

1 Identification

Product identifier

Product name: **TDI - T100**

Chemical name : Toluene-2,4-di-isocyanate

CAS Number:

584-84-9

EINECS Number: 209-544-5

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses :

Chemical intermediate

Uses advised against:

Consumer use:

Application of the substance / the mixture

For further information, refer to the product technical data sheet.

Details of the Company of the safety data sheet

Company:

Everchem, LLC.

1400 N. Providence

Suite 302

Media, PA 19063

Tel.: 484-234-5030

Fax: 484-234-5037

www.everchem.com

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Emergency telephone number:

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT:
CHEMTREC 800-424-9300 within the United States or 703-527-3887 for international collect calls.

Chemtrec Customer Number: 8079

2 Hazard(s) identification

Classification of the substance or mixture

Acute Tox. 1 H330 Fatal if inhaled.

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 2 H351 Suspected of causing cancer.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

Label elements

GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

Hazard pictograms



GHS06 GHS08

Signal word Danger

Hazard-determining components of labeling:

toluene-2,4-diisocyanate

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- **Hazard statements**

H330 Fatal if inhaled.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H317 May cause an allergic skin reaction.
 H351 Suspected of causing cancer.
 H335 May cause respiratory irritation.
 H412 Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

P284 Wear respiratory protection.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P273 Avoid release to the environment.
 P308+P313 IF exposed or concerned: Get medical advice/attention.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Hazard description:**

Extreme inhalation hazard-allergic/sensitization. Moderate skin irritant - allergic sensitizer. Severe eye irritant. Irritating to gastrointestinal tract. Water reactive. Possible cancer hazard (contains a material which may cause cancer based on animal data).

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 1
 Reactivity = 2

- **HMIS-ratings (scale 0 - 4)**

HEALTH	3
FIRE	1
REACTIVITY	2

Health = 3
 Fire = 1
 Reactivity = 2

- **Other hazards**

Combustible liquid.
 On contact with water or humidity:
 carbon dioxide is released.
 Hazardous reactions occur on contact with many common products. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").

- **Results of PBT and vPvB assessment**

- **PBT:** No.
- **vPvB:** No.

3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

584-84-9 toluene-2,4-diisocyanate

- **Chemical components:**

CAS: 584-84-9	toluene-2,4-diisocyanate	> 99.5%%
EINECS: 209-544-5		

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Use appropriate protective equipment when treating a contaminated person.
Immediately remove any clothing soiled by the product.
Place contaminated clothing in a sealed bag for disposal.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation:**

Rinse mouth with water.
Quickly move the person away from the contaminated area.
Make the affected person rest.
Always obtain medical advice immediately.
Show this sheet to the doctor.

- **After skin contact:**

Wash with soap and water.
Wash immediately and thoroughly for a prolonged period (at least 15 minutes).
In case of inflammation (redness, irritation, ...) obtain medical attention.
Show this sheet to the doctor.

- **After eye contact:**

Immediately rinse with plenty of running water for a prolonged period, (at least 15 minutes) while keeping the eyes wide open.
If irritation persists, consult a doctor.
Show this sheet to the doctor.

- **After swallowing:**

NEVER attempt to induce vomiting. Rinse mouth out with water.
Do not give anything to drink.

- **Most important symptoms and effects, both acute and delayed**

No further relevant information available.

- **Danger**

Skin contact may aggravate existing skin disease. Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.

- **Indication of any immediate medical attention and special treatment needed**

All treatments should be based on observed signs and symptoms of distress in the patient.
Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
Treat symptomatically. No specific antidote available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

Multi-purpose powders
Carbon dioxide
Alcohol resistant foam

- **For safety reasons unsuitable extinguishing agents:** Water

- **Special hazards arising from the substance or mixture**

Combustible liquid.
During combustion toxic vapors are released.

- **Advice for firefighters**

- **Protective equipment:**

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

- **Additional information**

Stay upwind.
Evacuate the personnel away from the fumes.

