SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Substance
- Physical state: Liquid
- Substance name: 4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
- Product code: SIA0587.07
- Formula: C9H23NO3Si
- Synonyms: AMINONEOHXYLTRIMETHOXYSILANE
- Chemical family: ORGANOMETHOXYSILANE

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Use of the substance/mixture: Chemical intermediate
  For research and industrial use only

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)
  Skin Irrit. 2 H315
  Eye Irrit. 2A H319
  STOT SE 3 H335

- Full text of H-phrases: see section 16

2.2. Label elements
- GHS-US labeling
  Hazard pictograms (GHS-US): !
- Signal word (GHS-US): Warning
- Hazard statements (GHS-US):
  H315 - Causes skin irritation
  H319 - Causes serious eye irritation
  H335 - May cause respiratory irritation

- Precautionary statements (GHS-US):
  P280 - Wear protective gloves/protective clothing/eye protection/face protection
  P261 - Avoid breathing vapors
  P264 - Wash hands thoroughly after handling
  P271 - Use only outdoors or in a well-ventilated area
  P302+P352 - If on skin: Wash with plenty of water
  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 doctor if you feel unwell
  P332+P313 - If skin irritation occurs: Get medical advice/attention
  P337+P313 - If eye irritation persists: Get medical advice/attention
  P362 - Take off contaminated clothing and wash before reuse
  P403+P405 - Store in a well-ventilated place. Keep container tightly closed
  P405 - Store locked up
  P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards
- No additional information available
4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
Safety Data Sheet

2.4. Unknown acute toxicity (GHS-US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Substance type: Mono-constituent
Name: 4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
CAS No: 157923-74-5
EC no: 605-117-6

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Amino-3,3-dimethylbutyltrimethoxysilane</td>
<td>(CAS No) 157923-74-5</td>
<td>&gt; 95</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335</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>

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 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. 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, both acute and delayed
Symptoms/injuries after inhalation: May cause respiratory irritation. Overexposure may cause: Coughing, Headache. Nausea.
Symptoms/injuries after skin contact: Causes skin irritation.
Symptoms/injuries after eye contact: Causes serious eye irritation.
Symptoms/injuries after ingestion: Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness.
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. Indication of any immediate medical attention and special treatment needed
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: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: 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

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.

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.
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
Storage conditions: Keep container tightly closed.
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

<table>
<thead>
<tr>
<th></th>
<th>USA ACGIH</th>
<th></th>
<th>USA NIOSH</th>
<th></th>
<th>USA OSHA</th>
<th></th>
<th>USA IDLH</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol (67-56-1)</td>
<td>ACGIH TWA (ppm)</td>
<td>200 ppm</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>260 mg/m³</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>200 ppm</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>250 ppm</td>
<td>NIOSH REL (STEL) (mg/m³)</td>
<td>325 mg/m³</td>
<td>NIOSH REL (STEL) (ppm)</td>
<td>250 ppm</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>200 ppm</td>
</tr>
</tbody>
</table>

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: 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 liquid.
Molecular mass: 221.37 g/mol
Color: Straw.
4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
Safety Data Sheet

Odor threshold: No data available
Refractive index: 1.4302
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: No data available
Freezing point: < 0 °C
Boiling point: 230 °C
Flash point: 97 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapor pressure: < 1 mm Hg @ 25°C
Relative vapor density at 20 °C: > 1
Relative density: 0.977
Solubility: Reacts with water.
Log Pow: No data available
Log Kow: No data available
VOC content: < 5 %
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Explosive 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 when stored in sealed containers.

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

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Methanol. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>6200 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>20 g/kg</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>100,000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>300,000 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>3,000 mg/l/4h</td>
</tr>
</tbody>
</table>

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
# 4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE

## Safety Data Sheet

<table>
<thead>
<tr>
<th>Reproductive toxicity</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>May cause respiratory irritation.</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 inhalation</td>
<td>May cause respiratory irritation. Overexposure may cause: Coughing, Headache, Nausea.</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Causes 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>Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness.</td>
</tr>
<tr>
<td>Chronic symptoms</td>
<td>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.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

## SECTION 12: Ecological information

### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>28200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>&gt; 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>&lt; 10</td>
</tr>
<tr>
<td>Log Pow</td>
<td>-0.77</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></th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect on ozone layer</td>
<td>No additional information available</td>
</tr>
<tr>
<td>Effect on the global warming</td>
<td>No known ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

## 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.

Ecology - waste materials: Avoid release to the environment.

