

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Toluene 2,4-diisocyanate
Product Number : 89871
Brand : Fluka
Company : Sigma-Aldrich Canada, Ltd
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CANADA
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 2,4-Diisocyanatotoluene
4-Methyl-m-phenylene diisocyanate
Tolylene 2,4-diisocyanate
Formula : $C_9H_6N_2O_2$
Molecular Weight : 174.16 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Toluene-2,6-di-isocyanate			
584-84-9	209-544-5	615-006-00-4	-

3. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Lungs, Nerves.

Other hazards which do not result in classification

Lachrymator.

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and	Highly toxic by inhalation
D2B	Serious Toxic Effects	Moderate skin irritant
		Moderate respiratory irritant
		Moderate eye irritant

HMIS Classification

Health Hazard: 4
Chronic Health Hazard: *
Flammability: 1

Physical hazards: 0

Potential Health Effects

Inhalation	May be fatal if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation. May be fatal if absorbed through skin.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

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

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point 132 °C (270 °F) - closed cup

Ignition temperature > 620 °C (> 1,148 °F)

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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 for cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

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. Moisture sensitive. Product is sensitive to light and moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Toluene-2,6-di-isocyanate	584-84-9	TWA	0.005 ppm 0.036 mg/m ³	2004-04-30	Canada. Occupational Health and Safety Code 218
		STEL	0.02 ppm 0.14 mg/m ³	2004-04-30	Canada. Occupational Health and Safety Code 218
Remarks	ceiling (c) occupational exposure limit				
		TWA	0.005 ppm	2004-08-01	Canada. Worker's Compensation Act, Occupational Health and Safety Regulations (BC Reg 296/97 as amended), 7.2 [B.C. Reg. 382/2004, s.1]
	IARC notation 2B, indicates substance designated as carcinogen under section 5.57(1) of the OHS Regulation. The term "skin" identifies substances that contribute significantly to the overall exposure by the skin route.				
		STEL	0.01 ppm	2004-08-01	Canada. Worker's Compensation Act, Occupational Health and Safety Regulations (BC Reg 296/97 as amended), 7.2 [B.C. Reg. 382/2004, s.1]
	IARC notation 2B, indicates substance designated as carcinogen under section 5.57(1) of the OHS Regulation. The term "skin" identifies substances that contribute significantly to the overall exposure by the skin route. indicates a ceiling limit				

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.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Form clear, liquid
Colour colourless

Safety data

pH no data available
Melting point 19.5 - 21.5 °C (67.1 - 70.7 °F)
Boiling point 124 - 126 °C (255 - 259 °F) at 24 hPa (18 mmHg)
251 °C (484 °F)
Flash point 132 °C (270 °F) - closed cup
Ignition temperature > 620 °C (> 1,148 °F)
Lower explosion limit 0.9 %(V)
Upper explosion limit 9.5 %(V)
Vapour pressure 0.04 hPa (0.03 mmHg) at 25 °C (77 °F)
Density 1.22 g/mL at 20 °C (68 °F)
Water solubility no data available
Relative vapour density 6.01
- (Air = 1.0)

10. STABILITY AND REACTIVITY**Storage stability**

Stable under recommended storage conditions.

Conditions to avoid

Heat.

Materials to avoid

Alcohols, Strong bases, Amines, acids, Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO_x)

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

LD50 Oral - rat - 5,800 mg/kg
Remarks: Gastrointestinal:Other changes.

LD50 Dermal - rabbit - > 19,360 mg/kg

Irritation and corrosion

Skin - rabbit - Skin irritation - 24 h

Eyes - rabbit - Severe eye irritation

Sensitisation

no data available

Chronic exposure

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Genotoxicity in vitro - mouse - lymphocyte

Genotoxicity in vitro - Hamster - ovary

Sister chromatid exchange

Signs and Symptoms of Exposure

Cough, Shortness of breath, Headache, Nausea, Vomiting

Potential Health Effects

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Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.
Target Organs	Lungs, Nerves.,

Additional Information

RTECS: CZ6300000

12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

no data available

Ecotoxicity effects

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 108.8 - 240.4 mg/l - 96 h

Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 2078 Class: 6.1 Packing group: II

Proper shipping name: Toluene diisocyanate

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN-Number: 2078 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOLUENE DIISOCYANATE
Marine pollutant: No

IATA

UN-Number: 2078 Class: 6.1 Packing group: II
Proper shipping name: Toluene diisocyanate

15. REGULATORY INFORMATION

DSL Status

All components of this product are on the Canadian DSL list.

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and	Highly toxic by inhalation
D2B	Serious Toxic Effects	Moderate skin irritant
		Moderate respiratory irritant
		Moderate eye irritant

16. OTHER INFORMATION

Further information

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