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In case of fire close by:
Cool down the containers/equipment exposed to heat with a water spray. Ensure that there is NO direct contact between the water and the product.
Do not breathe fumes.
Do NOT attempt to fight the fire without suitable protective equipment.
If there is a fire close by and if packaging has not been damaged:
Use suitable extinguishers.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Avoid contact with the eyes and skin.
Do not breathe vapours.
Do NOT approach from DOWNWIND.
Do NOT attempt to take action WITHOUT suitable protective equipment.
Self-contained breathing apparatus.
Full impermeable protective clothing and equipment.
Mark out the contaminated area with signs and prevent access to unauthorized personnel.
Keep people at a distance and stay upwind.

- **Environmental precautions:**

Contain the spilled material by binding.
Do not allow to enter sewers/ surface or ground water. **Methods and material for containment and cleaning up:**
Do NOT spray water into packaging which has been damaged or overturned.
Pump up the product into a spare container suitably labelled.
Recover the cleaning water for subsequent disposal.

Large spill:

Wash contaminated area with large amounts of water.
Absorb non-recoverable liquid with inert absorbent material.

Small spill:

Cover with:

- slaked lime (calcium hydroxide).

Dispose contaminated material as waste according to item 13.

- **Reference to other sections**

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**

Ensure good ventilation/aspiration at the workplace.
Closed system.
Avoid contact with water or humidity.
Avoid the formation or spread of mists in the atmosphere.
Avoid any direct contact with the product.
NEVER pour water onto this product.
Comply with instructions for use (refer to technical sheet).

- **Conditions for safe storage, including any incompatibilities**

- **Storage:**

The floor of the depot should be impermeable and designed to form a water-tight basin.
Store in cool, dry conditions in well sealed receptacles.
Store receptacle in a well ventilated area.
Store away from incompatible materials.

- **Requirements to be met by storerooms and receptacles:**

Store only in the original receptacle.
Watertight packaging.

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- Stainless steel container under dry inert gas.
- Packaging materials recommended :
Stainless steel.
- Unsuitable material for receptacle:
Materials other than those recommended.
- Do not store in galvanized or other corrodible containers.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The recommended limits SHOULD NOT be exceeded.

584-84-9 toluene-2,4-diisocyanate

- US (ACGIH) STEL 0.02 ppm (0.15 mg/m³)
- US (ACGIH) TWA 0.005 ppm (0.04 mg/m³)
- US (OSHA) CEILING 0.02 ppm (0.14 mg/m³)

- **TLV (Threshold Limit Value established by ACGIH)**

584-84-9	toluene-2,4-diisocyanate	0.005 ppm
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- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is listed.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Extraction to remove vapours at their source.
Only process in a closed system.
Ensure good ventilation of the work station.
Safety shower.
Eye wash.
Special medical surveillance.
Compulsory atmospheric monitoring.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
- **Breathing equipment:** Wear respiratory device with filter in case of insufficient ventilation.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves** PVC gloves
- **Eye protection:**



Tightly sealed goggles

- **Body protection:**
Protective clothing with elasticated cuffs and closed neck.

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Boots made of PVC.

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9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Liquid
Color:	Colourless to pale yellow.
Odor:	Pungent

- **pH-value:** Not applicable (reacts with water).

- **Change in condition**

Melting point/Melting range:	21 °C (70 °F)
Boiling point/Boiling range:	253 °C (487 °F)

- **Flash point:** 131 °C (268 °F)

- **Ignition temperature:** The product is not flammable.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

Lower:	0.9 Vol %
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Upper:	9.5 Vol %
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- **Vapor pressure at 20 °C (68 °F):** 0.014 - 0.021 hPa (0 - 0 mm Hg)

- **Density at 25 °C (77 °F):** 1.21 g/cm³ (10.097 lbs/gal)

- **Solubility in / Miscibility with**

Water:	Reacts.
Ketones:	Soluble.
aromatic hydrocarbons:	Soluble.
chlorinated hydrocarbons:	Soluble.
esters :	Soluble.

- **Segregation coefficient (n-octanol/water):** 3.43 log POW
Not applicable (reacts with water and/or octanol).

- **Viscosity:**

Dynamic at 25 °C (77 °F):	3 mPas
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- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity**

- **Chemical stability**

- **Thermal decomposition / conditions to be avoided:**

Stable at ambient temperature.

