

**TRICHLOROGERMANE**

## Safety Data Sheet GET8150

Issue date: 09/01/2015

Revision date: 06/11/2020

Version: 1.2

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

Product form	: Substance
Physical state	: Liquid
Substance name	: TRICHLOROGERMANE
Product code	: GET8150
Formula	: Cl <sub>3</sub> GeH
Synonyms	: HYDRIDOGERMANIUM TRICHLORIDE; GERMACHLOROFORM
Chemical family	: GERMANIUM CHLORIDE

**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

**1.2.2. Uses advised against**

No additional information available

**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)**GELEST INC.**Fritz-Klatte-Strasse 8  
65933 Frankfurt**Germany**

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[info@gelestde.com](mailto:info@gelestde.com) - [www.gelestde.com](http://www.gelestde.com)**1.4. Emergency telephone number**

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

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 2	H225
Skin corrosion/irritation, Category 1, Sub-Category 1A	H314
Serious eye damage/eye irritation, Category 1	H318
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Full text of H statements : see section 16	
Specific concentration limits: ( 1 ≤ C < 100)	STOT SE 3, H335

**Adverse physicochemical, human health and environmental effects**

No additional information available

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### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour.  
H314 - Causes severe skin burns and eye damage.  
H335 - May cause respiratory irritation.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P240 - Ground/bond container and receiving equipment.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P264 - Wash hands thoroughly after handling.  
P310 - Immediately call a POISON CENTER or doctor.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type :

Multi-constituent

Name :

TRICHLOROGERMANE

CAS-No. :

1184-65-2

EC-No. :

214-673-5

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Trichloro germane	(CAS-No.) 1184-65-2 (EC-No.) 214-673-5	> 95	Flam. Liq. 2, H225 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335
Other Germanium chlorides		< 5	Not classified

Full text of 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 person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact :

Wash with plenty of 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, both acute and delayed

Symptoms/effects :

Causes severe skin burns and eye damage.

Symptoms/effects after inhalation :

May be harmful if inhaled. May cause respiratory irritation.

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.

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### 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 : Foam. Carbon dioxide. Dry chemical.  
Unsuitable extinguishing media : Water spray should not be used for fires containing large quantities of trichloro germane.

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

Fire hazard : Highly flammable liquid and vapour. Irritating fumes of hydrogen chloride and organic acid vapors may develop when material is exposed to water or open flame.  
Explosion hazard : May form flammable/explosive vapour-air mixture.

### 5.3. Advice for firefighters

Firefighting instructions : In case of fire: stop leak if safe to do so. 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 vapour and mist.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. 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".  
Emergency procedures : Stop release.

### 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

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. 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 : Handle empty containers with care because residual vapours are flammable.  
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools. Avoid contact with water.  
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. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.  
Storage conditions : Keep container tightly closed.  
Incompatible materials : Moisture.  
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

TRICHLOROGERMANE (1184-65-2)		
Latvia	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>

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Lithuania	IPRV (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
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#### 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:

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	: Fuming. Cloudy liquid.
Molecular mass	: 179.97 g/mol
Colour	: No data available
Odour	: Acrid. Similar to hydrogen chloride.
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -71 °C
Boiling point	: 75 °C
Flash point	: 12 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: > 140 °C
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: 9.2 mm Hg @ -10 °C; 80 mm Hg @ 20 °C
Relative vapour density at 20 °C	: > 1
Relative density	: 1.93
Solubility	: Reacts vigorously with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

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### 10.2. Chemical stability

Stable in sealed containers. Under dry open conditions trichlorogermane partially dissociates to hydrogen chloride and germanium dichloride. In contact with moisture trichlorogermane reacts to form hydrogen chloride and germanium dioxide.

### 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

Moisture.

### 10.6. Hazardous decomposition products

Acid vapors. Germanium and its oxides. Germanium dichloride.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Causes severe skin burns.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
	None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
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

Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

### 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. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

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

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Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility..

