



# SILVER FERN CHEMICAL

## Material Safety Data Sheet

### TOLUENE DIISOCYANATE (TDI)

#### SECTION 1: IDENTIFICATION

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**Product Name:** Toluene Diisocyanate (TDI; T80)

**CAS Number:** 26471-62-5 (mixture)

**Chemical Name:** Toluene Diisocyanate

**Synonyms:** Toluene diisocyanate; TDI; T 80; TDI 80

**Description:** Toluene-diisocyanate (CAS# 26471-62-5, EINECS# 247-722-4) is a mixture of the isomers toluene, 2,4-diisocyanate (CAS# 584-84-9, EINECS# 209-544-5) and toluene, 2,6-diisocyanate (CAS# 91-08-7, EINECS# 202-039-0).

**Company**

Silver Fern Chemical, Inc.  
2226 Queen Anne Avenue North  
Suite #C  
Seattle WA 98109, USA

**Business Contact**

Customer Service: 206-282-3376  
[info@silverfernchemical.com](mailto:info@silverfernchemical.com)

**24 Hour Emergency Contact**

Infotrac 800-535-5053  
Outside USA & Canada 352-323-3500

#### SECTION 2: HAZARD IDENTIFICATION

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**Emergency Overview**

This material is HAZARDOUS by OSHA Hazard Communication definition.

**Hazards:** 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).

**HMIS:**

**Health:** 3

**Flammability:** 1

**Physical Hazard:** 1



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#### NFPA:

**Health:** 3

**Flammability:** 1

**Physical Hazard:** 1

**Physical State:** Liquid.

**Color:** Clear, colorless to slightly yellow.

**Odor:** pungent odor

**Odor Threshold:** 0.4 - 2.14 ppm / Odor is not an adequate warning of potentially hazardous ambient air concentrations.

#### **Potential Health Effects**

##### **Routes of Exposure**

Eye. Inhalation. Skin.

##### **Signs and Symptoms of Acute Exposure**

See component summary.

##### • *Toluene-2,4-Diisocyanate 584-84-9*

Extremely toxic by inhalation - allergic sensitizer. Inhalation may cause asthma-like symptoms, including coughing, wheezing, tightness of chest, shortness of breath, and headache. Severe eye irritant. Moderate skin irritant - allergic sensitizer. Irritating to gastrointestinal tract.

##### • *Toluene-2,6-Diisocyanate 91-08-7*

Extremely toxic by inhalation - allergic sensitizer. Inhalation may cause asthma-like symptoms, including coughing, wheezing, tightness of chest, shortness of breath, and headache. Moderate skin irritant - allergic sensitizer. Severe eye irritant. Irritating to gastrointestinal tract.

**Skin:** Minimal hazard by skin contact; however contact with skin causes skin irritation and may cause skin and respiratory sensitization.

**Inhalation:** Exposure to vapor may cause irritation of the eyes, nose, and respiratory tract. Inhalation may cause asthma-like symptoms, including coughing, wheezing, tightness of chest, shortness of breath, and headache. May cause lung damage. Symptoms may be delayed.



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**Eye:** May cause severe eye irritation. Severe irritation may result in corneal opacity, redness, inflammation of the iris and swelling of the conjunctiva.

**Ingestion:** Ingestion may result in irritation of the mouth and digestive tract. Gastroenteritis may result with any or all of the following symptoms: nausea, vomiting, diarrhea, headache. May cause damage to the stomach. Aspiration may cause lung damage.

#### Chronic Health Effects

Prolonged or repeated exposure to vapors may cause lung damage. Repeated over exposure to isocyanates and high one time accidental exposures have been associated with gradual decrease in lung function. Repeated inhalation also may cause allergic sensitization of the respiratory tract, resulting in coughing, wheezing, shortness of breath, chest tightness, and other asthma-like symptoms that may be life-threatening. Repeated skin contact may cause irritation and allergic dermatitis. Industrial experience in humans has not shown any link between TDI exposure and cancer development.

