# 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>1,3,5-TRISILACYCLOHEXANE</td>
</tr>
<tr>
<td>Product code</td>
<td>SIT8709.3</td>
</tr>
<tr>
<td>Formula</td>
<td>C3H12Si3</td>
</tr>
<tr>
<td>Synonyms</td>
<td>CYCLOTRISILMETHYLENE; CYCLOTRIMETHYLENETRISILANE</td>
</tr>
<tr>
<td>Chemical family</td>
<td>ORGANOSILANE</td>
</tr>
</tbody>
</table>

## 1.2. Relevant identified uses of the substance or mixture and uses advised against

<table>
<thead>
<tr>
<th>Use of the substance/mixture</th>
<th>Chemical intermediate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For research use only</td>
</tr>
</tbody>
</table>

## 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

## 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 (GHS-US)**

- Flam. Liq. 2  H225  
- Eye Irrit. 2A  H319  
  
| Full text of H-phrases: see section 16 |

## 2.2. Label elements

**GHS-US labelling**

<table>
<thead>
<tr>
<th>Hazard pictograms (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="H225" /></td>
</tr>
</tbody>
</table>

- **Signal word (GHS-US)**: Danger
- **Hazard statements (GHS-US)**:  
  - H225 - Highly flammable liquid and vapor  
  - H319 - Causes serious eye irritation
- **Precautionary statements (GHS-US)**:  
  - P280 - Wear protective gloves/protective clothing/eye protection/face protection  
  - P264 - Wash hands thoroughly after handling  
  - P210 - Keep away from heat, open flames, sparks. - No smoking  
  - P233 - Keep container tightly closed  
  - P240 - Ground/bond container and receiving equipment  
  - P241 - Use explosion-proof electrical equipment  
  - P242 - Use only non-sparking tools  
  - P243 - Take precautionary measures against static discharge  
  - P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing, Rinse skin with water/shower  
  - 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  
  - P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish  
  - P403+P235 - Keep in a cool place  
  - P501 - Dispose of contents/container to licensed waste disposal facility.

## 2.3. Other hazards

No additional information available
### 1,3,5-TRISILACYCLOHEXANE

#### Safety Data Sheet

**2.4. Unknown acute toxicity (GHS-US)**

No data available

#### SECTION 3: Composition/information on ingredients

**3.1. Substance**

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>1,3,5-TRISILACYCLOHEXANE</td>
</tr>
<tr>
<td>CAS No</td>
<td>291-27-0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3,5-Trisilacyclohexane</td>
<td>(CAS No) 291-27-0</td>
<td>&gt; 95</td>
<td>Flam. Liq. 2, H225, Eye Irrit. 2A, H319</td>
</tr>
</tbody>
</table>

**3.2. Mixture**

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:

Immediately flush eyes thoroughly with water for at least 15 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/injuries after inhalation:

May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/injuries after skin contact:

May cause skin irritation.

Symptoms/injuries after eye contact:

Causes serious eye irritation.

Symptoms/injuries 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**

Suitable extinguishing media:


**5.2. Special hazards arising from the substance or mixture**

Fire hazard:

Highly flammable liquid and vapor. 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:

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 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**

Emergency procedures:

Evacuate unnecessary personnel.

**6.1.2. For emergency responders**

Protective equipment:

Equip cleanup crew with proper 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

Additional hazards when processed: Handle empty containers with care because residual vapors are flammable. Vapors can ignite spontaneously if heated or subjected to static discharge. Discharge of vapors through vacuum pumps has been reported to cause "cracking" or "popping" sounds associated with ignition.

Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapor and mist. Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent accumulation of vapors. Use only non-sparking tools. Release pressure in an inert atmosphere.

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: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.

Storage conditions: Keep container tightly closed. Store in sealed containers under dry inert atmosphere. Store containers below 40°C. Containers can generate pressure during storage.


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. 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 organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Appearance: Clear liquid.

Molecular mass: 132.38 g/mol

Color: Straw.

Odor: Mild.

Odor threshold: No data available

Refractive index: 1.5059

pH: No data available

Relative evaporation rate (butyl acetate=1): > 1

Melting point: -10 °C

Freezing point: No data available

Boiling point: 135 °C

Flash point: < 0 °C

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Flammability (solid, gas): Highly flammable liquid and vapor

Vapor pressure: No data available

Relative vapor density at 20 °C: > 1

Relative density: 0.9001

VOC content: 100 %

Solubility: Reacts with water.
# 1,3,5-TRISILACYCLOHEXANE
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<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>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
In the presence of platinum and Lewis acids this compound can generate small quantities of flammable hydrogen gas.

### 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>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>Symptoms/injuries after skin contact</td>
<td>May cause skin irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
</tbody>
</table>

## 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 ozone layer: No additional information available
1,3,5-TRISILACYCLOHEXANE
Safety Data Sheet

Effect on the global warming: No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information: Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT) : 1993
DOT NA no. : UN1993

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Flammable liquids, n.o.s. (1,3,5-TRISILACYCLOHEXANE)
Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT) : 3 - Flammable liquid

DOT Symbols : G - Identifies PSN requiring a technical name
Packing group (DOT) : II - Medium Danger
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242

14.3. Additional information

Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed “on deck” or “under deck” 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; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

SECTION 15: Regulatory information

15.1. US Federal regulations

1,3,5-Trisilacyclohexane (291-27-0)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

1,3,5-TRISILACYCLOHEXANE (291-27-0)
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(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

15.3. US State regulations

1,3,5-TRISILACYCLOHEXANE(291-27-0)

U.S. - California - Proposition 65 - Carcinogens List : No
U.S. - California - Proposition 65 - Developmental Toxicity : No
U.S. - California - Proposition 65 - Reproductive : No
# 1,3,5-TRISILACYCLOHEXANE

## Safety Data Sheet

<table>
<thead>
<tr>
<th>1,3,5-TRISILACYCLOHEXANE(291-27-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity</strong> - Female</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1,3,5-Trisilacyclohexane (291-27-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California - Proposition 65 - Carcinogens List</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

## 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.

### Full text of H-phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids Category 2</td>
</tr>
<tr>
<td>H225</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>Eye Irrit. 2A</td>
<td>Serious eye damage/eye irritation Category 2A</td>
</tr>
</tbody>
</table>

### HMIS III Rating

- **Health:** 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- **Flammability:** 4 Severe Hazard
- **Physical:** 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 01/13/2015  
Version: 1.0

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 therefor. Information on this safety data sheet is not intended to constitute a basis for product specifications.

© 2014 Gelest Inc. Morrisville, PA 19067