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

UN-No. (ADR) : 2924  
UN-No. (IMDG) : 2924  
UN-No. (IATA) : 2924  
UN-No. (ADN) : 2924  
UN-No. (RID) : 2924

#### 14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
Proper Shipping Name (IATA) : Flammable liquid, corrosive, n.o.s.  
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
Proper Shipping Name (RID) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
Transport document description (ADR) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TRICHLOROGERMANE), 3 (8), I, (C/E)  
Transport document description (IMDG) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TRICHLOROGERMANE), 3 (8), I  
Transport document description (IATA) : UN 2924 Flammable liquid, corrosive, n.o.s. (TRICHLOROGERMANE), 3 (8), I  
Transport document description (ADN) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TRICHLOROGERMANE), 3 (8), I  
Transport document description (RID) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (TRICHLOROGERMANE), 3 (8), I

#### 14.3. Transport hazard class(es)

##### ADR

Transport hazard class(es) (ADR) : 3 (8)  
Danger labels (ADR) : 3, 8



##### IMDG

Transport hazard class(es) (IMDG) : 3 (8)  
Danger labels (IMDG) : 3, 8



##### IATA

Transport hazard class(es) (IATA) : 3 (8)  
Danger labels (IATA) : 3, 8



##### ADN

Transport hazard class(es) (ADN) : 3 (8)



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Danger labels (ADN) : 3, 8



### RID

Transport hazard class(es) (RID) : 3 (8)

Danger labels (RID) : 3, 8



### 14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

### 14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR) : FC

Special provisions (ADR) : 274

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P001

Mixed packing provisions (ADR) : MP7, MP17

Portable tank and bulk container instructions (ADR) : T14

Portable tank and bulk container special provisions (ADR) : TP2

Tank code (ADR) : L10CH

Tank special provisions (ADR) : TU14, TE21

Vehicle for tank carriage : FL

Transport category (ADR) : 1

Special provisions for carriage - Operation (ADR) : S2, S20

Hazard identification number (Kemler No.) : 338

Orange plates :



Tunnel restriction code (ADR) : C/E

#### - Transport by sea

Special provisions (IMDG) : 274

Limited quantities (IMDG) : 0

Excepted quantities (IMDG) : E0

Packing instructions (IMDG) : P001

Tank instructions (IMDG) : T14

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Tank special provisions (IMDG)	: TP2
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-C
Stowage category (IMDG)	: E
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

### - Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: 350
PCA max net quantity (IATA)	: 0.5L
CAO packing instructions (IATA)	: 360
CAO max net quantity (IATA)	: 2.5L
Special provisions (IATA)	: A3
ERG code (IATA)	: 3CH

### - Inland waterway transport

Classification code (ADN)	: FC
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E0
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

### - Rail transport

Classification code (RID)	: FC
Special provisions (RID)	: 274
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P001
Mixed packing provisions (RID)	: MP7, MP17
Portable tank and bulk container instructions (RID)	: T14
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L10CH
Special provisions for RID tanks (RID)	: TU14, TU38, TE21, TE22
Transport category (RID)	: 1
Hazard identification number (RID)	: 338

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

TRICHLOROGERMANE is not on the REACH Candidate List

TRICHLOROGERMANE is not on the REACH Annex XIV List

TRICHLOROGERMANE is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

TRICHLOROGERMANE is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 15.1.2. National regulations



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### Germany

Regulatory reference : WGK 1, Slightly hazardous to water  
Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

### Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed  
SZW-lijst van mutagene stoffen : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

### Denmark

Class for fire hazard : Class I-1  
Store unit : 1 liter  
Classification remarks : F <Flam. Liq. 2>; Emergency management guidelines for the storage of flammable liquids must be followed  
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

### 15.2. Chemical safety assessment

No additional information available

## 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; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor
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Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

SDS EU (REACH Annex II) - Custom

*The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.*

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