

GELEST, INC.

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MATERIAL SAFETY
DATA SHEET

EMERGENCY TELEPHONE
CHEMTREC: 1-800-424-9300

NAME USED ON LABEL: **GERMANIUM TETRACHLORIDE, 99.999% - GEG5601**

CHEMICAL NAME: GERMANIUM TETRACHLORIDE

SYNONYMS: TETRACHLOROGERMANIUM

CHEMICAL FAMILY: GERMANIUM CHLORIDE

FORMULA: GeCl₄

HMIS CODES HEALTH: 4 FLAMMABILITY: 0 REACTIVITY: 1

INGREDIENTS

IDENTITY	CAS NO.	%	TLV
GERMANIUM TETRACHLORIDE	10038-98-9	>99	7ppm equivalent for HCl (HCl = 5ppm)

PHYSICAL DATA

Boiling Point: 83°C

Specific Gravity: 1.87 @ 25°C

Vapor Density (air=1): >1

% volatiles: NA

Molecular Weight: 214.40

Appearance & Color: Clear liquid with acrid odor of hydrogen chloride

Freezing Point: -49° to -52°

Vapor Pressure, 0°: 25mm; 20°: 76mm

Solubility in water: reacts

Evaporation rate: NA

Other: NA

FIRE & EXPLOSION DATA

Flash Point, COC: Not Flammable Autoignition Temp.: NA

Flammability Limits- LEL: NA UEL: NA

Extinguishing Media: NA

Special Fire Fighting Procedures: (Note, since germanium tetrachloride is not flammable, precautions refer to mixtures with flammable materials.) Avoid eye and skin contact. Do not breathe fumes or inhale vapors.

Unusual Fire and Explosion Hazards: Irritating fumes and acid vapors may develop when material is exposed to elevated temperatures or open flame.

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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: Dispose of absorbent material as solid waste. Follow all chemical pollution control regulations.

HEALTH HAZARD DATA

Eye Contact: Will cause immediate or delayed severe damage to eye tissue.

Skin contact: May produce tissue damage or irritation or contact dermatitis which may be delayed several hours. Prompt and thorough washing with soap and water will reduce or eliminate potential dermal effects.

Inhalation: Inhalation of vapors or particulates of organochlorogermanes will irritate the respiratory tract. Overexposure may produce coughing, headache and nausea. Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.

Oral Toxicity: Not determined.

Acute Toxicity: ivn-mus, LD50: 56mg/kg. The lethal concentration LC50, in mouse by inhalation has been reported at 3535ppm/4H. Persistent changes in the respiratory system have been reported from 4mg/m³.

Chronic Toxicity: Lasting changes in the respiratory system function have been reported in animals.

Other: GENETOX PROGRAM 1986, POSITIVE: B Subtilis rec assay; RTECS# LY5225000

SUGGESTED FIRST AID

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

SKIN: Flush with water, then wash with soap and water. *Note to physician:* Chlorogermanes react with water to form hydrochloric acid, consequently treatment for acid burns may be considered.

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

Incompatibility (materials to avoid): Reacts with water and moisture in air liberating hydrogen chloride. Reacts violently with bases.

Hazardous decomposition products: Acid vapors, germanium oxide.

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SPECIAL PROTECTION INFORMATION

Ventilation: Local exhaust is required. Mechanical is recommended.

Respiratory Protection: If exposure exceeds TLV air-supplied or 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 and 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 containers. Avoid contact with water.

TRANSPORTATION

DOT SHIPPING NAME: TOXIC BY INHALATION, LIQUID, CORROSIVE, N.O.S.
(GERMANIUM TETRACHLORIDE)

DOT HAZARD CLASS: 6.1 SUB: 8

DOT LABEL: CORROSIVE LIQUID

DOT ID No: UN3390 PG: I

Shipment by air is forbidden.

Prepared by safety and environmental affairs ISSUE DATE GEG5601: 6/16/08
SUPERSEDES: 5/1/03

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