On contact with humidity, carbon dioxide (CO₂) is released, which may cause a pressure build-up if the container is hermetically sealed.

Excessive heat and light. Heat, sparks, open flame, other ignition sources, oxidizing conditions, moisture, and high humidity.

- **Possibility of hazardous reactions**

Reacts with:

- acids.
- alcohols.
- amines.

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- bases.
 - water and aqueous solutions.
 - protic solvents.
- with a great release of CO₂, and hence a risk of a pressure build-up in confined areas, and forms an insoluble solid precipitate.
- **Conditions to avoid** No further relevant information available.
 - **Incompatible materials:**
 - copper and its alloys.
 - zinc.
 - Tin
 - Polymerization initiators
 - Strong oxidizing agents.
 - **Hazardous decomposition products:**
 - On combustion or on thermal decomposition (pyrolysis) releases:
 - Toxic gases.
 - Carbon monoxide (CO)
 - Carbon dioxide (CO₂)
 - **Additional information:** Reacts with water, releasing CO₂, forming urea polymers.

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values:**

Fatal if inhaled.

Not harmful by skin contact.

Not harmful if swallowed.

584-84-9 toluene-2,4-diisocyanate		
Oral	LD50	4130 - 5110 mg/kg (rat) (OECD 401 (female, male))
Dermal	LD50	> 9400 mg/kg (rabbit) (OECD 402)
Inhalative	LC50/1h	0.48 mg/l (rat) (OECD 403)

- **Primary irritant effect:**

- **on the skin:**

Severely irritating to the skin.

(rabbit)

Unpublished reports.

- **on the eye:**

Severely irritating to the eyes.

(Draize test)

(rabbit)

Unpublished reports.

- **Additional toxicological information:**

- **Carcinogenic categories**

· OSHA-Ca (Occupational Safety & Health Administration)
Substance is not listed.

- **Sensitization**

(OECD 429) (Mouse)

May cause sensitisation by inhalation and skin contact.

- **Carcinogenicity:**

Suspected carcinogenic effects, insufficient evidence (mouse, rat) (oral).

(OECD 453) (Mouse, rat)

Unpublished reports.

(Internal evaluation)

- **Mutagenicity:**

Is not considered genotoxic.

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Unpublished reports.

- **Reproductive toxicity:**

Is not considered hazardous to the reproduction.

Unpublished reports.

584-84-9 toluene-2,4-diisocyanate

Inhalative	NOAEC Dvlp/Mat Tox	0.1 ppm (rat) (OECD 414)
	NOAEC Fert	0.3 ppm (rat) (OECD 416)

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

Harmful to aquatic organisms tested.

Unpublished reports.

584-84-9 toluene-2,4-diisocyanate

EC50/48h (static)	18.3 mg/l (Mysidopsis bahia) (OECD 202)
	12.5 mg/l (Daphnia magna) (OECD 202)
EbC50 (96h) (static)	4300 mg/l (Chlorella vulgaris) (OECD 201)
	3230 mg/l (Skeletonema costatum) (OECD 201)
LC50/96h (static)	133 mg/l (Oncorhynchus mykiss) (OECD 203)
NOEC/21d (static)	1.1 mg/l (Daphnia magna) (OECD 211)

- **Persistence and degradability**

The product is not readily biodegradable.

584-84-9 toluene-2,4-diisocyanate

BOD28	0 % (bacteria) (OECD 302 C)
DT50	52 h (Photolysis) (Expert judgment)
	1.6 h (Hydrolysis) (Expert judgment)

- **Other information:** Formation of insoluble polyurea.

- **Behavior in environmental systems:**

- **Components:** No information available.

- **Bioaccumulative potential**

Log Pow, see section 9.

BCF : No information available.

Not potentially bioaccumulable.

- **Mobility in soil** No information available.

- **Other information:** Formation of insoluble polyurea.

- **Ecotoxicological effects:**

Unpublished reports.

584-84-9 toluene-2,4-diisocyanate

EC50/14d	> 1000 mg/kg (Avena sativa) (OECD 208)
	> 1000 mg/kg (Lactuca sativa) (OECD 208)
LC50/14d	> 1000 mg/kg (Eisenia fetida) (OECD 207)
NOEC/ 14d	> 1000 mg/kg (Avena sativa) (OECD 208)
	> 1000 mg/kg (Eisenia fetida) (OECD 207)
	> 1000 mg/kg (Lactuca sativa) (OECD 208)

- **Behavior in sewage processing plants:**

Unpublished reports.

