SECTION 1: Identification

1.1. Identification

Product name: BENZYLTRICHLOROGERMANE
Product code: GEB0969
Product form: Substance
Physical state: Solid
Formula: C7H7Cl3Ge
Synonyms:
- BENZYLGERMANIUMTRICHLORIDE
- TRICHLORO(PHENYLMETHYL)GERMANE
- GERMANANE, TRICHLORO(PHENYLMETHYL)-
Chemical family: GERMANIUM CHLORIDE

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

GHS-US classification
- Skin corrosion/irritation Category 1B - H314 - Causes severe skin burns and eye damage
- Serious eye damage/eye irritation Category 1 - H318 - Causes serious eye damage
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling
- Hazard pictograms (GHS US): ▲
- Signal word (GHS US): Danger
- Hazard statements (GHS US): H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- Precautionary statements (GHS US):
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  - P260 - Do not breathe dust.
  - P264 - Wash hands thoroughly after handling.
  - P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
  - P303+P361+P333 - 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
  - P355+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
  - P363 - Wash contaminated clothing before reuse.
  - P405 - Store locked up.
  - P321 - Specific treatment (see first aid instructions on this label)
  - P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable
SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
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</thead>
<tbody>
<tr>
<td>Benzyltrichlorogermane</td>
<td>(CAS-No.) 6181-21-1</td>
<td>97 - 100</td>
<td>Skin Corr. 1B, H314</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td>Other Organogermanes</td>
<td></td>
<td>0 - 3</td>
<td>Not classified</td>
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</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 general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

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.

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: 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: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

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

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: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal.

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
Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust.
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
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. 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 dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
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<tr>
<td>Appearance</td>
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<tr>
<td>Molecular mass</td>
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<td>Color</td>
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<td>Odor</td>
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<tr>
<td>pH</td>
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<tr>
<td>Relative evaporation rate</td>
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<td>Melting point</td>
<td>35 - 37 °C</td>
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<tr>
<td>Freezing point</td>
<td>No data available</td>
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<tr>
<td>Boiling point</td>
<td>111 - 118 °C @ 18 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 65 °C</td>
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<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
</tbody>
</table>
BENZYLTRICHLOROGERMANE
Safety Data Sheet

Vapor pressure: No data available
Relative vapor density at 20 °C: > 1
Relative density: > 1
Solubility: Insoluble in water. Reacts slowly with 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.

10.3. Possibility of hazardous reactions
Contact with water or moisture slowly generates hydrogen chloride.

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

10.5. Incompatible materials

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

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
Other adverse effects: This substance may be hazardous to the environment.
Effect on the ozone layer: No additional information available

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
UN-No.(DOT): 1759
DOT NA no.: UN1759

14.2. UN proper shipping name
Transport document description: UN1759 Corrosive solids, n.o.s. (BENZYLTRICHLOROGERMANE), 8, III
Proper Shipping Name (DOT): Corrosive solids, n.o.s. (BENZYLTRICHLOROGERMANE)
Class (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT): III - Minor Danger
Hazard labels (DOT): 8 - Corrosive

14.3. Additional information
Emergency Response Guide (ERG) Number: 154
Other information: No supplementary information available.

Transport by sea
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 25 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 100 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

BENZYLTRICHLOROGERMANE (6181-21-1)
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.
BENZYLTRICHLOROGERMANE
Safety Data Sheet

Benzylltrichlorogermane (6181-21-1)
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:

| 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:
3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability:
2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

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: 07/13/2015 Revision date: 05/02/2017 Version: 2.0

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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