SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Substance name</td>
<td>DIETHYLDICHLOROGERMANE</td>
</tr>
<tr>
<td>Product code</td>
<td>GED3400</td>
</tr>
<tr>
<td>Formula</td>
<td>C4H10Cl2Ge</td>
</tr>
<tr>
<td>Synonyms</td>
<td>DIETHYLGERMANIUM DICHLORIDE; DICHLORODIETHYLGERMANE</td>
</tr>
<tr>
<td>Chemical family</td>
<td>ORGANOCHLOROGERMANE</td>
</tr>
</tbody>
</table>

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]

- Flammable liquids, Category 3: H226
- Skin corrosion/irritation, Category 1B: H314
- Serious eye damage/eye irritation, Category 1: H318
- Specific target organ toxicity — Single exposure, Category 3: H335
- Respiratory tract irritation

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):

- GHS02
- GHS05
- GHS07

Signal word (CLP): Danger
DIETHYLDICHLORGERMANE
Safety Data Sheet

Hazard statements (CLP):
- H226 - 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.
- P260 - Do not breathe vapours.
- P264 - Wash hands thoroughly after handling.
- P310 - Immediately call a POISON CENTER or doctor/physician.

EUH-statements:
- EUH014 - Reacts violently with water.

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.

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent
Name: DIETHYLDICHLORGERMANE
CAS-No.: 13314-52-8
EC-No.: 236-344-5

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyldichlorogermane</td>
<td>(CAS-No.) 13314-52-8 (EC-No.) 236-344-5</td>
<td>95 - 100</td>
<td>Flam. Liq. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335</td>
</tr>
</tbody>
</table>

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. 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 after inhalation: May cause respiratory irritation. Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia by analogy to animal tests for tetrachlorogermane.

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.

4.3. Indication of any immediate medical attention and special treatment needed
Note to physician: Organochlorogermanes react with water to form hydrochloric acid, consequently treatment for acid burns may be considered.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Unsuitable extinguishing media: Water.
5.2. Special hazards arising from the substance or mixture

| Fire hazard                                                                 | Flammable liquid and vapour. 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 vapour and mist. |

### SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

| General measures                                                                 | Eliminate 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

| 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. 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                                      | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| Precautions for safe handling                                           | Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. Use only non-sparking tools. |
| Hygiene measures                                                        | Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. |

7.2. Conditions for safe storage, including any incompatibilities

| Technical measures                                                                 | Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment. |
| Storage conditions                                                        | Keep container tightly closed. Keep in a cool place. Store locked up. |
| Incompatible materials                                                                 | Moisture, 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:**
**DIETHYLDICHLOROGERMANE**

**Safety Data Sheet**

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>201.62 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Straw</td>
</tr>
<tr>
<td>Odour</td>
<td>Acrid. Similar to hydrogen chloride.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.47</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-39 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>175 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>52 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.374</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts with water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 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

Reacts with water and moisture in air liberating hydrogen chloride.

#### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

#### 10.5. Incompatible materials

Moisture. Water.

#### 10.6. Hazardous decomposition products

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

Reproductive toxicity: Not classified

STOT-single exposure: May cause respiratory irritation.

STOT-repeated exposure: Not classified

Aspiration hazard: Not classified

Symptoms/effects after inhalation: May cause respiratory irritation. Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia by analogy to animal tests for tetrachlorogermane.

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

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) : 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.
DIETHYLDICHLOROGERMANE
Safety Data Sheet

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. (DIETHYLDICHLOROGERMANE), 3 (8), III, (D/E)
Transport document description (IMDG): UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (DIETHYLDICHLOROGERMANE), 3 (8), III
Transport document description (IATA): UN 2924 Flammable liquid, corrosive, n.o.s. (DIETHYLDICHLOROGERMANE), 3 (8), III
Transport document description (ADN): UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (DIETHYLDICHLOROGERMANE), 3 (8), III
Transport document description (RID): UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (DIETHYLDICHLOROGERMANE), 3 (8), III

