water solubility:	no data available
	Partition coefficient: n-octanol/water:	no data available
	Relative vapour density:	no data available
	Odour:	no data available
	Odour threshold:	no data available
	Evaporation rate:	no data available

10. STABILITY AND REACTIVITY

Chemical stability:	Stable under recommended storage conditions.
Radioactivity:	Stable isotope compound. Not radioactive.
Possibility of hazardous reactions:	Vapours may form explosive mixture with air.
Conditions to avoid:	Heat, flames and sparks. Extremes of temperature and direct sunlight.
Materials to avoid:	Strong oxidizing agents.
Hazardous decomposition products:	Hazardous decomposition products formed under fire conditions: Carbon oxides.
	Other decomposition products: no data available.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	Oral LD50:	Rat: 5,580 mg/kg

	Inhalation LC50:	Rat – 4 h: 12,500–28,800 mg/m^3
	Dermal LD50:	Rabbit: 12,196 mg/kg
Skin corrosion/irritation:	Skin:	Rabbit: Skin irritation – 24 h
Serious eye damage/eye irritation:	Eyes:	Rabbit: Severe eye irritation – 24 h
Respiratory or skin sensitization:	no data available	
Germ cell mutagenicity:	no data available	
Carcinogenicity:	IARC: Group 3: Not classifiable as to its carcinogenicity to humans ((2H8)toluene).	
Reproductive toxicity:	Experiments have shown reproductive toxicity effects in male and female laboratory animals.	
Teratogenicity:	Damage to fetus possible. Suspected human reproductive toxicant.	
Specific target organ toxicity:	Single exposure (GHS):	May cause drowsiness or dizziness. May cause damage to organs.
	Repeated exposure (GHS):	no data available
Aspiration hazard:	The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.	
Potential health effects:	Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
	Ingestion:	May be harmful if swallowed. Aspiration hazard if swallowed: Can enter lungs and cause damage.
	Skin:	May be harmful if absorbed through skin. Causes skin irritation.
	Eyes:	Causes eye irritation.
Signs and symptoms of exposure:	Lung irritation, chest pain, pulmonary edema. Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals.	
Synergistic effects:	no data available	
Additional information:	RTECS:	not available

12. ECOLOGICAL INFORMATION

Toxicity:	Toxicity to fish:	LC50: Lepomis macrochirus (Bluegill): 74.00–340.00 mg/l – 96 h
		LC50: Oncorhynchus mykiss (rainbow trout): 7.63 mg/l – 96 h
		NOEC: Pimephales promelas (fathead minnow): 5.44 mg/l -7 d
		LOEC: Pimephales promelas (fathead minnow): 8.04 mg/l – 7 d

	Toxicity to daphnia and other aquatic invertebrates:	
		EC50: Daphnia magna (Water flea): 8.00 mg/l – 24 h
		Immobilization EC50: Daphnia magna (Water flea): 6 mg/l – 48 h
	Toxicity to algae:	EC50: Chlorella vulgaris (Fresh water algae): 245.00 mg/l – 24 h
		EC50: Pseudokirchneriella subcapitata (green algae): 10.00 mg/l – 24 h
Persistence and degradability:	no data available	
Bioaccumulative potential:	Bioaccumulation:	Leuciscus idus (Golden orfe) – 3 d
		Bioconcentration factor (BCF): 94
	no data available	
Mobility in soil:	no data available	
PBT and vPvB assessment:	no data available	
Other adverse effects:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.	

13. DISPOSAL CONSIDERATIONS

Product:	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging:	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US):	UN number: 1294 Class: 3 Packing group: II Proper shipping name: Toluene Reportable Quantity (RQ): 1000 lbs Marine pollutant: No Poison Inhalation Hazard: No
IMDG:	UN number: 1294 Class: 3 Packing group: II EMS-No: F-E, S-D Proper shipping name: Toluene Marine pollutant: No

IATA:	UN number: 1294 Class: 3 Packing group: II Proper shipping name: Toluene

15. REGULATORY INFORMATION

WHMIS classification:	B2.	Flammable liquid.
	D2A.	Very toxic material causing other toxic effects: Teratogen.
	D2B.	Toxic material causing other toxic effects: Reproductive hazard. Moderate skin irritant. Moderate eye irritant.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Date of the latest revision:	7 February 2019
Further information:	The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Polymer Source, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See www.polymersource.ca for additional terms and conditions of sale.