## SECTION 1: Identification

### 1.1. Identification

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>DISILANE, 99.9+%</td>
</tr>
<tr>
<td>Product code</td>
<td>SID4594.0</td>
</tr>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Physical state</td>
<td>Gas</td>
</tr>
<tr>
<td>Formula</td>
<td>H6Si2</td>
</tr>
<tr>
<td>Synonyms</td>
<td>DISILICON HEXAHYDRIDE; SILICOETHANE</td>
</tr>
<tr>
<td>Chemical family</td>
<td>SILANE</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

### 1.3. Supplier

**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

### 1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS-US classification**

- **Pyrophoric Gas**: H250 - Catches fire spontaneously if exposed to air  
- **Flammable gases Category 1**: H220 - Extremely flammable gas  
- **Gases under pressure Compressed gas**: H280 - Contains gas under pressure; may explode if heated  
- **Serious eye damage/eye irritation Category 2A**: H319 - Causes serious eye irritation

Full text of H statements: see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS US labeling**

- **Hazard pictograms (GHS US)**: ![Hazard Pictograms]

- **Signal word (GHS US)**: Danger

- **Hazard statements (GHS US)**:  
  - H220 - Extremely flammable gas  
  - H250 - Catches fire spontaneously if exposed to air  
  - H280 - Contains gas under pressure; may explode if heated  
  - H319 - Causes serious eye irritation

- **Precautionary statements (GHS US)**:  
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
  - P210 - Keep away from heat, open flames, sparks. - No smoking.  
  - P264 - Wash hands thoroughly after handling.  
  - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
  - P337+P313 - If eye irritation persists: Get medical advice/attention.  
  - P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
  - P381 - Eliminate all ignition sources if safe to do so.  
  - P403 - Store in a well-ventilated place.  
  - P410+P403 - Protect from sunlight. Store in a well-ventilated place.

### 2.3. Hazards not otherwise classified (HNOC)

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable
SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>DISILANE, 99.9+%</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1590-87-0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disilane</td>
<td>(CAS-No.) 1590-87-0</td>
<td>&gt; 98</td>
<td>Pyr. Gas, H250, Flam. Gas 1, H220, Press. Gas (Comp.), H280, Eye Irrit. 2A, H319</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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water.

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 (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: Causes serious eye irritation. At levels below the flammability limit, silane is expected to affect the eyes by absorption and deposition of silicon dioxide, causing severe irritation and possible corneal damage.

Symptoms/effects after ingestion: May be harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: If unable to stop the flow of gas, disilane should be allowed to burn until consumed. Secondary fires may be extinguished with alcohol resistant foam, carbon dioxide, dry chemical. Use of high expansion foam (100:1) is recommended to cover flames.

5.2. Specific hazards arising from the chemical

Fire hazard: Flammable gas. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Explosion hazard: Disilane can spontaneously ignite on contact with air. Pyrophoric gas.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Disilane should be allowed to burn until consumed. Excessive pressure may develop in gas cylinders exposed to fire-heated silane may explode on contact with air. Cool cylinders and surroundings with water from a suitable distance.

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 vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Ventilate area. Remove ignition sources. Use special care to avoid static electric charges. Eliminate every possible source of ignition.

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.
6.2. Environmental precautions
No additional information available

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Stop flow of gas if possible. The potential exists for spontaneous ignition and explosion. Allow vapors to disperse.