## SECTION 14: Transport information

### 14.1. UN number

Not regulated for transport.

### 14.2. UN proper shipping name

Not applicable

### 14.3. Additional information

| Other information | No supplementary information available. |

### Transport by sea

No additional information available

### Air transport

No additional information available

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

4-Amino-3,3-dimethylbutyltrimethoxysilane (157923-74-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
# 4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
Safety Data Sheet

## Methanol (67-56-1)
- Listed on the United States TSCA (Toxic Substances Control Act) inventory
- Listed on United States SARA Section 313
- SARA Section 313 - Emission Reporting: 1.0 %

### 15.2. International regulations
4-Amino-3,3-dimethylbutyltrimethoxysilane (157923-74-5)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

### Methanol (67-56-1)
- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Substances) inventory
- Listed on the Korean ECL (Existing Chemicals List)
- 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)

### 15.3. US State regulations

#### 4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE (157923-74-5)
| U.S. - California - Proposition 65 - Carcinogens List | No |
| U.S. - California - Proposition 65 - Developmental Toxicity | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No |

#### Methanol (67-56-1)
- U.S. - California - Proposition 65 - Carcinogens List | No
- U.S. - California - Proposition 65 - Developmental Toxicity | No
- U.S. - California - Proposition 65 - Reproductive Toxicity - Female | No
- U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No

#### 4-Amino-3,3-dimethylbutyltrimethoxysilane (157923-74-5)
| U.S. - California - Proposition 65 - Carcinogens List | No |
| U.S. - California - Proposition 65 - Developmental Toxicity | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No |

#### Methanol (67-56-1)
- U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) | No |
- U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute | No |
- U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic | No |
- U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728) | No |
- U.S. - Colorado - Hazardous Wastes - Discarded Chemical Products, Off-Specification Species, Container and Spill Residues | No |
- U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min) | No |
- U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr) | No |
- U.S. - Connecticut - Volatile Substances | No |
- U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities | No |
- U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations | No |
- U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs) | No |
- U.S. - Idaho - Occupational Exposure Limits - TWAs | No |
- U.S. - Illinois - Toxic Air Contaminants | No |
- U.S. - Louisiana - Reportable Quantity List for Pollutants | No |
- U.S. - Maine - Air Pollutants - Hazardous Air Pollutants | No |
- U.S. - Maine - Chemicals of High Concern | No |
- U.S. - Massachusetts - Allowable Ambient Limits (AALs) | No |
- U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs) | No |
- U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1 | No |
- U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2 | No |
- U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity | No |
- U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1 | No |
- U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2 | No |
- U.S. - Massachusetts - Right To Know List | No |
- U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs) | No |
- U.S. - Massachusetts - Toxics Use Reduction Act | No |
<table>
<thead>
<tr>
<th>Abbreviations and acronyms</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Dermal)</td>
<td>Acute toxicity (dermal) Category 3</td>
</tr>
<tr>
<td>Acute Tox. 3 (Inhalation:vapour)</td>
<td>Acute toxicity (inhalation:vapor) Category 3</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
<td>Acute toxicity (oral) Category 3</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation Category 1</td>
</tr>
<tr>
<td>Eye Irrit. 2A</td>
<td>Serious eye damage/eye irritation Category 2A</td>
</tr>
<tr>
<td>Flamm. Liq. 2</td>
<td>Flammable liquids Category 2</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>STOT SE 1</td>
<td>Specific target organ toxicity (single exposure) Category 1</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
</tbody>
</table>
4-AMINO-3,3-DIMETHYLBUTYLTRIMETHOXYSILANE
Safety Data Sheet

<table>
<thead>
<tr>
<th>H319</th>
<th>Causes serious eye irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H331</td>
<td>Toxic if inhaled</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</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>

HMIS III Rating

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

Prepared by safety and environmental affairs.

Date of issue: 12/29/2014         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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