

**t-BUTYLTRICHLOROGERMANE**

Safety Data Sheet GEB1980

Date of issue: 10/05/2015 Version: 1.0

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form	: Substance
Physical state	: Solid
Substance name	: t-BUTYLTRICHLOROGERMANE
Product code	: GEB1980
Formula	: C <sub>4</sub> H <sub>9</sub> Cl <sub>3</sub> Ge
Synonyms	: t-BUTYLGERMANIUMTRICHLORIDE
Chemical family	: ORGANOCHLOROGERMANE

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Use of the substance/mixture	: Chemical intermediate For research use only
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**1.3. Details of the supplier of the safety data sheet****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](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)**1.4. Emergency telephone number**

Emergency number	: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)
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**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****GHS-US classification**

Skin Corr. 1B H314

Eye Dam. 1 H318

Full text of H-phrases: see section 16

**2.2. Label elements****GHS-US labeling**

Hazard pictograms (GHS-US)



GHS05

Signal word (GHS-US)	: Danger
Hazard statements (GHS-US)	: H314 - Causes severe skin burns and 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+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 P405 - Store locked up P501 - Dispose of contents/container to licensed waste disposal facility.

**2.3. Other hazards**

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)**

No data available

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### SECTION 3: Composition/Information on ingredients

#### 3.1. Substance

Substance type : Multi-constituent  
Name : t-BUTYLTRICHLOROGERMANE  
CAS No : 1184-92-5

Name	Product identifier	%	GHS-US classification
t-Butyltrichlorogermane	(CAS No) 1184-92-5	95 - 100	Skin Corr. 1B, H314 Eye Dam. 1, H318
Other Organogermaniums		0 - 5	Not classified

#### 3.2. Mixture

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, both acute and delayed

Symptoms/injuries after inhalation : May cause irritation to the respiratory tract.

Symptoms/injuries after skin contact : Causes (severe) skin burns.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : May be harmful if swallowed.

#### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : Water.

#### 5.2. Special hazards arising from the substance or mixture

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

#### 5.3. Advice for firefighters

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 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

##### 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.

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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

Precautions for safe handling : Avoid dust formation. 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 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

Storage conditions : Keep container tightly closed. Store locked up.

Incompatible materials : Bases. Reducing agents. Water.

Storage area : Store in a well-ventilated place. Store away from heat.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

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

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 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 : Crystalline solid.

Molecular mass : 236.07 g/mol

Color : White.

Odor : Characteristic.

Odor threshold : No data available

Refractive index : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : 94 - 95 °C

Freezing point : No data available

Boiling point : 169 - 170 °C

Flash point : > 65 °C

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

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

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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

Bases. Reducing agents. Water.

### 10.6. Hazardous decomposition products

Hydrogen chloride. Organic acid vapors.

## 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/injuries after inhalation	: May cause irritation to the respiratory tract.
Symptoms/injuries after skin contact	: Causes (severe) skin burns.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries 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 ozone layer	: No additional information available
Effect on the global warming	: No known ecological damage caused by this product.

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- Sewage disposal recommendations : Do not dispose of waste into sewer.  
Waste 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

- Proper Shipping Name (DOT) : Corrosive solids, n.o.s.  
(t-BUTYLTRICHLOROGERMANE)  
Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Hazard labels (DOT) : 8 - Corrosive



- DOT Symbols : G - Identifies PSN requiring a technical name  
Packing group (DOT) : III - Minor Danger  
DOT Packaging Exceptions (49 CFR 173.xxx) : 154  
DOT Packaging Non Bulk (49 CFR 173.xxx) : 213  
DOT Packaging Bulk (49 CFR 173.xxx) : 240

#### 14.3. Additional information

- 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 : 25 kg  
(49 CFR 173.27)  
DOT Quantity Limitations Cargo aircraft only (49 : 100 kg  
CFR 175.75)

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### t-BUTYLTRICHLOROGERMANE (1184-92-5)

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.
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##### t-Butyltrichlorogermane (1184-92-5)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

No additional information available

#### 15.3. US State regulations

##### t-BUTYLTRICHLOROGERMANE(1184-92-5)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive	No

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t-BUTYLTRICHLOROGERMANE(1184-92-5)				
Toxicity - Male				
Other Organogermaniums				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	
t-Butyltrichlorogermane (1184-92-5)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Non-significant risk level (NSRL)
No	No	No	No	

### SECTION 16: Other information

#### 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.

#### Full text of H-phrases::

Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

#### HMIS III Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given  
Flammability : 2 Moderate Hazard  
Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

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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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