SECTION 1: Identification

1.1. Identification
Product name: TRIMETHOXYSILYLPROPYL MODIFIED (POLYETHYLENIMINE), 50% in isopropanol
Product code: SSP-060
Product form: Mixture
Physical state: Liquid
Synonyms: AZIRIDINE, POLYMER WITH (3-CHLOROPROPYL)TRIMETHOXYSILANE; POLYETHYLENEIMINE, [N-(TRI(ISOPROPOXY, METHOXY)SILYLPROPYL]-, HYDROCHLORIDES
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 2 - H225 Highly flammable liquid and vapor
- Skin corrosion/irritation Category 2A - H315 Causes skin irritation
- Serious eye damage/eye irritation Category 2A - H319 Causes serious eye irritation
- Specific target organ toxicity – Single exposure, Category 3, Narcosis - H336 May cause drowsiness or dizziness
Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS US labeling
Hazard pictograms (GHS US): ☐

Signal word (GHS US): Danger
Hazard statements (GHS US):
- H225 - Highly flammable liquid and vapor
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H336 - May cause drowsiness or dizziness

Precautionary statements (GHS US):
- 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.
- P261 - Avoid breathing vapors.
- P264 - Wash hands thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 - If on skin: Wash with plenty of water.
- 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
- P312 - Call a POISON CENTER if you feel unwell.
- P321 - Specific treatment (see supplemental first aid instruction on this label).
TRIMETHOXYSILYLPROPYL MODIFIED (POLYETHYLENIMINE), 50% in isopropanol
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
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
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<tbody>
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<td>Isopropanol</td>
<td>(CAS-No.) 67-63-0</td>
<td>50</td>
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<td></td>
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</tr>
<tr>
<td>Trimethoxysilylpropyl modified (polyethyleneimine)</td>
<td>(CAS-No.) 136856-91-2</td>
<td>50</td>
<td></td>
<td>Skin Irrit. 2, H315</td>
<td>Eye Irrit. 2A, H319</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

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. Get 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 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 drowsiness or dizziness. May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/effects after skin contact: Causes skin irritation.

Symptoms/effects after eye contact: Causes serious eye irritation.

Symptoms/effects after ingestion: May be harmful if swallowed. Oral toxicity is associated with isopropanol or methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness. Onset of symptoms may be delayed up to 48 hours.

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


5.2. Specific hazards arising from the chemical

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.

Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

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.

Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapor and mist. Use only outdoors or in a well-ventilated area. Provide good ventilation in process area to prevent accumulation of vapors. Containers and transfer lines require grounding during use. Take precautionary measures against static discharge. Use only non-sparking tools.

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. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.

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>
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<tbody>
<tr>
<td></td>
<td>200 ppm</td>
<td>400 ppm</td>
<td>980 mg/m³</td>
<td>400 ppm</td>
<td>2000 ppm (10% LEL)</td>
<td>980 mg/m³</td>
<td>400 ppm</td>
<td>1225 mg/m³</td>
<td>500 ppm</td>
</tr>
</tbody>
</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:

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 combination organic vapor - amine gas (brown cartridge) respirator.

**SECTION 9: Physical and chemical properties**

9.1. Information on basic physical and chemical properties

- Physical state: Liquid
- Appearance: Clear solution.
- Molecular mass: 1500 – 1800 g/mol
- Color: Straw yellow. Amber.
- Odor: No data available
- Odor threshold: No data available
- Refractive index: No data available
- pH: No data available
- Relative evaporation rate (butyl acetate=1): No data available
- Melting point: < 0 °C
- Freezing point: No data available
- Boiling point: 82 °C (initial, isopropanol)
- Flash point: 12 °C
- Auto-ignition temperature: 455 (isopropanol)
- Decomposition temperature: No data available
- Flammability: Highly flammable liquid and vapor
- Vapor pressure: No data available
- Relative vapor density at 20 °C: > 2
- Relative density: 0.92
- % Volatiles: > 45 °C
- Solubility: Reacts with water. Dissolves.
- Partition coefficient n-octanol/water (Log Pow): No data available
- Partition coefficient n-octanol/water (Log Kow): No data available
- Viscosity, kinematic: 125 – 175 cSt
- Viscosity, dynamic: No data available
- Explosive properties: No data available
- Oxidizing properties: No data available
- Explosion limits: 2.5 – 12 vol % (isopropanol)

