GEB1975 - n-BUTYLTRICHLOROGERMANE

n-BUTYLTRICHLOROGERMANE
Safety Data Sheet GEB1975
Date of issue: 07/13/2015  Version: 1.0

SECTION 1: Identification

1.1. Identification
Product name: n-BUTYLTRICHLOROGERMANE
Product code: GEB1975
Product form: Substance
Physical state: Liquid
Formula: C4H9GeCl3
Synonyms: BUTYLGERMANIUMTRICHLORIDE; BUTYLTRICHLOROGERMANE
Chemical family: ORGANOCHLOROGERMANE

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
Flammable liquids Category 4 H227 - Combustible liquid
Acute toxicity (oral) Category 3 H301 - Toxic if swallowed
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): H227 - Combustible liquid
H301 - Toxic if swallowed
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.
P210 - Keep away from heat, open flames, sparks. - No smoking.
P264 - Do not eat. Do not drink. Do not swallow.
P270 - Do not eat, drink or smoke when using this product.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P330+P331: - If swallowed: Rinse mouth. Do NOT induce vomiting
P333+P335 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
P403+P235 - Keep in a cool place
P405 - Store locked up.
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
Substance type : Multi-constituent
Name : n-BUTYLTRICHLORGERMANE
CAS-No. : 4872-26-8

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Butyltrichlorotin</td>
<td>(CAS-No.) 4872-26-8</td>
<td>&gt; 95</td>
<td>Flam. Liq. 4, H227 Acute Tox. 2 (Oral), H300 Skin Corr. 1B, H314 Eye Dam. 1, H318</td>
</tr>
<tr>
<td>Other Organogermanes</td>
<td></td>
<td>&lt; 5</td>
<td>Not classified</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 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 immediate medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)
Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.
Symptoms/effects after skin contact : Causes (severe) skin burns.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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 : Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures 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 all eye and skin contact and do not breathe vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures : Remove 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 liquid enters sewers or public waters. |

6.3. Methods and material for containment and cleaning up

| 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. 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

| Precautions for safe handling | : Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Use only non-sparking tools. |

| Hygiene measures | : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. |

7.2. Conditions for safe storage, including any incompatibilities

| Technical measures | : Ground/bond container and receiving equipment. |

| Storage conditions | : Keep container tightly closed. |


| 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: |

| 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 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 | : Liquid |

| Appearance | : Liquid. |

| Molecular mass | : 236.07 g/mol |

| Color | : Colorless. |

| Odor | : Characteristic. |

| Odor threshold | : No data available |

| Refractive index | : 1.476 |

| pH | : No data available |
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Relative evaporation rate (butyl acetate=1) : < 1
Melting point : No data available
Freezing point : < 0 °C
Boiling point : 184 °C
Flash point : 82 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Combustible liquid
Vapor pressure : 2.8 mm Hg @ 40°C
Relative vapor density at 20 °C : > 1
Relative density : 1.45
Solubility : Insoluble in water. Reacts 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.

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

<table>
<thead>
<tr>
<th>n-Butyltrichlorotin (4872-26-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

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. Overexposure may cause: Coughing. Headache. Nausea.
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- Symptoms/effects after skin contact: Causes (severe) skin burns.
- Symptoms/effects after eye contact: Causes serious eye damage.
- Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
- 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
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) : 2922
DOT NA no. : UN2922

14.2. UN proper shipping name
Transport document description : UN2922 Corrosive liquids, toxic, n.o.s. (n-BUTYLTRICHLOROGERMANE), 8 (6.1), III
Proper Shipping Name (DOT) : Corrosive liquids, toxic, n.o.s. (n-BUTYLTRICHLOROGERMANE)
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT) : III - Minor Danger
Hazard labels (DOT) : 8 - Corrosive
6.1 - Poison

DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information
Emergency Response Guide (ERG) Number : 154
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 : 40 - Stow "clear of living quarters"
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Air transport
DOT Quantity Limitations Passenger aircraft/rail : 5 L
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 : 60 L
CFR 175.75)

SECTION 15: Regulatory information
15.1. US Federal regulations
n-BUTYLTRICHLORORGERMANE (4872-26-8)
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.

n-Butyltrichlorotin (4872-26-8)
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:

<table>
<thead>
<tr>
<th>H227</th>
<th>H300</th>
<th>H301</th>
<th>H314</th>
<th>H318</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustible liquid</td>
<td>Fatal if swallowed</td>
<td>Toxic if swallowed</td>
<td>Causes severe skin burns and eye damage</td>
<td>Causes serious eye damage</td>
</tr>
</tbody>
</table>

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.
n-BUTYLTRICHLOROGERMANE
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Date of issue: 07/13/2015 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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