SECTION 1: Identification

1.1. Identification
Product name: (3-ACETAMIDOPROPYL)TRIMETHOXYSILANE
Product code: SIA0006.0
Product form: Substance
Physical state: Liquid
Formula: C8H19NO4Si
Synonyms: TRIMETHOXYSILYLCYCLOHEXANE
Chemical family: ORGANOMETHOXYSILANE

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 H227 Combustible liquid
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):

Signal word (GHS US): Warning
Hazard statements (GHS US):
- H227 - Combustible liquid
- 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.
- 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. 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
Substance type: Mono-constituent
Name: (3-ACETAMIDOPROPYL)TRIMETHOXYSILANE
CAS-No.: 57757-86-1
# (3-Acetamidopropyl)trimethoxysilane

## Safety Data Sheet

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3-Acetamidopropyl)trimethoxysilane</td>
<td>(CAS-No.) 57757-66-1</td>
<td>&gt; 95</td>
<td>Flam. Liq. 4, H227</td>
</tr>
<tr>
<td>Methanol</td>
<td>(CAS-No.) 67-56-1</td>
<td></td>
<td>Flam. Liq. 2, H225, Acute Tox. 3 (Oral), H301, Acute Tox. 3 (Dermal), H311, Acute Tox. 3 (Inhalation: vapour), H331, Skin Irrit. 2, H315, Eye Dam. 1, H318, STOT SE 1, H370, STOT SE 3, H336</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. 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 (acute and delayed)

**Symptoms/effects after inhalation**
- May cause irritation to the respiratory tract. Overexposure may cause: Coughing, Headache, Nausea.

**Symptoms/effects after skin contact**
- May cause skin irritation.

**Symptoms/effects after eye contact**
- Causes serious eye irritation.

**Symptoms/effects after ingestion**
- May be harmful if swallowed.

**Chronic symptoms**
- On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may effect the central nervous system resulting in persistent or recurring headaches or impaired vision.

### 4.3. Immediate medical attention and special treatment, if necessary

**NOTE TO PHYSICIAN:** This product reacts with water in the acid contents of the stomach to form methanol. The combination of visual disturbances, metabolic acidosis and formic acid in urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10 mls/hour) allows methanol to be preferentially oxidized and reduces production of methanol metabolites. Acidosis must be treated with intravenous administration of sodium bicarbonate and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media**

### 5.2. Specific hazards arising from the chemical

**Fire hazard**
- Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

### 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.

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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

Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. 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

Technical measures: Ground/bond container and receiving 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>
<th>Parameter</th>
<th>ACGIH TWA (ppm)</th>
<th>ACGIH STEL (ppm)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>OSHA PEL (TWA) (ppm)</th>
<th>IDLH (ppm)</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
<th>NIOSH REL (TWA) (ppm)</th>
<th>NIOSH REL (STEL) (mg/m³)</th>
<th>NIOSH REL (STEL) (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol (67-56-1)</td>
<td>200 ppm</td>
<td>250 ppm</td>
<td>260 mg/m³</td>
<td>200 ppm</td>
<td>6000 ppm</td>
<td>260 mg/m³</td>
<td>200 ppm</td>
<td>325 mg/m³</td>
<td>250 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:
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

<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>221.33 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>No data available</td>
</tr>
</tbody>
</table>
**Odor** : Mild.
**Odor threshold** : No data available
**Refractive index** : 1.441
**pH** : No data available
**Relative evaporation rate (butyl acetate=1)** : No data available
**Melting point** : No data available
**Freezing point** : < 0 °C
**Boiling point** : 162 - 165 °C @ 2-3 mm Hg
**Flash point** : > 65 °C
**Auto-ignition temperature** : No data available
**Decomposition temperature** : No data available
**Flammability (solid, gas)** : Combustible liquid
**Vapor pressure** : No data available
**Relative vapor density at 20 °C** : > 1
**Relative density** : 1.0736
**% Volatiles** : < 3 %
**Solubility** : 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.

