Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
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</tr>
</tbody>
</table>

Germanium Tetrachloride

- **Common Name/Trade Name**: Germanium Tetrachloride
- **Manufacturer**: SPECTRUM LABORATORY PRODUCTS INC.
  14422 S. SAN PEDRO STREET
  GARDENA, CA 90248
- **Commercial Name(s)**: Not available.
- **Synonym**: Not available.
- **Chemical Name**: Germanium Tetrachloride
- **Chemical Family**: Not available.
- **Chemical Formula**: GeCl₄
- **Supplier**: SPECTRUM LABORATORY PRODUCTS INC.
  14422 S. SAN PEDRO STREET
  GARDENA, CA 90248
- **Catalog Number(s)**: G1079
- **CAS#**: 10038-98-9
- **RTECS**: LY5225000
- **TSCA**: TSCA 8(b) inventory: Germanium Tetrachloride
- **CI#**: Not available.

**IN CASE OF EMERGENCY**
CHEMTREC (24hr) 800-424-9300
CALL (310) 516-8000

Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Germanium Tetrachloride</td>
<td>10038-98-9</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**

- **Germanium Tetrachloride**: VAPOR (LC50): Acute: 44000 mg/m³ 2 hours [Mouse].

Section 3. Hazards Identification

**Potential Acute Health Effects**

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Continued on Next Page
Germanium Tetrachloride

Potential Chronic Health Effects

CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOCNIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, liver.
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4. 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 immediately.

Skin Contact
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion
Not available.

Section 5. Fire and Explosion Data

Flammability of the Product
Non-flammable.

Auto-Ignition Temperature
Not applicable.

Flash Points
Not applicable.

Flammable Limits
Not applicable.

Products of Combustion
Not available.

Fire Hazards in Presence of Various Substances
Not applicable.

Explosion Hazards in Presence of Various Substances
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
Not applicable.

Special Remarks on Fire Hazards
Not available.

Special Remarks on Explosion Hazards
Not available.

Continued on Next Page
## Germanium Tetrachloride

### Section 6. Accidental Release Measures

| Small Spill | Absorb with an inert material and put the spilled material in an appropriate waste disposal. |
| Large Spill | Corrosive liquid. 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 curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. |

### Section 7. Handling and Storage

| Precautions | Keep container dry. Do not ingest. Do not breathe gas/fumes/vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, moisture. |
| Storage | Moisture Sensitive. May react with water. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F). |

### Section 8. 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. |
| Personal Protection in Case of a Large Spill | Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should 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 9. Physical and Chemical Properties

| Physical state and appearance | Liquid. |
| Molecular Weight | 214.4 g/mole |
| pH (1% soln/water) | Not available. |
| Boiling Point | 83°C (181.4°F) |
| Melting Point | -49.5°C (-57.1°F) |
| Critical Temperature | Not available. |
| Specific Gravity | 1.844 (Water = 1) |
| Vapor Pressure | 10.1 kPa (@ 20°C) |
| Vapor Density | Not available. |
| Volatility | Not available. |
| Odor Threshold | Not available. |
| Water/Oil Dist. Coeff. | Not available. |
| Ionicity (in Water) | Not available. |
| Dispersion Properties | See solubility in water, diethyl ether. |
| Solubility | Soluble in diethyl ether. |

**Continued on Next Page**
Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Incompatible materials, contact with water, exposure with moist air or water</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents, moisture.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special Remarks on Reactivity</td>
<td>Reactive upon contact with water, exposure to moist air or water.</td>
</tr>
<tr>
<td>Special Remarks on Corrosivity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Polymerization</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Routes of Entry</th>
<th>Absorbed through skin. Eye contact. Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to Animals</td>
<td>WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute toxicity of the vapor (LC50): 44000 mg/m³ 2 hours [Mouse].</td>
</tr>
<tr>
<td>Chronic Effects on Humans</td>
<td>May cause damage to the following organs: kidneys, liver.</td>
</tr>
<tr>
<td>Other Toxic Effects on Humans</td>
<td>Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation (lung corrosive).</td>
</tr>
<tr>
<td>Special Remarks on Toxicity to Animals</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special Remarks on Chronic Effects on Humans</td>
<td>Not available.</td>
</tr>
<tr>
<td>Special Remarks on other Toxic Effects on Humans</td>
<td>Acute Potential Health Effects: Skin: Causes severe skin irritation and possible burns, especially if the skin is wet or moist. Eyes: Lachrymator. Causes eye irritation and possible burns. Inhalation: May cause irritation of the respiratory tract and mucous membranes with burning pain in the nose, throat, coughing, wheezing, shortness of breath, and pulmonary edema. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May affect behavior, sense organs, special senses and blood. Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. Chronic Potential Health Effects: May cause liver and kidney damage.</td>
</tr>
</tbody>
</table>

Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD5 and COD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Products of Biodegradation</td>
<td>Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.</td>
</tr>
<tr>
<td>Toxicity of the Products of Biodegradation</td>
<td>The product itself and its products of degradation are not toxic.</td>
</tr>
<tr>
<td>Special Remarks on the Products of Biodegradation</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
### Section 13. Disposal Considerations

**Waste Disposal**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14. Transport Information

**DOT Classification**

Class 8: Corrosive material

**Identification**

Corrosive Liquid, Acidic, Inorganic, n.o.s. (Germanium Tetrachloride) UNNA: 3264 PG: II

**Special Provisions for Transport**

Not available.

**DOT (Pictograms)**

![Corrosive Material Pictogram]

### Section 15. Other Regulatory Information and Pictograms

**TSCA 8(b) inventory: Germanium Tetrachloride**


**EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.**

**Other Regulations**

Not controlled under WHMIS (Canada).

**Other Classifications**

- **WHMIS (Canada):** Not controlled under WHMIS (Canada).
- **DSCL (EEC):** R14- Reacts violently with water. R34- Causes burns.
- **S8:** Keep container dry.
- **S25:** Avoid contact with eyes.
- **S36/37/39:** Wear suitable protective clothing, gloves and eye/face protection.
- **S45:** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.)**

- Health Hazard: 3
- Fire Hazard: 0
- Reactivity: 1

**National Fire Protection Association (U.S.A.)**

- Health: 3
- Flammability: 2
- Reactivity: 2

**Specific Hazard**

**WHMIS (Canada) (Pictograms)**

![ WHMIS Pictogram ]

**DSCL (Europe) (Pictograms)**

![ DSCL Pictogram ]

**Continued on Next Page**
**Protective Equipment**

- Gloves.
- Full suit.
- Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Face shield.

**Section 16. Other Information**

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>3070G</th>
</tr>
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<tbody>
<tr>
<td>References</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other Special Considerations</td>
<td>Not available.</td>
</tr>
</tbody>
</table>


Verified by Sonia Owen.

Printed 9/12/2006.

**CALL (310) 516-8000**

**Notice to Reader**

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.