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: Flammable gas. Catches fire spontaneously if exposed to air.
Hygiene measures: Wash contaminated clothing before reuse. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Proper grounding procedures to avoid static electricity should be followed.
Storage conditions: Store in sealed cylinders in isolated area.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th>Disilane (1590-87-0)</th>
<th>ACGIH</th>
<th>ACGIH TWA (ppm)</th>
<th>5 ppm Silane</th>
</tr>
</thead>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

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

| Physical state | Gas |
| Appearance     | Pyrophoric gas. |
| Molecular mass | 62.22 g/mol |
| Color          | Colorless. |
| Odor           | Disagreeable. |
| Odor threshold | No data available |
| Refractive index | No data available |
| pH             | No data available |
| Relative evaporation rate (butyl acetate=1) | No data available |
DISILANE, 99.9+%
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point</td>
<td>-132 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-14.5 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; -40 °C</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>158.85 °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>Extremely flammable gas</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>345 kPa @ 25°C (cylinder pressure); (~50 psia)</td>
</tr>
<tr>
<td>Critical pressure</td>
<td>50.63 atm</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>2.865 g/l</td>
</tr>
<tr>
<td>Relatve density</td>
<td>0.686</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water. 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>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>9.2. Other information</td>
<td></td>
</tr>
<tr>
<td>Gas group</td>
<td>Compressed gas</td>
</tr>
</tbody>
</table>

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, igniting 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.

10.4. Conditions to avoid
Heat. Sparks. Open flame.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Silicon dioxide.

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>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</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>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Potential Adverse human health effects and symptoms</td>
<td>Fatal if inhaled.</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>May cause irritation to the respiratory tract.</td>
</tr>
</tbody>
</table>
## Symptoms/effects after skin contact
May cause skin irritation.

## Symptoms/effects after eye contact
Causes serious eye irritation. At levels below the flammability limit, silane is expected to affect the eyes by absorption and deposition of silicon dioxide, causing severe irritation and possible corneal damage.

## Symptoms/effects after ingestion
May be harmful if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity
No additional information available

#### 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. Other adverse effects
- **Effect on the ozone layer**: No additional information available
- **Effect on global warming**: No known effects from this product.
- **GWPmix comment**: No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Disposal 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
- **UN-No.**: 1954
- **DOT NA no.**: UN1954

#### 14.2. UN proper shipping name
- **Transport document description**: UN1954 Compressed gas, flammable, n.o.s. (DISILANE), 2.1
- **Proper Shipping Name (DOT)**: Compressed gas, flammable, n.o.s. (DISILANE)
- **Class (DOT)**: 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
- **Hazard labels (DOT)**: 2.1 - Flammable gas

#### DOT Packaging
- **Non Bulk (49 CFR 173.xxx)**: 302;305
- **Bulk (49 CFR 173.xxx)**: 314;315
- **Exceptions (49 CFR 173.xxx)**: 306
- **Symbols**: G - Identifies PSN requiring a technical name

#### 14.3. Additional information
- **Emergency Response Guide (ERG) Number**: 115
- **Other information**: No supplementary information available.

### Transport by sea
- **DOT Vessel Stowage Location**: D - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
- **DOT Vessel Stowage Other**: 40 - Stow “clear of living quarters”
### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**Disilane (1590-87-0)**
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

**CANADA**
- No additional information available

**EU-Regulations**
- **Disilane (1590-87-0)**
  - Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**
- **Disilane (1590-87-0)**
  - Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
  - Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
  - Listed on the Japanese ISHL (Industrial Safety and Health Law)
  - Listed on the Korean ECL (Existing Chemicals List)
  - Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

#### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### SECTION 16: Other information

#### Full text of H-phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Full Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H220</td>
<td>Extremely flammable gas</td>
</tr>
<tr>
<td>H250</td>
<td>Catches fire spontaneously if exposed to air</td>
</tr>
<tr>
<td>H280</td>
<td>Contains gas under pressure; may explode if heated</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
</tbody>
</table>

**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.

**Hazard Rating**

**Health**
- 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

**Flammability**
- 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

**Physical**
- 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Prepared by safety and environmental affairs.

**Date of issue:** 01/06/2015  
**Version:** 1.0

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**SDS US (GHS HazCom 2012) - Custom**

**Print date:** 04/11/2019  
**EN (English US)**  
**SDS ID:** SID4594.0  
**6/7**
DISILANE, 99.9+%  
Safety Data Sheet  

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
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