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)
Hazard labels (IATA): 3, 8

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

RID
Transport hazard class(es) (RID): 3 (8)
Danger labels (RID): 3, 8
## 14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (IMDG)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (IATA)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>III</td>
</tr>
</tbody>
</table>

## 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)  | 5L |
| Excepted quantities (ADR) | E1 |
| Packing instructions (ADR) | P001, IBC03, R001 |
| Mixed packing provisions (ADR) | MP19 |
| Portable tank and bulk container instructions (ADR) | T7 |
| Portable tank and bulk container special provisions (ADR) | TP1, TP28 |
| Tank code (ADR)            | L4BN |
| Vehicle for tank carriage  | FL |
| Transport category (ADR)   | 3 |
| Special provisions for carriage - Packages (ADR) | V12 |
| Special provisions for carriage - Operation (ADR) | S2 |
| Hazard identification number (Kemler No.) | 38 |
| Orange plates              | | 38 |

| Tunnel restriction code (ADR) | D/E |

### - Transport by sea

| Special provisions (IMDG) | 223, 274 |
| Limited quantities (IMDG) | 5 L |
| Excepted quantities (IMDG) | E1 |
| Packing instructions (IMDG) | P001 |
| IBC packing instructions (IMDG) | IBC03 |
| Tank instructions (IMDG) | T7 |
| Tank special provisions (IMDG) | TP1, TP28 |
| EmS-No. (Fire) | F-E |
| EmS-No. (Spillage) | S-C |
| Stowage category (IMDG) | A |
| Stowage and handling (IMDG) | SW2 |
| Properties and observations (IMDG) | Causes burns to skin, eyes and mucous membranes. |

### - Air transport

| PCA Excepted quantities (IATA) | E1 |
| PCA Limited quantities (IATA) | Y342 |
| PCA limited quantity max net quantity (IATA) | 1L |
| PCA packing instructions (IATA) | 354 |
| PCA max net quantity (IATA) | 5L |
| CAO packing instructions (IATA) | 365 |
DIETHYLDICHLOROGERMANE
Safety Data Sheet

CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A3
ERG code (IATA) : 3C

- Inland waterway transport
  Classification code (ADN) : FC
  Special provisions (ADN) : 274
  Limited quantities (ADN) : 5 L
  Excepted quantities (ADN) : E1
  Carriage permitted (ADN) : T
  Equipment required (ADN) : PP, EP, EX, A
  Ventilation (ADN) : VE01
  Number of blue cones/lights (ADN) : 0

- Rail transport
  Classification code (RID) : FC
  Special provisions (RID) : 274
  Limited quantities (RID) : 5L
  Excepted quantities (RID) : E1
  Packing instructions (RID) : P001, IBC03, R001
  Mixed packing provisions (RID) : MP19
  Portable tank and bulk container instructions (RID) : T7
  Portable tank and bulk container special provisions (RID) : TP1, TP28
  Tank codes for RID tanks (RID) : L4BN
  Transport category (RID) : 3
  Special provisions for carriage – Packages (RID) : W12
  Colis express (express parcels) (RID) : CE4
  Hazard identification number (RID) : 38

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
DIETHYLDICHLOROGERMANE is not on the REACH Candidate List
DIETHYLDICHLOROGERMANE is not on the REACH Annex XIV List
DIETHYLDICHLOROGERMANE 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.

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-list van kankerverwekkende stoffen : The substance is not listed
SZW-list 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
DIETHYLDICHLOROGERMANE
Safety Data Sheet

Section 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

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. 3 Flammable liquids, Category 3
Skin Corr. 1B Skin corrosion/irritation, Category 1B
STOT SE 3 Specific target organ toxicity — Single exposure, Category 3. Respiratory tract irritation
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
EUH014 Reacts violently with water.

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.

© 2019 Gelest Inc. Morrisville, PA 19067

Print date: 10/04/2019 EN (English) SDS ID: GED3400