• *Toluene-2,4-Diisocyanate 584-84-9*

Toluene Diisocyanate (TDI) is a potent skin and respiratory allergic sensitizer. Sensitive individuals may exhibit skin rash, wheezing, tightness of the chest, and difficulty breathing that may progress to a life-threatening inability to breathe. Chronic inhalation may cause lung damage. Listed by IARC as a group 2B - Possible Human Carcinogen. NTP Anticipated Carcinogen

• *Toluene-2,6-Diisocyanate 91-08-7*

Sensitive individuals may exhibit skin rash, wheezing, tightness of the chest, and difficulty breathing that may progress to a life-threatening inability to breathe. Chronic inhalation may cause lung damage. Listed by IARC as a group 2B - Possible Human Carcinogen. NTP Anticipated Carcinogen

#### Conditions Aggravated by Exposure

This material is an irritant: may aggravate existing dermatitis. Breathing of vapor and/or mist may aggravate asthma and inflammatory or fibrotic lung disease. Exposure may aggravate one or more of the following medical conditions: Asthma or asthmatic bronchitic medical history. History or presence of allergic disease.

### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

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<u>Component Name</u>	<u>CAS #</u>	<u>EU Inventory</u>	<u>% by Weight</u>
Toluene-2,4-Diisocyanate	584-84-9	209-544-5	80.0
Toluene-2,6-Diisocyanate	91-08-7	202-039-0	20.0

(Composition values given are typical values, not specifications.)

### SECTION 4: FIRST AID MEASURES

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#### General

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 2 of this MSDS. Prompt action is essential. Assess rapidly and aggressively. Resuscitation may be indicated.

**Skin:** Immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Obtain emergency medical attention.

**Inhalation:** If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention.

**Eye:** Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.

**Ingestion:** Do not induce vomiting because of possible severe irritant side effects. Obtain emergency medical attention.

#### Note to Physician:

Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

## SECTION 5: FIRE FIGHTING MEASURES

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### Flammable Properties

#### Classification

OSHA/NFPA Class IIIIB combustible liquid.

**Flash Point:** ~ 132 °C (269.6 °F) (COC)

**Auto-Ignition Temperature:** > 620 °C (1,148 °F)

**Lower Flammable Limit:** 0.9 vol%

**Upper Flammable Limit:** 9.5 vol%

### Extinguishing Media

#### Suitable:

SMALL FIRE: Use dry chemicals, CO<sub>2</sub>, water spray or alcohol-resistant foam.

LARGE FIRE: Use water spray, water fog or alcohol-resistant foam. Water to be used only in large quantities due to reactivity.



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**Unsuitable:** Most foams will react with the material and release corrosive/toxic gases.

#### **Protection of Firefighters**

##### **Protective Equipment/Clothing:**

Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing is recommended for fire situations ONLY; it is not effective in spill situations.

##### **Fire Fighting Guidance:**

On exposure to high temperature, may decompose, releasing toxic/flammable vapors. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Under fire conditions, highly hazardous fumes will be present. Use water with care on closed containers - material will react with water/generate pressure/may explode/spread fire/increase risk of burns/injuries/contact with hazardous material. Liquid heavier than water. Blanket with alcohol-resistant foam. Note: Most foams will react with the material and release corrosive/toxic gases. Byproduct of water reaction may be harmful - minimize exposure to water contacting this material. When fighting a fire, notify environmental authorities if liquid runoff enters sewers or public waters.

##### **Hazardous Combustion Products:**

During instances of thermal decomposition or combustion, the liberation of diisocyanate vapors and other irritating, highly toxic gases may be generated and/or released. Traces of hydrogen cyanide.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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#### **Release Response**

Highly reactive material. May release toxic materials/contaminate water supplies/create human health hazard. Liquids/vapors may ignite. Equip responders with proper protection. Use self-contained breathing apparatus and bodycovering protective clothing. Evacuate/limit access. Extinguish ignition sources; stop release; prevent flow to sewers or public waters. Blanket with alcohol-resistant foam. Impound/recover large land spill; soak up small spill with inert solids. Avoid water for clean-up or use in large quantities due to reactivity. Use suitable disposal containers. Reacts with water, releasing CO<sub>2</sub>, forming urea polymers. Contain/collect rapidly to minimize dispersion. Disperse residue to reduce aquatic harm. Report per regulatory requirements. Notify fire and environmental authorities.

