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

1.1. Product identifier

Product form: Substance
Physical state: Gas
Substance name: METHYLSILANE
Product code: SIM6515.0
Formula: CH₆Si
Synonyms: 1MS; SILYLMETHANE; MONOMETHYLSILANE; MONOSILYLMETHANE
Chemical family: ORGANOHYDRIDOSILANE

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 gases, Category 1: H220
Gases under pressure: Liquefied gas: H280
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

Signal word (CLP): Danger
Hazard statements (CLP): H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
Precautionary statements (CLP): P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent
Name: METHYLSILANE
CAS-No.: 992-94-9
EC-No.: 213-598-5

<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>Methylsilane</td>
<td>(CAS-No.) 992-94-9</td>
<td>97 - 100</td>
<td>Flam. Gas 1, H220 Press. Gas (Liq.), H280</td>
</tr>
</tbody>
</table>

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 medical advice/attention.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get 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 irritation to the respiratory tract.
Symptoms/effects after skin contact: May cause skin irritation.
Symptoms/effects after eye contact: May cause eye irritation.
Symptoms/effects after ingestion: No information available.

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: Alcohol-resistant foam. Carbon dioxide. Dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.
Unsuitable extinguishing media: Water.

5.2. Special hazards arising from the substance or mixture
Fire hazard: Extremely flammable gas. Irritating fumes and organic acid vapors may develop when material is exposed to water or open flame.
Explosion hazard: Methylsilane has been reported to spontaneously ignite on contact with air. Contains gas under pressure; may explode if heated.

5.3. Advice for firefighters
Firefighting instructions: Exercise caution when fighting any chemical fire. Eliminate all ignition sources if safe to do so. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Use only dry media to extinguish flames.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Firefighters must wear positive pressure self-contained breathing apparatus. Avoid contact with skin and eyes. Do not breathe gas.
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

Evacuate area. Ventilate area.

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

Methods for cleaning up

The potential exists for spontaneous ignition and explosion. Allow vapors to disperse. Ventilate area.

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

Extremely flammable gas. Handle empty containers with care because residual vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Precautions for safe handling

Avoid contact with skin and eyes. Do not breathe gas. Ground/bond container and receiving equipment. Handle only in sealed purged systems.

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. Protect from sunlight. Store in sealed cylinders in isolated area.

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

<table>
<thead>
<tr>
<th>METHYLSILANE (992-94-9)</th>
<th>Australia</th>
<th>TWA (mg/m³)</th>
<th>0.63 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>TWA (ppm)</td>
<td>0.2 ppm</td>
<td></td>
</tr>
</tbody>
</table>

| Methylsilane (992-94-9) | Italy - Portugal - USA ACGIH | ACGIH TWA (ppm) | 5 ppm for silane |

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Avoid all unnecessary exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. 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

### 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>Gas</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless gas.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>46.14 g/mol</td>
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<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No additional information available</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>-157 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-57 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; -40 °C</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>79.3 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>130 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
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<tr>
<td>Flammability (solid, gas)</td>
<td>Extremely flammable gas.</td>
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<tr>
<td>Vapour pressure</td>
<td>14 atm @ 21°C; 241 mm Hg @ -80°C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>1.6</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.628</td>
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<td>% Volatiles</td>
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<td>Solubility</td>
<td>Reacts with water.</td>
</tr>
<tr>
<td>Log Pow</td>
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<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
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</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
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<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>
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</tbody>
</table>

#### 9.2. Other information

Gas group: Press. Gas (Liq.)

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable in sealed cylinders stored under a dry inert atmosphere.

#### 10.3. Possibility of hazardous reactions

Reacts with oxygen in air, may ignite spontaneously. Mixtures with mercury explode when shaken in the presence of air. Platinum, platinum and iron salts and other Lewis acids can cause generation of flammable hydrogen gas in the presence of moisture.

#### 10.4. Conditions to avoid

Heat. Sparks. Open flame.

#### 10.5. Incompatible materials

Acids. alcohols. Oxidizing agent.

#### 10.6. Hazardous decomposition products

Organic acid vapors. Silicon dioxide.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity: Not classified
Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: 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: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: May cause skin irritation.
Symptoms/effects after eye contact: May cause eye irritation.
Symptoms/effects after ingestion: No information available.

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
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: Incinerate. Dispose in a safe manner in accordance with local/national regulations.
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): 3161
UN-No. (IMDG): 3161
UN-No. (IATA): 3161
UN-No. (ADN): 3161
UN-No. (RID): 3161

14.2. UN proper shipping name
Proper Shipping Name (ADR): LIQUEFIED GAS, FLAMMABLE, N.O.S.
Proper Shipping Name (IMDG): LIQUEFIED GAS, FLAMMABLE, N.O.S.
Proper Shipping Name (IATA): Liquefied gas, flammable, n.o.s.
Proper Shipping Name (ADN): LIQUEFIED GAS, FLAMMABLE, N.O.S.
Proper Shipping Name (RID): LIQUEFIED GAS, FLAMMABLE, N.O.S.
Transport document description (ADR): UN 3161 LIQUEFIED GAS, FLAMMABLE, N.O.S. (METHYLSILANE), 2.1, (B/D)
**Transport document description (IMDG)**: UN 3161 LIQUEFIED GAS, FLAMMABLE, N.O.S. (METHYLSILANE), 2.1
**Transport document description (IATA)**: UN 3161 Liquefied gas, flammable, n.o.s. (METHYLSILANE), 2.1
**Transport document description (ADN)**: UN 3161 LIQUEFIED GAS, FLAMMABLE, N.O.S. (METHYLSILANE), 2.1
**Transport document description (RID)**: UN 3161 LIQUEFIED GAS, FLAMMABLE, N.O.S. (METHYLSILANE), 2.1

