SECTION 1: Identification

1.1. Identification

Product name: (METHACRYLOXYMETHYL)METHYLDIMETHOXYSILANE
Product code: SIM6481.46
Product form: Substance
Physical state: Liquid
Formula: C8H16O4Si
Synonyms: (DIMETHOXYMETHYL)SILYL)METHYLMETHACRYLATE
          (DIMETHOXYMETHYLENE)METHYLDIMETHOXYSILANE
          (DIMETHOXY)(METHACRYLOYLOXYMETHYL)(METHYL)SILANE
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 4 - H227 Combustible liquid
Serious eye damage/eye irritation Category 2 - 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)

Other hazards not contributing to the classification: Additional methanol may be formed by reaction with moisture and water. The US OSHA PEL (TWA) for methanol is 200 ppm.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Mono-constituent
(METHACRYLOXYMETHYL)METHYLDIMETHOXY SILANE

Safety Data Sheet

Name : (METHACRYLOXYMETHYL)METHYLDIMETHOXY SILANE
CAS-No. : 121177-93-3

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Methacryloxyethyl)methyldimethoxysilane</td>
<td>(CAS-No.) 121177-93-3</td>
<td>95 - 100</td>
<td>Flam. Liq. 4, H227</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td>Hydroquinone monomethyl ether</td>
<td>(CAS-No.) 150-76-5</td>
<td>&lt; 0.05</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2B, H320</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</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. 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 irritation to the respiratory tract.

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 affect 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


Unsuitable extinguishing media : Do not use straight streams.

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 : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

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

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: “Exposure controls/personal protection”.

Print date: 04/11/2019 EN (English US) SDS ID: SIM6481.46
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**  
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. 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/sparks/open flames/hot surfaces. - No smoking.

**Precautions for safe handling**: Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent accumulation of vapors. 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**: Proper grounding procedures to avoid static electricity should be followed.
**Storage conditions**: Keep container tightly closed. Keep in a cool place. Store < 5°C.
**Incompatible materials**: Moisture. Water.
**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>Hydroquinone monomethyl ether (150-76-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>NIOSH</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 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**: 204.3 g/mol
**Color**: Straw.
**Odor**: Mild.
**Odor threshold**: No data available
(METHACRYLOXYMETHYL)METHYLDIMETHOXYSILANE

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**SECTION 10: Stability and reactivity**

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable in sealed containers stored in the dark at 0-5°C. Polymerization can occur when stored at elevated temperature.

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
Moisture. Water.

10.6. Hazardous decomposition products
Methanol. Organic acid vapors.

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

**Hydroquinone monomethyl ether (150-76-5)**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1600 mg/kg</td>
</tr>
</tbody>
</table>

**Methacryloxymethyl)methylidmethoxysilane (121177-93-3)**

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<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>None of the components in this product at concentrations &gt;0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
Specific target organ toxicity – repeated exposure: Not classified

Aspiration hazard: Not classified

Potential Adverse human health effects and symptoms: This material liberates small amounts of methanol on contact with moisture. Material generates methanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.

Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
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

Hydroquinone monomethyl ether (150-76-5)

<table>
<thead>
<tr>
<th>Test</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>84.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])</td>
<td></td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>28.5 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])</td>
<td></td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Hydroquinone monomethyl ether (150-76-5)

Log Pow: 1.34

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

Sewage disposal recommendations: Do not dispose of waste into sewer.

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.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

DOT NA no.: NA1993

14.2. UN proper shipping name

Transport document description: NA1993 Combustible liquid, n.o.s. ((METHACRYLOXYMETHYL)METHYLDIMETHOXYSILANE), 3, III

Proper Shipping Name (DOT): Combustible liquid, n.o.s. ((METHACRYLOXYMETHYL)METHYLDIMETHOXYSILANE)

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

Packing group (DOT): III - Minor Danger

DOT Packaging Non Bulk (49 CFR 173.xxx): 203

DOT Packaging Bulk (49 CFR 173.xxx): 241

DOT Packaging Exceptions (49 CFR 173.xxx): 150

DOT Symbols: D - Proper shipping name for domestic use only, or to and from Canada,G - Identifies PSN requiring a technical name
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.

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 (49 CFR 173.27): 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 220 L

SECTION 15: Regulatory information

15.1. US Federal regulations

Hydroquinone monomethyl ether (150-76-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
EPA TSCA Regulatory Flag: T - T indicates a substance that is the subject of a final TSCA section 4 test rule.

(Methacryloxymethyl)methyldimethoxysilane (121177-93-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Hydroquinone monomethyl ether (150-76-5)
Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification: Class D Division 2 Subdivision B - Toxic material causing other toxic effects

(Methacryloxymethyl)methyldimethoxysilane (121177-93-3)
Listed on the Canadian NDSL (Non-Domestic Substances List)

EU-Regulations

Hydroquinone monomethyl ether (150-76-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

(Methacryloxymethyl)methyldimethoxysilane (121177-93-3)
Listed on ELINCS (European List of Notified Chemical Substances)

National regulations

Hydroquinone monomethyl ether (150-76-5)
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)
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)

(Methacryloxymethyl)methyldimethoxysilane (121177-93-3)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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

Hydroquinone monomethyl ether (150-76-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
(METHACRYLOXYMETHYL)METHYLDIMETHOXYSILANE

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Full text of H-phrases:

<table>
<thead>
<tr>
<th>H227</th>
<th>Combustible liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H320</td>
<td>Causes eye irritation</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

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: 05/05/2016  Revision date: 03/18/2019  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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