## **SECTION 7: HANDLING AND STORAGE**

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#### **Handling**

Use special care when handling/transporting samples. Store at 20-24 °C. Material sampling procedures should avoid vapor inhalation and skin/eye contact and only be conducted with proper protective equipment. All containers should be labeled to warn against exposure. Handle empty containers with care - residue may be combustible. When cleaning or repairing equipment contaminated with this material, total encapsulating impervious protective suits, gloves, and boots should be worn to prevent any contact. A positive pressure self-contained breathing apparatus and/or a supplied air respirator should be used. Decontaminate empty, non-returnable isocyanate drums by filling with water. Allow to stand



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48 hours with bung removed. After 48 hours, drain and pierce drums. Wash with sodium carbonate solution (5-10%).

#### Storage

All containers should be labeled to warn against exposure. Store in tightly closed/properly vented containers with vents directed to locations removed from potential personnel exposure. Store in well ventilated area away from water, moisture, humidity, and direct sunlight. Store at 20-24 °C. Do not store in galvanized or other corrodible containers. Storage and handling in stainless steel is preferred. Storage in polyethylene containers is hazardous because of absorption of water through the plastic.

## SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

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#### Engineering Controls

Local exhaust and general ventilation must be adequate to meet exposure limit(s).

#### Personal Protection

##### Inhalation

Extreme inhalation hazard. A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use an approved respirator, either air-supplied or air purifying (consult your company safety professional, or Lyondell Industrial Hygiene group for guidance). The type of respiratory protection will depend upon whether the maximum exposure concentration is known.

##### Skin

Wear chemical resistant gloves such as: Nitrile-knit(TM). Nitrile. Butyl rubber. 4H(tm)(PE/EVAL). or Neoprene. Exposed skin which may come in contact with this material should be protected using appropriate impervious skin protection. Protective clothing including gloves, apron, sleeves, boots, and full head/face protection should be worn. The equipment must be cleaned thoroughly after each use.

##### Eye

Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor.

#### Additional Remarks

The "Immediately Dangerous to Life and Health" (IDLH) concentration for toluene diisocyanate is (2.5ppm) Ca. Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Wash clothing frequently.



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#### Occupational Exposure Limits:

<u>Component Name</u>	<u>Source</u>	<u>Type</u>	<u>Value</u>	<u>Notation</u>
Toluene-2,4-Diisocyanate	US (ACGIH)	STEL	0.02 ppm	None.
	US (ACGIH)	TWA	0.005 ppm	None.
	US (OSHA)	CEILING	0.02 ppm 0.14 mg/m <sup>3</sup>	None.
Toluene-2,6-Diisocyanate	US (ACGIH)	STEL	0.02 ppm	None.
	US (ACGIH)	TWA	0.005 ppm	None.

#### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance:** Liquid. Clear, colorless to slightly yellow.

**Odor:** pungent odor

**Odor Threshold:** 0.4 - 2.14 ppm Odor is not an adequate warning of potentially hazardous ambient air concentrations.

**pH:** Not applicable.

**Boiling Point/Boiling Range:** 250 °C (482 °F) @ 750 mm Hg

**Freezing Point/Melting Point:** ~ 13.5 - 14.5 °C (56.3 - 58.1 °F)

**Flash Point:** ~ 132 °C (269.6 °F) (COC)

**Auto-ignition:** > 620 °C (1,148 °F)

**Flammability:** OSHA/NFPA Class IIIB combustible liquid.

**Lower Flammable Limit:** 0.9 vol%

**Upper Flammable Limit:** 9.5 vol%

**Explosive Properties:** No Data Available.

**Oxidizing Properties:** No Data Available.

**Vapor Pressure:** ~ 0.003 kPa @ 25 °C (77 °F)



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### TOLUENE DIISOCYANATE (TDI)

**Evaporation Rate:** No Data Available.

**Relative Density:** 1.2 @ 20 °C (68 °F)

**Relative Vapor Density:** 6 (Air = 1.0)

**Viscosity:** 3.0 mPa.s @ 25 °C (77 °F)

**Solubility (Water):** Reacts.

**Partition Coefficient (Kow):** Log Kow = 3.4 - 3.6

**Additional Physical and Chemical Properties:** Additional properties may be listed in Sections 2 and 5.

## SECTION 10: STABILITY AND REACTIVITY

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### Chemical Stability

This material is stable when properly handled and stored.

