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# Material Safety Data Sheet

## Tolylene-2,4-diisocyanate MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Tolylene-2,4-diisocyanate

**Catalog Codes:** SLT1264

**CAS#:** 584-84-9

**RTECS:** CZ6300000

**TSCA:** TSCA 8(b) inventory: Tolylene-2,4-diisocyanate

**CI#:** Not available.

**Synonym:** Toluene-2,4-diisocyanate

**Chemical Formula:** C<sub>9</sub>H<sub>6</sub>N<sub>2</sub>O<sub>2</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Tolylene-2,4-diisocyanate	584-84-9	100

**Toxicological Data on Ingredients:** Tolylene-2,4-diisocyanate: ORAL (LD50): Acute: 5800 mg/kg [Rat]. VAPOR (LC50): Acute: 14 ppm 4 hour(s) [Rat]. 10 ppm 4 hour(s) [Mouse].

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Extremely hazardous in case of ingestion. Very hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Hazardous in case of skin contact (permeator). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Classified 2 (Reasonably anticipated.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## Section 4: First Aid Measures

**Eye Contact:** Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 620°C (1148°F)

**Flash Points:** CLOSED CUP: 127°C (260.6°F). OPEN CUP: 135°C (275°F).

**Flammable Limits:** LOWER: 0.9% UPPER: 9.5%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...).

**Fire Hazards in Presence of Various Substances:** Slightly flammable to flammable in presence of oxidizing materials.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive to explosive in presence of oxidizing materials.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

If the product is in its solid form: Use a shovel to put the material into a convenient waste disposal container. If the product is in its liquid form: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

### Precautions:

Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as moisture.

### Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

### Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 0.02 (ppm) TWA: 0.14 (mg/m<sup>3</sup>) Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 174.16 g/mole

**Color:** Colorless to light yellow.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 251°C (483.8°F)

**Melting Point:** 19.4°C (66.9°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.2244 (Water = 1)

**Vapor Pressure:** 0.01 mm of Hg (@ 20°C)

**Vapor Density:** 6 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 0.449 ppm

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Insoluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Highly reactive with moisture.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Yes.

### Section 11: Toxicological Information

**Routes of Entry:** Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5800 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 10 ppm 4 hour(s) [Mouse].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified 2 (Reasonably anticipated.) by NTP. The substance is toxic to lungs, the nervous system, liver, mucous membranes.

**Other Toxic Effects on Humans:**

Extremely hazardous in case of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. Hazardous in case of skin contact (permeator). Slightly hazardous in case of skin contact (corrosive).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification :** Toluene diisocyanate : UN2078 PG: II

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene-2,4-diisocyanate  
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Toluene-2,4-diisocyanate  
Pennsylvania RTK: Toluene-2,4-diisocyanate  
Massachusetts RTK: Toluene-2,4-diisocyanate  
TSCA 8(b) inventory: Toluene-2,4-diisocyanate  
SARA 302/304/311/312 extremely hazardous substances: Toluene-2,4-diisocyanate  
SARA 313 toxic chemical notification and release reporting: Toluene-2,4-diisocyanate  
CERCLA: Hazardous substances.: Toluene-2,4-diisocyanate

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

#### DSCL (EEC):

R26- Very toxic by inhalation. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

#### HMIS (U.S.A.):

**Health Hazard:** 3

**Fire Hazard:** 1

**Reactivity:** 2

**Personal Protection:** h

#### National Fire Protection Association (U.S.A.):

**Health:** 3

**Flammability:** 1

**Reactivity:** 2

**Specific hazard:**

#### Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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