10.3. **Possibility of hazardous reactions**
Reacts with water and moisture in air, liberating methanol.

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

10.5. **Incompatible materials**

10.6. **Hazardous decomposition products**
Methanol. Organic acid vapors.

**SECTION 11: Toxicological information**

11.1. **Information on toxicological effects**

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol (67-56-1)</td>
<td></td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>22500 ppm (Exposure time: 8 h)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>100 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>300 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>3 mg/l/4h</td>
</tr>
</tbody>
</table>

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

| Reproductive toxicity | Not classified |
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Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.
Symptoms/effects after skin contact : May cause skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : May be harmful if swallowed.
Chronic symptoms : On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may effect the central nervous system resulting in persistent or recurring headaches or impaired vision.
Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 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

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
</tr>
<tr>
<td>Log Pow</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects

<table>
<thead>
<tr>
<th>Other adverse effects</th>
<th>Effect on the ozone layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>This substance may be hazardous to the environment.</td>
<td>No additional information available</td>
</tr>
</tbody>
</table>

SECTION 13: Disposal considerations

13.1. Disposal methods

<table>
<thead>
<tr>
<th>Product/Packaging disposal recommendations</th>
<th>May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - waste materials</td>
<td>Avoid release to the environment.</td>
</tr>
</tbody>
</table>

SECTION 14: Transport information

14.1. UN number

<table>
<thead>
<tr>
<th>DOT NA no.</th>
<th>NA1993</th>
</tr>
</thead>
</table>

14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>Transport document description</th>
<th>NA1993 Combustible liquid, n.o.s. (3-ACETAMIDOPROPYL)TRIMETHOXYSILANE), 3, III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (DOT)</td>
<td>Combustible liquid, n.o.s. (3-ACETAMIDOPROPYL)TRIMETHOXYSILANE)</td>
</tr>
<tr>
<td>Class (DOT)</td>
<td>3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120</td>
</tr>
<tr>
<td>Packing group (DOT)</td>
<td>III - Minor Danger</td>
</tr>
<tr>
<td>DOT Packaging Non Bulk (49 CFR 173.xxx)</td>
<td>203</td>
</tr>
<tr>
<td>DOT Packaging Bulk (49 CFR 173.xxx)</td>
<td>241</td>
</tr>
<tr>
<td>DOT Packaging Exceptions (49 CFR 173.xxx)</td>
<td>150</td>
</tr>
<tr>
<td>DOT Symbols</td>
<td>D - Proper shipping name for domestic use only, or to and from Canada,G - Identifies PSN requiring a technical name</td>
</tr>
</tbody>
</table>

14.3. Additional information

| Other information | This product is Combustible as defined by the US Department of Transportation (DOT). It is regulated for transport in the US in container > 119 gallons (450 liters). The product is not regulated for transport by the IATA, ADR/RID, ADNR or the IMDG regulations. |

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Transport by sea
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

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

SECTION 15: Regulatory information

15.1. US Federal regulations

(3-ACETAMIDOPROPYL)TRIMETHOXYSILANE (57757-66-1)

TSCA Exemption/Exclusion

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.

Methanol (67-56-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
SARA Section 313 - Emission Reporting 1%

(3-Acetamidopropyl)trimethoxysilane (57757-66-1)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Methanol (67-56-1)

Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification

Class B Division 2 - Flammable Liquid
Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

Methanol (67-56-1)

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

National regulations

Methanol (67-56-1)

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 Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)

15.3. US State regulations

WARNING: This product can expose you to Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Methanol (67-56-1)

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significant risk level (NSRL)</th>
<th>Maximum allowable dose level (MADL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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**Methanol (67-56-1)**
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

**SECTION 16: Other information**

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H101</th>
<th>Highly flammable liquid and vapor</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>H227</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic in contact with skin</td>
</tr>
<tr>
<td>H311</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</td>
</tr>
<tr>
<td>H370</td>
<td>Causes damage to organs</td>
</tr>
</tbody>
</table>

Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: 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**

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

**Flammability**

2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

**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.

Date of issue: 04/09/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

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

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