### Conditions to Avoid

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

### Substances to Avoid

Polymerization initiators. Amines. Alcohols. Water. Bases. Acids. Copper. Copper alloys. Zinc. Tin. Strong oxidizing agents.

### Decomposition Products

During instances of thermal decomposition or combustion, the liberation of diisocyanate vapors and other irritating, highly toxic gases may be generated and/or released. Hydrogen cyanide.

### Hazardous Polymerization

Not expected to occur.

### Reactions with Air and Water

Reacts with water, releasing CO<sub>2</sub>, forming urea polymers.

## SECTION 11: TOXICOLOGICAL INFORMATION

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### TOLUENE DIISOCYANATE (TDI)

#### PRODUCT INFORMATION

##### Product Summary

This information represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the health effects presented in this section apply to both isomers. Acute studies indicate that toluene diisocyanate (TDI) is highly toxic after inhalation exposure; whereas oral ingestions and skin contact present a low acute toxicity hazard. TDI is irritating to the eye, skin, and respiratory tract. It is a skin sensitizer and can cause allergic skin reactions after contact with the skin. Inhalation or skin contact to TDI can cause respiratory sensitization resulting in an allergic asthma-like reaction following inhalation exposure. Symptoms of exposure may be delayed. Results from repeat exposure studies in animals indicate that the irritant properties of TDI cause injury to the respiratory tract after prolonged exposure. No adverse changes were observed in male or female reproductive organs and there was no effect on fertility in rats after inhalation exposure. There were no malformations in fetuses of female rats exposed to TDI throughout pregnancy. Inconsistent results have been obtained from mutagenicity tests in vitro, however no genetic toxicity was observed in rodents treated in vivo. There was no increase in tumors in rats and mice exposed for 2 years via inhalation; whereas long-term ingestion of TDI was carcinogenic to rats and mice.

#### COMPONENT INFORMATION

##### °Toluene-2,4-Diisocyanate 584-84-9

##### Acute Toxicity - Lethal Doses

LC50 (Inhl) Rat ~ 66 PPM 1 HOUR

Rat ~ 45PPM 4 HOUR

LD50 (Oral) Rat 4130 - 5110 MG/KG BWT

LD50 (Skin) Rabbit > 9400 MG/KG BWT

##### Acute Toxicity - Effects

##### Ingestion

Ingestion may result in irritation of the mouth and digestive tract. Gastroenteritis may result with any or all of the following symptoms: nausea, vomiting, diarrhea, headache. May cause damage to the stomach.

##### Skin Contact

Minimal hazard by skin contact; however contact with skin causes skin irritation and may cause skin and respiratory sensitization.

##### Irritation

**Skin:** Moderate skin irritant.



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**Eye:** Severe eye irritant. Severe irritation may result in corneal opacity, redness, inflammation of the iris and swelling of the conjunctiva.

#### **Sensitization**

Respiratory sensitizer. May cause respiratory sensitization following dermal or inhalation exposure. This material may cause sensitization by skin contact.

#### **Target Organ Effects**

Skin. Eye. Lung. Respiratory system. Gastrointestinal tract.

#### **Repeated Dose Toxicity**

TDI administered repeatedly to laboratory animals at doses of 300 mg/kg bwt (oral) caused injury to the stomach, small intestine, lungs, and trachea. Repeated exposure at 0.24 ppm (inhalation) caused injury to the respiratory tract (nasal passages, trachea, larynx, bronchi, and lungs; at 0.08 ppm, local nasal effects (rhinitis) were present. Serious risk to health after prolonged exposure.

#### **Reproductive Effects**

No adverse effect on reproductive performance was observed in male and female rats exposed to TDI by inhalation at concentrations up to 0.30 ppm over two generations.

#### **Developmental Effects**

TDI is not teratogenic in rats exposed by inhalation during pregnancy at concentrations up to 0.50 ppm. Maternal toxicity and minimal fetotoxicity occurred at 0.50 ppm. Post-natal toxicity evident by reduced body weight was observed in offspring of rats repeatedly exposed by inhalation to 0.08 ppm TDI before mating, during pregnancy, and during lactation.

#### **Genetic Toxicity**

Inconsistent evidence of mutagenic activity in test systems in vitro. No increase in micronuclei or unscheduled DNA synthesis in rodents after in vivo exposure.