### 14.3. Transport hazard class(es)

**ADR**
- **Transport hazard class(es) (ADR)**: 2.1
- **Danger labels (ADR)**: 2.1

**IMDG**
- **Transport hazard class(es) (IMDG)**: 2.1
- **Danger labels (IMDG)**: 2.1

**IATA**
- **Transport hazard class(es) (IATA)**: 2.1
- **Hazard labels (IATA)**: 2.1

**ADN**
- **Transport hazard class(es) (ADN)**: 2.1
- **Danger labels (ADN)**: 2.1

**RID**
- **Transport hazard class(es) (RID)**: 2.1
- **Danger labels (RID)**: 2.1

### 14.4. Packing group

- **Packing group (ADR)**: Not applicable
- **Packing group (IMDG)**: Not applicable
- **Packing group (IATA)**: Not applicable
- **Packing group (ADN)**: Not applicable
- **Packing group (RID)**: Not applicable
### 14.5. Environmental hazards

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<tr>
<th>Description</th>
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<td>Dangerous for the environment</td>
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<tr>
<td>Marine pollutant</td>
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<td>Other information</td>
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### 14.6. Special precautions for user

#### - Overland transport

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<th>Description</th>
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<tr>
<td>Classification code (ADR)</td>
<td>2F</td>
</tr>
<tr>
<td>Special provisions (ADR)</td>
<td>274, 662</td>
</tr>
<tr>
<td>Limited quantities (ADR)</td>
<td>0</td>
</tr>
<tr>
<td>Excepted quantities (ADR)</td>
<td>E0</td>
</tr>
<tr>
<td>Packing instructions (ADR)</td>
<td>P200</td>
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<tr>
<td>Mixed packing provisions (ADR)</td>
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<tr>
<td>Portable tank and bulk container instructions (ADR)</td>
<td>(M), T50</td>
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<td>Tank code (ADR)</td>
<td>PxBN(M)</td>
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<td>Tank special provisions (ADR)</td>
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<td>Vehicle for tank carriage</td>
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<td>Transport category (ADR)</td>
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<td>Special provisions for carriage - Loading, unloading and handling (ADR)</td>
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<tr>
<td>Special provisions for carriage - Operation (ADR)</td>
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#### - Transport by sea

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</tr>
<tr>
<td>Limited quantities (IMDG)</td>
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<tr>
<td>Excepted quantities (IMDG)</td>
<td>E0</td>
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<tr>
<td>Packing instructions (IMDG)</td>
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<td>Tank instructions (IMDG)</td>
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<td>F-D</td>
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<tr>
<td>EmS-No. (Spillage)</td>
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<tr>
<td>Stowage category (IMDG)</td>
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<td>Stowage and handling (IMDG)</td>
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</table>

#### - Air transport

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<tr>
<td>PCA Limited quantities (IATA)</td>
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</tr>
<tr>
<td>PCA limited quantity max net quantity (IATA)</td>
<td>Forbidden</td>
</tr>
<tr>
<td>PCA packing instructions (IATA)</td>
<td>Forbidden</td>
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<tr>
<td>PCA max net quantity (IATA)</td>
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<tr>
<td>CAO packing instructions (IATA)</td>
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<td>CAO max net quantity (IATA)</td>
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<td>Special provisions (IATA)</td>
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<td>ERG code (IATA)</td>
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#### - Inland waterway transport

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<tbody>
<tr>
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<tr>
<td>Special provisions (ADN)</td>
<td>274</td>
</tr>
<tr>
<td>Limited quantities (ADN)</td>
<td>0</td>
</tr>
<tr>
<td>Excepted quantities (ADN)</td>
<td>E0</td>
</tr>
<tr>
<td>Equipment required (ADN)</td>
<td>PP, EX, A</td>
</tr>
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</table>
VENTILATION (ADN)

- Rail transport

Special provisions (RID) : 274, 662
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P200
Mixed packing provisions (RID) : MP9
Portable tank and bulk container instructions (RID) : T50(M)
Tank codes for RID tanks (RID) : PxBN(M)
Special provisions for RID tanks (RID) : TU38, TE22, TA4, TT9, TM6
Transport category (RID) : 2
Special provisions for carriage - Loading, unloading and handling (RID) : CW9, CW10, CW36
Colis express (express parcels) (RID) : CE3
Hazard identification number (RID) : 23

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
METHYLSILANE is not on the REACH Candidate List
METHYLSILANE is not on the REACH Annex XIV List
METHYLSILANE 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

Germany
Reference to AwSV : Water hazard class (WGK) 1; Slightly hazardous to water (Classification according to VvVwS, Annex 1 or 2; ID No. 567)

Netherlands
SZW-list van kankerverwekkende stoffen : The substance is not listed
SZW-list van mutagene stoffen : The substance is not listed
NIET-limitelev lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitelev lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitelev 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. Gas 1; Press. Gas (Liq.); 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
METHYLSILANE
Safety Data Sheet

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:

| Flam. Gas 1 | Flammable gases, Category 1 |
| Press. Gas (Liq.) | Gases under pressure: Liquefied gas |
| H220 | Extremely flammable gas. |
| H280 | Contains gas under pressure; may explode if heated. |

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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