

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/15/2009

## 1 Identification of substance:

### Product details:

**Product name:** Trimethylgermanium chloride

**Stock number:** 34129

### Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company  
Johnson Matthey Catalog Company, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Emergency Phone: (978) 521-6300  
CHEMTREC: (800) 424-9300  
Web Site: [www.alfa.com](http://www.alfa.com)

**Information Department:** Health, Safety and Environmental Department

### Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

## 2 Composition/Data on components:

### Chemical characterization:

**Description:** (CAS#)

Trimethylgermanium chloride (CAS# 1529-47-1); 100%

**Identification number(s):**

**EINECS Number:** 216-214-4

## 3 Hazards identification

### Hazard description:



C Corrosive  
F Highly flammable

### Information pertaining to particular dangers for man and environment

R 11 Highly flammable.

R 34 Causes burns.

### Classification system

**HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

|            |   |
|------------|---|
| HEALTH     | 2 |
| FIRE       | 3 |
| REACTIVITY | 2 |

Health (acute effects) = 2  
Flammability = 3  
Reactivity = 2

### GHS label elements



**Danger**

2.6/2 - Highly flammable liquid and vapour.



**Danger**

3.2/1B - Causes severe skin burns and eye damage.

### Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/ equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

### Response:

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

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IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see label).

Wash contaminated clothing before reuse.

In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.

**Storage:**

Store in a well-ventilated place. Keep cool.

Store locked up.

**Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**4 First aid measures**

**General information** Immediately remove any clothing soiled by the product.

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.

**5 Fire fighting measures****Suitable extinguishing agents**

In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

**For safety reasons unsuitable extinguishing agents** Water**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Keep away from ignition sources.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:**

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

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**Storage****Requirements to be met by storerooms and receptacles:** Store in a cool location.**Information about storage in one common storage facility:**

Store away from water/moisture.

Store away from oxidizing agents.

**Further information about storage conditions:**

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with limit values that require monitoring at the workplace:** Not required.**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**Breathing equipment:** Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:**

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

|               |                |
|---------------|----------------|
| <b>Form:</b>  | Clear liquid   |
| <b>Color:</b> | Colorless      |
| <b>Odor:</b>  | Not determined |

**Change in condition**

|   |                       |
|---|-----------------------|
| <b>Melting point/Melting range:</b>     | -13°C (9°F)           |
| <b>Boiling point/Boiling range:</b>     | 102-104°C (216-219°F) |
| <b>Sublimation temperature / start:</b> | Not determined        |

**Flash point:** 2°C (36°F)**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Explosion limits:**

|               |                |
|---------------|----------------|
| <b>Lower:</b> | Not determined |
| <b>Upper:</b> | Not determined |

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 1.23 g/cm<sup>3</sup>**Solubility in / Miscibility with****Water:** Reacts**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Water/moisture

Oxidizing agents

**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

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Product name: Trimethylgermanium chloride

Hydrogen chloride (HCl)

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## 11 Toxicological information

### Acute toxicity:

#### Primary irritant effect:

##### on the skin:

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

##### on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: No sensitizing effects known.

### Subacute to chronic toxicity:

Germanium compounds generally have a low order of toxicity. High doses have resulted in kidney and bladder injury. The anion and compound reactivity may contribute the greater part of the toxicity.

### Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

### Additional toxicological information:

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

## 12 Ecological information:

### General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

## 13 Disposal considerations

### Product:

Recommendation Consult state, local or national regulations to ensure proper disposal.

### Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

## 14 Transport information

### DOT regulations:



### Hazard class:

3

### Identification number:

UN2924

### Packing group:

II

Proper shipping name (technical name): FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(Trimethylgermanium chloride)

### Label

3+8

### Land transport ADR/RID (cross-border)



### ADR/RID class:

3 (FC) Flammable liquids

### Danger code (Kemler):

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Product name: Trimethylgermanium chloride

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UN-Number: 2924  
 Packaging group: II  
 Description of goods: 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
 (Trimethylgermanium chloride)

**Maritime transport IMDG:**

IMDG Class: 3  
 UN Number: 2924  
 Label: 3+8  
 Packaging group: II  
 Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
 (Trimethylgermanium chloride)

**Air transport ICAO-TI and IATA-DGR:**

ICAO/IATA Class: 3  
 UN/ID Number: 2924  
 Label: 3+8  
 Packaging group: II  
 Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
 (Trimethylgermanium chloride)

UN "Model Regulation": UN2924, FLAMMABLE LIQUID, CORROSIVE, N.O.S., 3 (8), II

**15 Regulations****Product related hazard informations:****Hazard symbols:**

C Corrosive  
 F Highly flammable

**Risk phrases:**

11 Highly flammable.  
 34 Causes burns.

**Safety phrases:**

9 Keep container in a well-ventilated place.  
 16 Keep away from sources of ignition - No smoking.  
 20 When using do not eat or drink.  
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 33 Take precautionary measures against static discharges.  
 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.  
 45 In case of accident or if you feel unwell, seek medical advice immediately.  
 60 This material and its container must be disposed of as hazardous waste.

**National regulations**

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

**Information about limitation of use:** For use only by technically qualified individuals.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

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**Product name:** Trimethylgermanium chloride

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**Contact:** Zachariah Holt**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

USA