SECTION 1: Identification

1.1. Identification

Product name: HEXACHLORODISILANE
Product code: SIH5905.0
Product form: Substance
Physical state: Liquid
Formula: Cl₆Si₂
Synonyms: HCDS DISILANE HEXACHLORIDE
Chemical family: CHLOROSILANE

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
Flammable liquids Category 4
Skin corrosion/irritation Category 1B
Serious eye damage/eye irritation Category 1
Specific target organ toxicity (single exposure) Category 3
Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Signal word (GHS US): Danger
Hazard statements (GHS US):
- H227 - Combustible liquid
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H335 - May cause respiratory 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.
- P260 - Do not breathe vapors.
- P264 - Wash hands thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
- P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
- 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 doctor
- P363 - Wash contaminated clothing before reuse.
- P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide, dry chemical to extinguish.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 - Keep in a cool place
- P405 - Store locked up.
**HEXACHLORODISILANE**

Safety Data Sheet

---

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

Other hazards not contributing to the classification:

NOTE: Material may form a siloxane polymer on the skin, eyes or in the lungs. Hydrogen chloride may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen chloride is 5 ppm.

**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>HEXACHLORODISILANE</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>13465-77-5</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>Hexachlorodisilane</td>
<td>(CAS-No.) 13465-77-5</td>
<td>97 - 100</td>
<td>Flam. Liq. 4, H227</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1B, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
</tbody>
</table>

---

**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. Get medical advice/attention.

First-aid measures after skin contact: Wash with plenty of soap and 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 (acute and delayed)**

Symptoms/effects: Causes severe skin burns and eye damage.

Symptoms/effects after inhalation: May cause respiratory irritation.

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.

---

**SECTION 5: Fire-fighting measures**

**5.1. Suitable (and unsuitable) 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. Specific hazards arising from the chemical**

Fire hazard: Combustible liquid. Irritating fumes of hydrogen chloride and organic acid vapors may develop when material is exposed to water or open flame.

Explosion hazard: When heated at elevated temperatures (>150°C) hexachlorodisilane ignites in air. The following information is provided to assist if hexachlorodisilane is present in a fire situation. On long term storage several incidents of shock sensitive detonations have been reported. In all cases material was stored greater than 1 year and evidence of package seal deterioration and partial hydrolysis were observed. Possible explanations for the shock sensitivity are low level contamination with pentachlorodisilane or the formation of hydridosilanes by HCl addition to the disilane or peroxide formation. Polymeric hydrolysates or gels frequently are associated with shock sensitive behavior.

**5.3. Special protective equipment and precautions for fire-fighters**

Firefighting instructions: Use only dry media to extinguish flames. Water spray or fog should only be used to knock down hydrogen chloride vapors in areas downwind from the fire. 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 vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove 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. 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/sparks/open flames/hot surfaces. - No smoking.
Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. 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

Storage conditions: Keep container tightly closed. Store in sealed corrosion resistant containers. Inspect containers regularly for integrity. May form explosive byproducts on extended storage. It is recommended that bottles be stored in a dry inert environment and that in no case should material be stored for greater than one year. Keep in a cool place. Store locked up.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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:
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

<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>268.89 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Straw.</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrid. Similar to hydrogen chloride.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.475</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>144 - 146 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>78 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>320 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>110 mm Hg @ 85°C</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>&gt; 5</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.562</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts violently 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>7 - 70 vol % (lower; upper)</td>
</tr>
</tbody>
</table>

### SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>No additional information available</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable in sealed corrosion resistant containers stored under a dry inert atmosphere.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Reacts with water and moisture in air, liberating hydrogen chloride.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat. Open flame. Sparks.</td>
</tr>
</tbody>
</table>

### SECTION 11: Toxicological information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</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 sensitization</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
**Germ cell mutagenicity** : Not classified

**Carcinogenicity** : Not classified

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or AGI as a carcinogen.

**Reproductive toxicity** : Not classified

**Specific target organ toxicity – single exposure** : May cause respiratory irritation.

**Specific target organ toxicity – repeated exposure** : Not classified

**Aspiration hazard** : Not classified

**Symptoms/effects after inhalation** : May cause respiratory irritation.

**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

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

Other adverse effects : This substance may be hazardous to the environment.

Effect on the ozone layer : No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal 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

- **UN-No.(DOT)** : 2987
- **DOT NA no.** : UN2987

### 14.2. UN proper shipping name

- **Transport document description** : Chlorosilanes, corrosive, n.o.s. (HEXACHLORODISILANE), 8, II
- **Proper Shipping Name (DOT)** : Chlorosilanes, corrosive, n.o.s. (HEXACHLORODISILANE)
- **Class (DOT)** : 8 - Class 8 - Corrosive material 49 CFR 173.136
- **Packing group (DOT)** : II - Medium Danger
- **Hazard labels (DOT)** : 8 - Corrosive

- **DOT Packaging Non Bulk (49 CFR 173.xxx)** : 206
- **DOT Packaging Bulk (49 CFR 173.xxx)** : 242
- **DOT Packaging Exceptions (49 CFR 173.xxx)** : None
**HEXACHLORODISILANE**
Safety Data Sheet

### 14.3. Additional information

**Emergency Response Guide (ERG) Number** : 156

**Other information** : No supplementary information available.

**DOT Vessel Stowage Location**

- C - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel.

**DOT Vessel Stowage Other**

- 40 - Stow “clear of living quarters”

**Air transport**

**DOT Quantity Limitations**

- Passenger aircraft/rail (49 CFR 173.27) : Forbidden
- Cargo aircraft only (49 CFR 175.75) : 30 L

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**Hexachlorodisilane (13465-77-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

**CANADA**

**Hexachlorodisilane (13465-77-5)**

Listed on the Canadian NDSL (Non-Domestic Substances List)

**EU-Regulations**

**Hexachlorodisilane (13465-77-5)**

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**

**Hexachlorodisilane (13465-77-5)**

- Listed on the AICS (Australian Inventory of Chemical Substances)
- 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>H227</th>
<th>Combustible liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory 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.: Europe 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**

- 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
HEXACHLORODISILANE
Safety Data Sheet

Flammability: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

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: 01/23/2015  Revision date: 04/18/2017  Version: 2.0

SDS US (GHS HazCom 2012) - Custom
According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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