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
No additional information available

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Methanol. Organic amine vapors.
SECTION 11: Toxicological information

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Acute toxicity (oral)</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

**Isopropanol (67-63-0)**

| LD50 oral rat | 1870 mg/kg |
| LD50 dermal rabbit | 4059 mg/kg |
| LC50 Inhalation - Rat | 72600 mg/m³ (Exposure time: 4 h) |
| ATE US (oral) | 1870 mg/kg body weight |
| ATE US (dermal) | 4059 mg/kg body weight |

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

**Reproductive toxicity**

IARC group: 3 - Not classifiable

**STOT**-single exposure: May cause drowsiness or dizziness.

**STOT**-repeated exposure: Not classified

Aspiration hazard: Not classified

Symptoms/effects after inhalation: May cause drowsiness or dizziness. May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/effects after skin contact: Causes skin irritation.

Symptoms/effects after eye contact: Causes serious eye irritation.

Symptoms/effects after ingestion: May be harmful if swallowed. Oral toxicity is associated with isopropanol or methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness. Onset of symptoms may be delayed up to 48 hours.

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Isopropanol (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 - Fish [1]</td>
</tr>
<tr>
<td>EC50 - Crustacea [1]</td>
</tr>
<tr>
<td>LC50 - Fish [2]</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Isopropanol (67-63-0)

Partition coefficient n-octanol/water (Log Pow) 0.05 (at 25 °C)

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

Product/Packaging 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

Transport document description (DOT) : UN1993 Flammable liquids, n.o.s. (TRIMETHOXYSILYLPROPYL MODIFIED (POLYETHYLENIMINE), 50% in isopropanol), 3, II

Proper Shipping Name (DOT) : Flammable liquids, n.o.s.

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 3 - Flammable liquid

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

14.3. Additional information

Emergency Response Guide (ERG) Number : 128

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

Commercial status of components according to the United States Environmental Protection Agency’s Toxic Substances Control Act (TSCA):

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>Listing</th>
<th>Commercial status</th>
<th>Flags</th>
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<tbody>
<tr>
<td>Isopropanol</td>
<td>67-63-0</td>
<td>Present</td>
<td>Active</td>
<td>T</td>
</tr>
<tr>
<td>Trimethoxysilylpropyl modified (polyethylenimine)</td>
<td>136856-91-2</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

Isopropanol (67-63-0)

Subject to reporting requirements of United States SARA Section 313
15.2. International regulations

**CANADA**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Regulation</th>
<th>Details</th>
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<tr>
<td>Isopropanol (67-63-0)</td>
<td>Listed on the Canadian DSL (Domestic Substances List)</td>
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<tr>
<td>Trimethoxysilylpropyl modified (polyethylenimine) (136856-91-2)</td>
<td>Listed on the Canadian NDSL (Non-Domestic Substances List)</td>
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</table>

**EU-Regulations**

<table>
<thead>
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<th>Regulation</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Isopropanol (67-63-0)</td>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
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</table>

**National regulations**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Regulation</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropanol (67-63-0)</td>
<td>Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)</td>
<td>Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)</td>
</tr>
<tr>
<td>Trimethoxysilylpropyl modified (polyethylenimine) (136856-91-2)</td>
<td>Listed on the TCSI (Taiwan Chemical Substance Inventory)</td>
<td>Listed on the NCI (Vietnam - National Chemical Inventory)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>State</th>
<th>Right To Know List</th>
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<tr>
<td>U.S. - Massachusetts</td>
<td>Right To Know List</td>
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<tr>
<td>U.S. - New Jersey</td>
<td>Right to Know Hazardous Substance List</td>
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<td>U.S. - Pennsylvania</td>
<td>RTK (Right to Know) - Environmental Hazard List</td>
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<td>U.S. - Pennsylvania</td>
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**SECTION 16: Other information**

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-phrases</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</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.
TRIMETHOXYSILYLPROPYL MODIFIED (POLYETHYLENIMINE), 50% in isopropanol
Safety Data Sheet

Hazard Rating

Health: 2 Moderate Hazard - Temporary or minor injury may occur

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: 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.

Prepared by safety and environmental affairs.

Issue date: 01/13/2015 Revision date: 07/07/2022 Version: 2.0

SDS US (GHS HazCom 2012) - Custom

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

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