



GERMANIUM DICHLORIDE-DIOXANE COMPLEX

Safety Data Sheet GEG5180

Date of issue: 20/08/2015

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 | : GERMANIUM DICHLORIDE-DIOXANE COMPLEX |
| Product code | : GEG5180 |
| Formula | : Cl ₂ Ge·C ₄ H ₈ O ₂ |
| Synonyms | : DICHLOROGERMADIYL DIOXANE |
| 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 - www.gelest.com

GELEST INC.

Fritz-Klatte-Strasse 8
65933 Frankfurt

Germany

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

info@gelestde.com - 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]

| | |
|---|------|
| Skin corrosion/irritation, Category 1B | H314 |
| Serious eye damage/eye irritation, Category 1 | H318 |
| Full text of H statements : see section 16 | |

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

| | |
|--------------------------------|--|
| Signal word (CLP) | : Danger |
| Hazard statements (CLP) | : H314 - Causes severe skin burns and eye damage. |
| Precautionary statements (CLP) | : P280 - Wear protective gloves/protective clothing/eye protection/face protection. P260 - Do not breathe dust. P264 - Wash hands thoroughly after handling. |

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P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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 POISON CENTER or doctor/physician

EUH-statements

: EUH014 - Reacts violently with water.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Multi-constituent
Name : GERMANIUM DICHLORIDE-DIOXANE COMPLEX
CAS-No. : 28595-67-7/10060-11-4
EC-No. : 233-192-1

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|--------------------------------------|--|------|---|
| Germanium dichloride-dioxane complex | (CAS-No.) 28595-67-7 (EC-No.) 233-192-1 | > 95 | Skin Corr. 1B, H314 Eye Dam. 1, H318 |
| Germanium dichloride | (CAS-No.) 10060-11-4 | < 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. IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.
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.

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 cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact : Causes (severe) skin burns. Contact with germanium II compounds causes a yellow discoloration and necrosis of skin.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects 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 : None.
Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Irritating fumes and 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.
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.

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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. 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

- Storage conditions : Keep container tightly closed. Store locked up.
Incompatible materials : Moisture. Oxidizing agent. 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

| Germanium dichloride (10060-11-4) | | |
|-----------------------------------|----------------------|-------------------------|
| USA OSHA | OSHA PEL (TWA) (ppm) | 6 ppm hydrogen chloride |

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 dust and mist (orange cartridge) respirator.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|--|
| Physical state | : Solid |
| Appearance | : Low-melting solid. |
| Molecular mass | : 231.63 g/mol |
| Colour | : Clear to pink-orange. |
| Odour | : Acrid. Hydrogen bromide. |
| Odour threshold | : No data available |
| Refractive index | : 1.6269 |
| pH | : No data available |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : 106 - 165 °C |
| Freezing point | : No data available |
| Boiling point | : 186.5 °C |
| Flash point | : Not flammable |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : 58.4 mm Hg @ 93.7°C |
| Relative vapour density at 20 °C | : > 1 |
| Relative density | : 3.132 |
| Solubility | : Reacts with water. Organic solvent:Soluble: ethanol, toluene, ether |
| 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 |
| 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

10.2. Chemical stability

Stable in sealed containers in oxygen-free environments.

10.3. Possibility of hazardous reactions

Reacts with warm water and moisture in air liberating hydrogen chloride.

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Moisture. Oxidizing agent. Water :

10.6. Hazardous decomposition products

Acid vapors. Germanium dioxide. Hydrogen chloride.

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 sensitisation | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |

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| | |
|---|--|
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : Not classified |
| 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 cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea. |
| Symptoms/effects after skin contact | : Causes (severe) skin burns. Contact with germanium II compounds causes a yellow discoloration and necrosis of skin. |
| 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

| | |
|--------------------------|------------------|
| Acute aquatic toxicity | : Not classified |
| Chronic aquatic toxicity | : 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. |
| 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

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

14.1. UN number

| | |
|---------------|--------|
| UN-No. (ADR) | : 1759 |
| UN-No. (IMDG) | : 1759 |
| UN-No. (IATA) | : 1759 |
| UN-No. (ADN) | : 1759 |
| UN-No. (RID) | : 1759 |

14.2. UN proper shipping name

| | |
|---------------------------------------|--|
| Proper Shipping Name (ADR) | : CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (IMDG) | : CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (IATA) | : Corrosive solid, n.o.s. |
| Proper Shipping Name (ADN) | : CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (RID) | : CORROSIVE SOLID, N.O.S. |
| Transport document description (ADR) | : UN 1759 CORROSIVE SOLID, N.O.S. (GERMANIUM DICHLORIDE-DIOXANE COMPLEX), 8, II, (E) |
| Transport document description (IMDG) | : UN 1759 CORROSIVE SOLID, N.O.S. (GERMANIUM DICHLORIDE-DIOXANE COMPLEX), 8, II |
| Transport document description (IATA) | : UN 1759 Corrosive solid, n.o.s. (GERMANIUM DICHLORIDE-DIOXANE COMPLEX), 8, II |

