

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	<p>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</p> <p>Irritating to skin, eyes, and the respiratory system.</p> <p>Respiratory sensitizer.</p> <p>Water-reactive. May ignite or generate flammable gas in the presence of moisture.</p> <p>Store under dry inert gas.</p>	

Section I. Chemical Product and Company Identification

Chemical Name	p-Toluenesulfonyl Isocyanate		
Catalog Number	T0998	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	Tosyl Isocyanate		
Chemical Formula	C ₈ H ₇ NO ₃ S		
CAS Number	4083-64-1	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
p-Toluenesulfonyl Isocyanate	4083-64-1	Min. 95.0 (N)	Not available.	Rat LD ₅₀ (inhalation) >640 ppm/1H Rat LD ₅₀ (oral) 2234 mg/kg Rat LD ₅₀ (intraperitoneal) 775 mg/kg

Section III. Hazards Identification

Acute Health Effects	<p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.</p> <p>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available.</p> <p>MUTAGENIC EFFECTS : Not available.</p> <p>TERATOGENIC EFFECTS : Not available.</p> <p>DEVELOPMENTAL TOXICITY: Not available.</p> <p>Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. 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.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	145°C (293°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂), sulfur oxides (SO _x).		
Fire Hazards	Not available.		
Explosion Hazards	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.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.		

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Emergency phone number (800) 424-9300


Section VI. Accidental Release Measures

Spill Cleanup Instructions	Toxic material. Irritating material. Respiratory sensitizer. Water-Reactive. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water.
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Section VII. Handling and Storage

Handling and Storage Information	TOXIC. IRRITANT. RESPIRATORY SENSITIZER. WATER-REACTIVE. STORE UNDER DRY INERT GAS. Keep locked up. Keep under inert atmosphere. Keep container dry. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, alkalis (bases), moisture.
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Section VIII. 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 station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
	
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Soluble in acetone, toluene
Specific Gravity	1.3 (water=1)		
Molecular Weight	197.21	Partition Coefficient	Not available.
Boiling Point	130°C (266°F) @ 6 mmHg	Vapor Pressure	0.1 kPa (@ 100°C)
Melting Point	-2°C (28.4°F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Pungent.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Moisture sensitive. Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, alkalis (bases), moisture. The product REACTS violently with water to emit FLAMMABLE BUT NON TOXIC GASES.

Section XI. Toxicological Information

RTECS Number	DB9032000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (inhalation) >640 ppm/1H Rat LD ₅₀ (oral) 2234 mg/kg Rat LD ₅₀ (intraperitoneal) 775 mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY : Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.


Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Not available.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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Section XIV. Transport Information

DOT Classification	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). On DSL
EINECS Number (EEC)	223-810-8
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R14- Reacts violently with water. R36/37/38- Irritating to eyes, respiratory system and skin. R42- May cause sensitization by inhalation.
Japanese Regulatory Data	ENCS No. 3-2222

Section XVI. Other Information

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Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.