

GELEST, INC.

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MATERIAL SAFETY
DATA SHEET

EMERGENCY TELEPHONE
CHEMTREC: 1-800-424-9300

NAME USED ON LABEL: **TITANIUM TETRACHLORIDE 1M in toluene - INTI065.5**

CHEMICAL NAME: TITANIUM TETRACHLORIDE 1M in toluene

SYNONYMS: TITANIUM IV CHLORIDE, toluene solution

CHEMICAL FAMILY: TITANIUM COMPOUND

FORMULA: Cl₄Ti

HMIS CODES HEALTH: 3 FLAMMABILITY: 3 REACTIVITY: 2

INGREDIENTS

IDENTITY	CAS NO.	%	TLV	OSHA PEL
TOLUENE	108-88-3	79-82	TWA- 100ppm	TWA- 200ppm
TITANIUM TETRACHLORIDE	755045-0	18-21	not established	not established
(OSHA PEL for hydrogen chloride, TWA: 5ppm)				

PHYSICAL DATA

Boiling Point: 136.4°C	Freezing Point: -24°C
Specific Gravity: 0.965	Vapor Pressure, 20°: 1.27 kPa
Vapor Density (air = 1): 1.07	Solubility in water: reacts violently
% volatiles: 100%	Evaporation rate: not determined
Molecular Weight: 189.71	Other: NA

Appearance & Color: Clear to straw liquid with acrid odor of hydrogen chloride, forms dense white fumes on contact with air.

FIRE & EXPLOSION DATA

Flash Point, COC: 8°C(46°F) Autoignition Temp.: 535°C (toluene)
 Flammability Limits-(toluene) LEL: 1.27% UEL: 7%
 Extinguishing Media: Alcohol resistant foam, carbon dioxide, dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.
 Special Fire Fighting Procedures: Use only dry media to extinguish flames. Water spray or fog should only be used to knock down fumes in areas downwind from the fire. Avoid eye and skin contact. Do not breathe fumes or inhale vapors.
 Unusual Fire and Explosion Hazards: Irritating dense white fumes of titanium dioxide and hydrogen chloride develop when material is exposed to water or open flame.

-1-(INTI065.5)

ENVIRONMENTAL INFORMATION

Spill response: May be hazardous to aquatic life if released to open waters. Cover spill with absorbent material. Transfer to a suitable container for disposal.

Recommended Disposal: Hydrolyze material by mixing with water in a hood. Liquid layer contains hydrochloric acid which should be neutralized. Solids may be landfilled. Alternately, absorb onto clay or vermiculite and dispose of absorbent material as solid waste. Follow all chemical pollution control regulations.

HEALTH HAZARD DATA

Eye Contact: Will cause immediate or delayed severe chemical burns, including conjunctivitis and corneal damage.

Skin contact: Will produce irritation or contact dermatitis. Can cause severe chemical burns. Prompt and thorough washing with soap and water will reduce or eliminate potential dermal effects.

Inhalation: Inhalation of vapors will irritate the respiratory tract. Overexposure may produce severe tissue damage. May cause pulmonary edema, respiratory tract inflammation, and pulmonary fibrosis.

Inhalation Toxicity (TiCl₄)- rat, LC50: 0.4mg/L/ 4 hours

Oral Toxicity (TiCl₄)- rat, LD50: 464mg/kg.

Chronic Toxicity: There are no known chronic effects related to this compound.

SUGGESTED FIRST AID

EYES: In case of contact, immediately flush eyes with flowing water for at least 15 minutes. Get medical attention.

SKIN: Wipe off excess chemical gently and without delay. After the bulk of material is removed by wiping, flush with water, then wash with soap and water.

INHALATION: Move exposed individual to fresh air. Call a physician.

INGESTION: Never give fluids or induce vomiting if patient is unconscious or having convulsions. Get medical attention.

REACTIVITY DATA

Stability: Stable in sealed corrosion resistant containers stored under a dry inert atmosphere.

Incompatibility (materials to avoid): Reacts with water and moisture in air, liberating dense white fumes of titanium dioxide and hydrogen chloride. Avoid contact with alcohols, acids, oxidizers.

Hazardous decomposition products: Hydrogen chloride, titanium dioxide.

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SPECIAL PROTECTION INFORMATION

Ventilation: Local exhaust is required. Mechanical is recommended.

Respiratory Protection: If exposure exceeds TLV air-supplied or combination organic vapor/acid gas respirator.

Eye and Face Protection: Chemical worker's goggles. Do not wear contact lenses.

Other Clothing and Equipment: Rubber, neoprene or nitrile gloves, laboratory jacket or apron. An eyewash and emergency shower should be available. Launder clothing before reuse.

OTHER PRECAUTIONS

For research and industrial use only.

Storage and Handling: Store in sealed corrosion resistant containers.

CERCLA Hazardous Substance. SARA Title II, Section 302, 303 regulated.

TRANSPORTATION

DOT SHIPPING NAME: FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.

DOT HAZARD CLASS: 3 SUB: 6.1

DOT LABEL: FL:AMMABLE LIQUID, CORROSIVE, TOXIC

DOT ID No: UN3286 PG: II

Air Transport forbidden.

Prepared by safety and environmental affairs ISSUE DATE INTI065.5: 7/22/08
SUPERSEDES: none

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