584-84-9 toluene-2,4-diisocyanate

EC50/3h	> 100 mg/l (activated sludge) (OECD 209)
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- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

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- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Disposal must be made according to federal, state and local regulations.
Discharging waste into rivers and drains is forbidden.
Neutralize with a mixture of water, sodium carbonate (5 - 10%) and liquid soap (2%).
Incinerate at a licensed installation.
- **Uncleaned packagings:**
Contaminated packaging materials must be disposed of in the same manner as the product.
- **Recommendation:**
Allow it to drain thoroughly.
Thoroughly emptied and clean packagings may be recycled.
Disposal must be made according to official regulations.

14 Transport information

· UN Number	UN2078
· DOT, ADR, IMDG, IATA	
· Proper shipping name (Technical Name)	TOLUENE DIISOCYANATE
· DOT, ADR, IMDG, IATA	
· Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	6.1 Toxic substances
· Label	6.1
· Packing group	II
· DOT, ADR, IMDG, IATA	
· Environmental hazards:	
· Marine pollutant (environmentally hazardous mark) :	No
· Special precautions for user	Warning: Toxic substances
· Hazard identification number :	60
· EMS Number:	F-A,S-A
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	The above regulatory prescriptions are those valid on the date of publication of this sheet. However, given the possible evolution of transport regulations for hazardous materials and in the event of the SDS in your possession dating back more than 12 months, it is advisable to check their validity with your sales office.

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- | | |
|-------------------------------|---|
| · Passenger aircraft : | Packing instruction: 654 - Maximum net quantity per package: 5 L |
| · Cargo aircraft : | Packing instruction: 662 - Maximum net quantity per package: 60 L |

15 Regulatory information

- **National legislation**
- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara Section 312**
 - Fire Hazard - NO
 - Reactive Hazard - YES
 - Release of Pressure - NO
 - Acute Health Hazard - YES
 - Chronic Health Hazard - YES

- **Section 355 (extremely hazardous substances):**

Substance is listed.

- **Section 313 (Specific toxic chemical listings):**

CERCLA RQ : 100 lbs

SARA EHS TPQ : 500 lbs

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- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

- **IARC (International Agency for Research on Cancer)**

IARC Overall Evaluation is: 2B (possibly carcinogenic to humans)

584-84-9 | toluene-2,4-diisocyanate

- **NTP (National Toxicology Program)**

584-84-9 | toluene-2,4-diisocyanate

- **Inventory status:**

- **Australian Inventory of Chemical Substances (AICS)**

Substance is listed.

- **Canadian Domestic Substance List (DSL)**

Substance is listed.

- **Canadian Non Domestic Substance List (NDSL)**

Substance is not listed.

- **Chinese Chemical Inventory of Existing Chemical Substances (CIECS)**

Substance is listed.

- **European EINECS/ELINCS Listing**

Substance is listed.

- **Japan Existing and New chemical Substance List (ENCS)**

Substance is listed.

- **Korea Existing Chemical Inventory (KECI)**

Substance is listed.

- **Philippines Inventory of Chemicals and Chemical Substances (PICCS)**

Substance is listed.

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· TSCA listing

Substance is listed.

· Other regulations, limitations and prohibitive regulations
· State of California, Proposition 65:
· Chemicals known to cause cancer:

m-tolylidene diisocyanate

· Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Additional information:

Clean Air Act Section 112, Hazardous Air Pollutants, as amended by 40 CFR 63 (December 19, 2005)

Louisiana Right-to-know reporting list: TQ : 500 lbs

Massachusetts Right-to-Know Substance List

New Jersey Right to Know Hazardous Substance List 2010

Pennsylvania Right-to-Know Hazardous Substances

Rhode Island Hazardous Substances Right-to-Know Act

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Contact: Everchem, LLC

· Date of preparation / last revision 01/19/2015 / 2

· * Data compared to the previous version altered.

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