## SECTION 1: Identification

### 1.1. Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>t-BUTYLDIMETHYLCHLOROGERMANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>GEB1933</td>
</tr>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Formula</td>
<td>C6H15ClGe</td>
</tr>
<tr>
<td>Synonyms</td>
<td>CHLORODIMETHYL-1-BUTYLGERMANE</td>
</tr>
<tr>
<td>Chemical family</td>
<td>ORGANOCHLOROGERMANE</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

### 1.3. Supplier

GELEST, INC.  
11 East Steel Road  
Morrisville, PA 19067  
USA  
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST  
info@gelest.com - www.gelest.com

### 1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

<table>
<thead>
<tr>
<th>GHS-US classification</th>
<th>H228 - Flammable solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation Category 1B</td>
<td>H314 - Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 1</td>
<td>H318 - Causes serious eye damage</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

### 2.2. GHS Label elements, including precautionary statements

#### GHS US labeling

- Hazard pictograms (GHS US): ![Flammability](image)
- Signal word (GHS US): Danger
- Hazard statements (GHS US):  
  - H228 - Flammable solid  
  - H314 - Causes severe skin burns and eye damage
- Precautionary statements (GHS US):  
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
  - P210 - Keep away from heat, open flames, sparks. - No smoking.  
  - P240 - Ground/Bond container and receiving equipment  
  - P241 - Use explosion-proof electrical equipment  
  - P260 - Do not breathe dust.  
  - P264 - Wash hands thoroughly after handling.  
  - P301+P330+P331 - If swallowed: rinse mouth.  
  - P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower  
  - P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
  - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
  - P310 - Immediately call a doctor  
  - P321 - Specific treatment (see first aid instructions on this label)  
  - P363 - Wash contaminated clothing before reuse.  
  - P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.  
  - P405 - Store locked up.  
  - P501 - Dispose of contents/container to licensed waste disposal facility.

### 2.3. Hazards not otherwise classified (HNOC)

- Other hazards not contributing to the classification: Hydrogen chloride may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen chloride is 5 ppm.
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2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Substance type : Mono-constituent
Name : t-BUTYLDIMETHYLCHLOROGERMANE
CAS-No. : 41879-34-9

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-Butyldimethylchlorogermane</td>
<td>(CAS-No.) 41879-34-9</td>
<td>95 - 100</td>
<td>Flam. Sol. 2, H228 Skin Corr. 1B, H314 Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures
First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Wash with plenty of soap and water. Get immediate medical advice/attention.
First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
Symptoms/effects : Causes severe skin burns and eye damage.
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Causes (severe) skin burns.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : May be harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media : Water.

5.2. Specific hazards arising from the chemical
Fire hazard : Flammable solid. Irritating fumes of hydrogen chloride and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures : Eliminate ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel
Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.
6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Additional hazards when processed: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Ground/bond container and receiving equipment. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust. Use only non-sparking tools.
Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Use explosion-proof electrical equipment.
Storage conditions: Keep container tightly closed. Store locked up.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment
Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles or face shield. Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Solid
Appearance: Solid
Molecular mass: 195.24 g/mol
Color: Translucent.
Odor: Acidic odor of camphor. Similar to hydrogen chloride.
Odor threshold: No data available
Refractive index: No data available
pH: No data available
Relative evaporation rate (butyl acetate=1): > 1
Melting point: 93 - 94 °C
Freezing point: No data available
Boiling point: 147 - 154 °C
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Flash point : 34 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Flammable solid
Vapor pressure : No data available
Relative vapor density at 20 °C : > 1
Relative density : < 1
% Volatiles : > 95 %
Solubility : Insoluble in water.
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions
Reacts with water and moisture in air, liberating hydrogen chloride.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials
Alkalis. Oxidizing agent.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified
May cause damage to organs through prolonged or repeated exposure
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Causes (severe) skin burns.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : May be harmful if swallowed.
Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity
No additional information available
### 12.2. Persistence and degradability
No additional information available

### 12.3. Bioaccumulative potential
No additional information available

### 12.4. Mobility in soil
No additional information available

### 12.5. Other adverse effects

<table>
<thead>
<tr>
<th>Effect on the environment</th>
<th>Other adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>This substance may be hazardous to the environment.</td>
<td>No additional information available</td>
</tr>
</tbody>
</table>

### SECTION 13: Disposal considerations

### 13.1. Disposal methods

- **Sewage disposal recommendations**: Do not dispose of waste into sewer.
- **Product/Packaging disposal recommendations**: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
- **Ecology - waste materials**: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (DOT)</th>
<th>2921</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT NA no.</td>
<td>UN2921</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

| Transport document description | UN2921 Corrosive solids, flammable, n.o.s. (t-BUTYLDIMETHYLCHLOROGERMANE), 8 (4.1), II |
| Proper Shipping Name (DOT)     | Corrosive solids, flammable, n.o.s. (t-BUTYLDIMETHYLCHLOROGERMANE) |
| Class (DOT)                    | 8 - Class 8 - Corrosive material 49 CFR 173.136 |
| Packing group (DOT)            | II - Medium Danger |
| Hazard labels (DOT)            | 8 - Corrosive 4.1 - Flammable solid |

- **DOT Packaging Non Bulk (49 CFR 173.xxx)**: 212
- **DOT Packaging Bulk (49 CFR 173.xxx)**: 242
- **DOT Packaging Exceptions (49 CFR 173.xxx)**: None
- **DOT Symbols**: G - Identifies PSN requiring a technical name

#### 14.3. Additional information

- **Emergency Response Guide (ERG) Number**: 134
- **Other information**: No supplementary information available.

**Transport by sea**

- **DOT Vessel Stowage Location**: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
- **DOT Vessel Stowage Other**: 12 - Keep as cool as reasonably practicable,25 - Protected from sources of heat

**Air transport**

- **DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)**: 15 kg
- **DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)**: 50 kg
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SECTION 15: Regulatory information

15.1. US Federal regulations

| t-BUTYLDIMETHYLCHLOROGERMANE (41879-34-9) |  
|------------------------------------------|------------------------------------------|
| TSCA Exemption/Exclusion                | CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States. |

| t-Butyldimethylchlorogermane (41879-34-9) |  
|------------------------------------------|------------------------------------------|
| Not listed on the United States TSCA (Toxic Substances Control Act) inventory |

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases:

| H228 | Flammable solid |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 05/05/2016  
Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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