#### **Carcinogenicity**

No increase in tumors in rats or mice after long-term exposure via inhalation at concentrations up to 0.15 ppm. Long-term ingestion of doses of 60 mg/kg bwt and greater caused increases in tumors in rats and mice. Rats exhibited an increased incidence in subcutaneous fibromas and fibrosarcomas, mammary gland fibroadenomas, pancreatic acinar-cell and isletcell adenomas, and neoplastic liver nodules and mice showed increases in the incidence of hemangiomas and hemangiosarcomas and hepatocellular adenomas. Human studies of occupational exposure to isocyanates have not found a strong association or consistent pattern of cancer. Based upon animal ingestion studies, TDI has been classified by NTP as reasonably anticipated to be a carcinogen, by IARC as a Group 2B - possibly carcinogenic to humans, and as a potential occupational carcinogen by NIOSH.



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### TOLUENE DIISOCYANATE (TDI)

°Toluene-2,6-Diisocyanate 91-08-7

#### Irritation

**Skin:** Moderate skin irritant. Skin sensitizer.

**Eye:** Severe eye irritant. Severe irritation may result in corneal opacity, redness, inflammation of the iris and swelling of the conjunctiva.

## SECTION 12: ECOLOGICAL INFORMATION

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### PRODUCT INFORMATION

#### Ecotoxicity

The ecotoxicological information for the acute and chronic aquatic toxicity effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the aquatic toxicity effects presented in this section apply to both isomers. This material is classified as harmful to invertebrates. May exhibit chronic toxicity in specific invertebrates. This material is not harmful or toxic to fish. See component summary.

#### Environmental Fate and Pathway

The environmental fate and pathway effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the environmental fate and pathway effects presented in this section apply to both isomers. In the atmosphere, TDI degrades by reaction with hydroxyl radicals with a half-life of 2.2 days. Undergoes rapid hydrolysis in water with a half-life under 1 minute to produce polyureas, which are inert, insoluble solids. Not expected to volatilize, leach, or adsorb to solids in moist soil. Not expected to volatilize from dry soil surfaces. Not readily or inherently biodegradable. This material is not expected to bioaccumulate.

### COMPONENT INFORMATION

°Toluene-2,4-Diisocyanate 584-84-9

#### Ecotoxicity

The ecotoxicological information for the acute and chronic aquatic toxicity effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the aquatic toxicity effects presented in this section apply to both isomers. This material is not harmful or toxic to fish. This material is classified as harmful to invertebrates. May exhibit chronic toxicity in specific invertebrates.

Acute toxicity to fish:

LC50 / 96 HOUR rainbow trout. 133 mg/l

LC50 / 96 HOUR Japanese medaka 4,170 mg/l



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### TOLUENE DIISOCYANATE (TDI)

LC50 / 96 HOUR Zebra Fish. > 100 mg/l

LC50 / 24 HOUR Zebra Fish. > 500 mg/l

Acute toxicity to aquatic invertebrates:

EC50 / 48 HOUR daphnia 12.5 mg/l

EC50 / 24 HOUR daphnia 750 mg/l

NOEC / 24 HOUR daphnia > 500 mg/l

EC50 / 48 HOUR common shrimp (mysid) 18.3 mg/l

EC50 / 24 HOUR freshwater snail > 500 mg/l

Summary: This material is classified as harmful to invertebrates.

Toxicity to aquatic plants:

EC50 / 96 HOUR green algae. 4,300 mg/l

EC10 / 96 HOUR green algae. > 2,000 mg/l

EC50 / 96 HOUR algae 3,230 mg/l

Summary: This material is not harmful or toxic to algae or higher aquatic plants.

Toxicity to microorganisms:

EC50 / 3 HOUR Activated sludge > 100 mg/l

Summary: Respiration inhibition.

NOEC / 10 DAY bacteria. > 100 mg/l

Summary: Growth

Chronic toxicity to fish:

Summary: No Data Available.