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| | |
|--------------------------------------|---|
| Transport document description (ADN) | : UN 1759 CORROSIVE SOLID, N.O.S. (GERMANIUM DICHLORIDE-DIOXANE COMPLEX), 8, II |
| Transport document description (RID) | : UN 1759 CORROSIVE SOLID, N.O.S. (GERMANIUM DICHLORIDE-DIOXANE COMPLEX), 8, II |

14.3. Transport hazard class(es)

| | |
|----------------------------------|-----|
| ADR | |
| Transport hazard class(es) (ADR) | : 8 |
| Danger labels (ADR) | : 8 |



| | |
|-----------------------------------|-----|
| IMDG | |
| Transport hazard class(es) (IMDG) | : 8 |
| Danger labels (IMDG) | : 8 |



| | |
|-----------------------------------|-----|
| IATA | |
| Transport hazard class(es) (IATA) | : 8 |
| Hazard labels (IATA) | : 8 |



| | |
|----------------------------------|-----|
| ADN | |
| Transport hazard class(es) (ADN) | : 8 |
| Danger labels (ADN) | : 8 |



| | |
|----------------------------------|-----|
| RID | |
| Transport hazard class(es) (RID) | : 8 |
| Danger labels (RID) | : 8 |



14.4. Packing group

| | |
|----------------------|------|
| Packing group (ADR) | : II |
| Packing group (IMDG) | : II |
| Packing group (IATA) | : II |
| Packing group (ADN) | : II |
| Packing group (RID) | : II |

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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) | : C10 |
| Special provisions (ADR) | : 274 |
| Limited quantities (ADR) | : 1kg |
| Excepted quantities (ADR) | : E2 |
| Packing instructions (ADR) | : P002, IBC08 |
| Special packing provisions (ADR) | : B3 |
| Mixed packing provisions (ADR) | : MP10 |
| Portable tank and bulk container instructions (ADR) | : T3 |
| Portable tank and bulk container special provisions (ADR) | : TP33 |
| Tank code (ADR) | : SGAN, L4BN |
| Vehicle for tank carriage | : AT |
| Transport category (ADR) | : 2 |
| Special provisions for carriage - Packages (ADR) | : V11 |
| Hazard identification number (Kemler No.) | : 80 |
| Orange plates | : |



| | |
|-------------------------------|------|
| Tunnel restriction code (ADR) | : E |
| EAC code | : 2X |

- Transport by sea

| | |
|------------------------------------|--|
| Special provisions (IMDG) | : 274 |
| Limited quantities (IMDG) | : 1 kg |
| Excepted quantities (IMDG) | : E2 |
| Packing instructions (IMDG) | : P002 |
| IBC packing instructions (IMDG) | : IBC08 |
| IBC special provisions (IMDG) | : B2, B4 |
| Tank instructions (IMDG) | : T3 |
| Tank special provisions (IMDG) | : TP33 |
| EmS-No. (Fire) | : F-A |
| EmS-No. (Spillage) | : S-B |
| Stowage category (IMDG) | : A |
| Properties and observations (IMDG) | : Causes burns to skin, eyes and mucous membranes. |

- Air transport

| | |
|--|--------|
| PCA Excepted quantities (IATA) | : E2 |
| PCA Limited quantities (IATA) | : Y844 |
| PCA limited quantity max net quantity (IATA) | : 5kg |
| PCA packing instructions (IATA) | : 859 |
| PCA max net quantity (IATA) | : 15kg |
| CAO packing instructions (IATA) | : 863 |
| CAO max net quantity (IATA) | : 50kg |
| Special provisions (IATA) | : A3 |
| ERG code (IATA) | : 8L |

- Inland waterway transport

| | |
|---------------------------|-------|
| Classification code (ADN) | : C10 |
| Special provisions (ADN) | : 274 |

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| | |
|-----------------------------------|----------|
| Limited quantities (ADN) | : 1 kg |
| Excepted quantities (ADN) | : E2 |
| Equipment required (ADN) | : PP, EP |
| Number of blue cones/lights (ADN) | : 0 |

- Rail transport

| | |
|---|---------------|
| Classification code (RID) | : C10 |
| Special provisions (RID) | : 274 |
| Limited quantities (RID) | : 1kg |
| Excepted quantities (RID) | : E2 |
| Packing instructions (RID) | : P002, IBC08 |
| Special packing provisions (RID) | : B4 |
| Mixed packing provisions (RID) | : MP10 |
| Portable tank and bulk container instructions (RID) | : T3 |
| Portable tank and bulk container special provisions (RID) | : TP33 |
| Tank codes for RID tanks (RID) | : SGAN, L4BN |
| Transport category (RID) | : 2 |
| Special provisions for carriage – Packages (RID) | : W11 |
| Colis express (express parcels) (RID) | : CE10 |
| Hazard identification number (RID) | : 80 |

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

GERMANIUM DICHLORIDE-DIOXANE COMPLEX is not on the REACH Candidate List

GERMANIUM DICHLORIDE-DIOXANE COMPLEX is not on the REACH Annex XIV List

GERMANIUM DICHLORIDE-DIOXANE COMPLEX 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.

GERMANIUM DICHLORIDE-DIOXANE COMPLEX is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 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

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:

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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

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 |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| EUH014 | Reacts violently with water. |

SDS EU (REACH Annex II) - Custom

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