SIB1926.0 - 3-BUTENYMETHYLDICHLOROSILANE

3-BUTENYMETHYLDICHLOROSILANE
Safety Data Sheet SIB1926.0
Date of issue: 17/07/2015 Revision date: 08/04/2019 Version: 1.1

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

1.1. Product identifier
Product form : Substance
Physical state : Liquid
Substance name : 3-BUTENYMETHYLDICHLOROSILANE
Product code : SIB1926.0
Formula : C5H10Cl2Si
Synonyms : (DICHLOROMETHYL)SILYL)BUTENE
Chemical family : ORGANOCHLOROSILANE

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]
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]
Signal word (CLP) : Danger
Hazard statements (CLP) : H226 - Flammable liquid and vapour.
H314 - Causes severe skin burns and eye damage.
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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
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Mono-constituent
Name: 3-BUTENYL METHYLDICHLOROSILANE
CAS-No.: 15983-86-5

<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>3-Butenylmethyldichlorosilane</td>
<td>(CAS-No.) 15983-86-5</td>
<td>97 - 100</td>
<td>Flam. Liqu. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318</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 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 cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
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
No additional information available

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 of hydrochloric acid and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Advice for firefighters

Firefighting instructions: Use water spray to cool exposed surfaces. 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

6.1.1. For non-emergency personnel

General measures
- Remove ignition sources. Use special care to avoid static electric charges.

Protective equipment
- Wear protective equipment as described in Section 8.

Emergency procedures
- Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment
- Equip cleanup crew with proper protection. Do not attempt to take action without suitable protective equipment. 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

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

Precautions for safe handling
- Avoid all eye and skin contact and do not breathe vapour and mist. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. Containers must be properly grounded before beginning transfer. Use only non-sparking tools.

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.

Storage conditions
- Keep container tightly closed.

Incompatible materials

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

<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>169.13 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>1.4495</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>&lt; 0 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>143 - 145 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 25 °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>1.05</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</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 in sealed containers stored under a dry inert atmosphere.

#### 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


#### 10.6. Hazardous decomposition products


### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Reproducive toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>Causes (severe) skin burns.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Symptoms/effects after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

**SECTION 12: Ecological information**

12.1. **Toxicity**

<table>
<thead>
<tr>
<th>Acute aquatic toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

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**

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) : 2986
UN-No. (IMDG) : 2986
UN-No. (IATA) : 2986
UN-No. (ADN) : 2986
UN-No. (RID) : 2986

14.2. **UN proper shipping name**

<table>
<thead>
<tr>
<th>Proper Shipping Name (ADR)</th>
<th>CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Chlorosilanes, corrosive, flammable, n.o.s.</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.</td>
</tr>
<tr>
<td>Transport document description (ADR)</td>
<td>UN 2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. (3-BUTENYL METHYL DICHLOROSILANE), 8 (3), II, (D/E)</td>
</tr>
<tr>
<td>Transport document description (IMDG)</td>
<td>UN 2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. (3-BUTENYL METHYL DICHLOROSILANE), 8 (3), II</td>
</tr>
<tr>
<td>Transport document description (IATA)</td>
<td>UN 2986 Chlorosilanes, corrosive, flammable, n.o.s. (3-BUTENYL METHYL DICHLOROSILANE), 8 (3), II</td>
</tr>
<tr>
<td>Transport document description (ADN)</td>
<td>UN 2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. (3-BUTENYL METHYL DICHLOROSILANE), 8 (3), II</td>
</tr>
</tbody>
</table>
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Transport document description (RID) : UN 2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. (3-BUTENYMETHYLDICHLOROSILANE), 8 (3), II

14.3. Transport hazard class(es)

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

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

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

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

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

14.4. Packing group
Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : No
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14.6. Special precautions for user

- Overland transport

Classification code (ADR) : CF1
Special provisions (ADR) : 548
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P010
Mixed packing provisions (ADR) : MP15
Portable tank and bulk container instructions (ADR) : T14
Portable tank and bulk container special provisions (ADR) : TP2, TP7, TP27
Tank code (ADR) : L4BN
Vehicle for tank carriage : FL
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2
Hazard identification number (Kemler No.) : X83
Orange plates : X83

Tunnel restriction code (ADR) : D/E
EAC code : 4W
APP code : A(fl)

- Transport by sea

Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P010
Tank instructions (IMDG) : T14
Tank special provisions (IMDG) : TP2, TP7, TP13, TP27
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-C
Stowage category (IMDG) : C
Stowage and handling (IMDG) : SW2
Properties and observations (IMDG) : Colourless, flammable liquids with a pungent odour. Immiscible with water. React violently with water or steam, evolving hydrogen chloride, an irritating and corrosive gas apparent as white fumes. When involved in a fire, evolve toxic gas. In the presence of moisture, highly corrosive to most metals. Cause 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) :Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 876
CAO max net quantity (IATA) : 30L
Special provisions (IATA) : A1
ERG code (IATA) : 8F

- Inland waterway transport

Classification code (ADN) : CF1
Special provisions (ADN) : 548
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
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Equipment required (ADN) : PP, EP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

Rail transport
Classification code (RID) : CF1
Special provisions (RID) : 548
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P010
Mixed packing provisions (RID) : MP15
Portable tank and bulk container instructions (RID) : T14
Portable tank and bulk container special provisions (RID) : TP2, TP7, TP27
Tank codes for RID tanks (RID) : L4BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE6
Hazard identification number (RID) : X83

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
3-BUTENYL METHYLDICHLOROSILANE is not on the REACH Candidate List
3-BUTENYL METHYLDICHLOROSILANE is not on the REACH Annex XIV List
3-BUTENYL METHYLDICHLOROSILANE 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.

% Volatiles : 100 %

15.1.2. National regulations

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(r). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Germany

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

Denmark
Classification remarks : 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
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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 |
| H226 | Flammable liquid and vapour. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| 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.

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