Chronic toxicity to aquatic invertebrates:

NOEC / 21 DAY daphnia 1.1 mg/l

Summary: (reproduction)

EC50 / 21 DAY daphnia 2.0 mg/l

Summary: (reproduction)

#### Environmental Fate and Pathway

The environmental impact information for the environmental fate and pathway effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the environmental fate and pathway effects presented in this section apply to both isomers. In the atmosphere, TDI degrades by reaction with hydroxyl radicals with a half-life of 2.2 days. Undergoes rapid hydrolysis in water with a half-life under 1 minute to produce polyureas, which are inert, insoluble solids. Not expected to volatilize, leach, or adsorb to solids in moist soil. Not expected to volatilize from dry soil surfaces. Not readily or inherently biodegradable. This material is not expected to bioaccumulate.

#### Persistence and Degradability

**Stability in Water:** Reacts with water to form stable, insoluble polyureas. Not expected to volatilize from surface waters.



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Not likely to adsorb to suspended solids and sediment in water.

**Stability in Soil:** Not expected to volatilize, leach, or adsorb to solids in moist soil. Not expected to volatilize from dry soil surfaces.

**Biodegradation:** It reacts rapidly in water to give products resistant to biodegradation. Not readily or inherently biodegradable.

**Bioaccumulation:** This material is not expected to bioaccumulate.

#### °Toluene-2,6-Diisocyanate 91-08-7

#### **Ecotoxicity**

The ecotoxicological information for the acute and chronic aquatic toxicity effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the aquatic toxicity effects presented in this section apply to both isomers.

#### **Environmental Fate and Pathway**

The environmental impact information for the environmental fate and pathway effects represents two isomeric compounds, 2,4-toluene diisocyanate and 2,6-toluene diisocyanate, as well as mixtures of these two isomers in various proportions. Unless otherwise stated, the environmental fate and pathway effects presented in this section apply to both isomers.

## SECTION 13: DISPOSAL CONSIDERATIONS

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Contaminated product/soil/water may be U.S. Resource Conservation and Recovery Act (RCRA)/U.S. Occupational Safety and Health Administration (OSHA) hazardous waste due to toxicity. Avoid contact with water. Aqueous wastes may not biodegrade. Do not treat biologically; may poison/upset plant biomass. Comply with federal, state, or local regulations for disposal.

## SECTION 14: TRANSPORT INFORMATION

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**Special Requirements:** If you reformulate or further process this material, you should consider re-evaluation of the regulatory status of the components listed in the composition section of this sheet, based on final composition of your product.

**Proper Shipping Name:** Toluene diisocyanate

**RQ:** Toluene diisocyanate

**ID No.:** UN2078



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**Hazard Class:** 6.1

**PG:** II

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

#### SECTION 15: REGULATORY INFORMATION

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##### Regulatory Status:

<u>Country</u>	<u>Inventory</u>
Australia	AICS
Canada	DSL
China	IECS
EU	EINECS
Japan	ENCS
Korea	ECL
Philippines	PICCS
USA	TSCA
NZ	NZIoC

**If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.**

##### SARA 302/304

<u>Component</u>	<u>TPQ</u>	<u>RQ</u>
Toluene-2,4-Diisocyanate	500lbs.	100 lbs.
Toluene-2,6-Diisocyanate	100lbs.	100 lbs.

##### SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Immediate (Acute) Health Hazard.  
Delayed (Chronic) Health Hazard.  
Reactive.

##### SARA 313

This product contains the following chemicals subject to the reporting requirements of SARA Title III, Section 313 and 40



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CFR 372:

Component Reporting Threshold  
Toluene-2,4-Diisocyanate 0.1%  
Toluene-2,6-Diisocyanate 0.1%

#### State Reporting

This product contains no known chemicals regulated by California's Proposition 65.

This product contains the following chemicals regulated by New Jersey's Worker and Community Right to Know Act:

Toluene-2,4-Diisocyanate 584-84-9  
Toluene-2,6-Diisocyanate 91-08-7

This product contains the following chemicals regulated by Massachusetts' Right to Know Law:

Toluene-2,4-Diisocyanate 584-84-9  
Toluene-2,6-Diisocyanate 91-08-7

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act:

Toluene-2,4-Diisocyanate 584-84-9  
Toluene-2,6-Diisocyanate 91-08-7

## SECTION 16: OTHER INFORMATION

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**Date Created:** 5/01/2008

**Date Last Updated:** 5/01/2008

#### DISCLAIMER OF RESPONSIBILITY

The information on this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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