SECTION 1: Identification

1.1. Identification

Product name: BIS(TRIMETHYLSILYL)SELENIDE
Product code: SIB1871.0
Product form: Substance
Physical state: Liquid
Formula: C6H18SeSi2
Synonyms: HEXAMETHYLDISILSELANANE
Chemical family: ORGANOSILANE

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 3 | H226 | Flammable liquid and vapor |
| Acute toxicity (oral) Category 3 | H301 | Toxic if swallowed |
| Acute toxicity (inhalation/vapor) Category 3 | H331 | Toxic if inhaled |

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): H226 - Flammable liquid and vapor  
H301+H331 - Toxic if swallowed or if inhaled

Precautionary statements (GHS US): P280 - Wear eye protection, protective gloves, protective clothing.  
P261 - Avoid breathing vapors.  
P270 - Do not eat, drink or smoke when using this product.  
P264 - Wash hands thoroughly after handling.  
P311 - Call a doctor  
P210 - Keep away from heat, ignition sources. - No smoking.  
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.  
P370+P378 - In case of fire: Use carbon dioxide or dry powder to extinguish.  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P330 - Rinse mouth.  
P301+P310 - If swallowed: Immediately call a doctor  
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower  
P271 - Use only outdoors or in a well-ventilated area.  
P233 - Keep container tightly closed.  
P403+P235 - Keep in a cool place  
P405 - Store locked up.  
P501 - Dispose of contents/container to licensed waste disposal facility.
BIS(TRIMETHYLSILYL)SELENIDE
Safety Data Sheet

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>BIS(TRIMETHYLSILYL)SELENIDE</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>4099-46-1</td>
</tr>
</tbody>
</table>

Full text of hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

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. Get medical advice/attention.

First-aid measures after ingestion
Never give anything by mouth to an unconscious person. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation: Toxic if inhaled.
Symptoms/effects after skin contact: No information available.
Symptoms/effects after eye contact: No information available.
Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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: Carbon dioxide. Dry powder.

5.2. Specific hazards arising from the chemical

Fire hazard: Flammable liquid and vapor.
Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Material readily ignited with flame, sparks, friction or heat. Burning material may release toxic and corrosive fumes. Leave the area unless fitted with a self-contained breathing apparatus and fire protective clothing.
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. Leave the area unless fitted with a self-contained breathing apparatus.
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: Spillage of the material can create widespread odor problem. Small spills can be absorbed into vermiculite or other suitable absorbent. Odor can be attenuated by slurring material adsorbed onto vermiculite with 3-5% aqueous sodium hypochlorite (bleach). 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: Keep away from heat, open flames, sparks. - No smoking.
Precautions for safe handling: Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent accumulation of vapors. Avoid all eye and skin contact and do not breathe vapor and mist.
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.
Storage conditions: Keep container tightly closed.
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>Bis(trimethylsilyl)selene (4099-46-1)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>0.2 mg/m³ (as Se)</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls: Provide local exhaust or general room ventilation. Handle in an enclosing hood with exhaust ventilation. Mechanical with caustic scrubber is recommended.

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

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>225.34 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Odor</td>
<td>Strong. Stench.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.481</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
</tbody>
</table>
BIS(TRIMETHYLSILYL)SELENIDE
Safety Data Sheet

Relative evaporation rate (butyl acetate=1): No data available
Melting point: -7 °C
Freezing point: No data available
Boiling point: 58 - 59 °C @ 11 mm Hg
Flash point: 43 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Flammable liquid and vapor
Vapor pressure: ~ 2 mm Hg @ 25°C
Relative vapor density at 20 °C: > 1
Relative density: 0.9
% Volatiles: > 97 %
Solubility: Insoluble in water. Reacts with water.
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosion limits: No data available

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 moisture free atmosphere.

10.3. Possibility of hazardous reactions
Material decomposes slowly in contact with moist air or with water liberating hydrogen selenide.

10.4. Conditions to avoid
Heat. Ignition sources.

10.5. Incompatible materials
Moisture. Water.

10.6. Hazardous decomposition products

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 sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Potential Adverse human health effects and symptoms: Toxic if inhaled. Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Symptoms/effects after inhalation: Toxic if inhaled.
Symptoms/effects after skin contact: No information available.
Symptoms/effects after eye contact: No information available.
**Symptoms/effects after ingestion**  
Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

### 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

### SECTION 13: Disposal considerations

**13.1. Disposal methods**  
Product/Packaging disposal recommendations: Incinerate. 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): 2929  
DOT NA no.: UN2929

**14.2. UN proper shipping name**  
Transport document description: UN2929 Toxic liquids, flammable, organic, n.o.s. (BIS(TRIMETHYLSILYL)SELENIDE), 6.1 (3), II  
Proper Shipping Name (DOT): Toxic liquids, flammable, organic, n.o.s. (BIS(TRIMETHYLSILYL)SELENIDE)  
Packing group (DOT): II - Medium Danger  
Hazard labels (DOT): 6.1 - Poison  
3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx): 202  
DOT Packaging Bulk (49 CFR 173.xxx): 243  
DOT Packaging Exceptions (49 CFR 173.xxx): 153  
DOT Symbols: G - Identifies PSN requiring a technical name

**14.3. Additional information**  
Emergency Response Guide (ERG) Number: 131  
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.  
DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

**Air transport**  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
BIS(TRIMETHYLSILYL)SELENIDE
Safety Data Sheet

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)

| DOT Quantity Limitations | Cargo aircraft only (49 CFR 175.75) |

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>BIS(TRIMETHYLSILYL)SELENIDE (4099-46-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA Exemption/Exclusion</td>
</tr>
<tr>
<td>CAUTION: This material is supplied for research and development purposes subject to the R&amp;D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a &quot;technically qualified individual&quot; as defined by 40 CFR 720.3(ee). The use of this material for &quot;commercial purposes&quot; as defined by 40 CFR 720.3(r) is not permitted in the United States.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bis(trimethylsilyl)selenide (4099-46-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>

15.2. International regulations

<table>
<thead>
<tr>
<th>CANADA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU-Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional information available</td>
</tr>
</tbody>
</table>

15.3. US State regulations

<table>
<thead>
<tr>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H226</th>
<th>Flammable liquid and vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled</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

<table>
<thead>
<tr>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &amp; IC)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.</td>
</tr>
</tbody>
</table>

Prepared by safety and environmental affairs.

Print date: 04/12/2019 EN (English US) SDS ID: SIB1871.0 6/7

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
BIS(TRIMETHYLSILYL)SELENIDE
Safety Data Sheet

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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