

Silquest* A-189 silane

SAFETY DATA SHEET

1. Identification

Product identifier: Silquest* A-189 silane

Other means of identification

Synonyms: Gamma-Mercaptopropyltrimethoxysilane

Recommended use and restriction on use

Recommended use: Adhesion Promoter

Restrictions on use: For industrial use only.

Manufacturer/Importer/Distributor Information : Momentive Performance Materials - Sistersville
10851 Energy Highway
FRIENDLY WV 26146

Contact person : commercial.services@momentive.com

Telephone : General information
+1-800-295-2392

**Emergency telephone number
Supplier :** CHEMTREC
1-800-424-9300

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids Category 4

Health Hazards

Acute toxicity (Oral) Category 4

Acute toxicity (Dermal) Category 4

Skin sensitizer Category 1

Unknown toxicity - Health

Acute toxicity, inhalation, vapor	0.99 %
Acute toxicity, inhalation, dust or mist	0.99 %

Label Elements

Hazard Symbol:

Silquest* A-189 silane



Signal Word:	Warning
Hazard Statement:	H227; Combustible liquid. H302+H312; Harmful if swallowed or in contact with skin. H317; May cause an allergic skin reaction.
Precautionary Statements	
Prevention:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace.
Response:	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. IF SWALLOWED: Call a POISON CENTRE/doctor/... if you feel unwell. Rinse mouth. Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see on this label). Wash contaminated clothing before reuse. In case of fire: Use dry chemical powder for extinction.
Storage:	Store in a well-ventilated place. Keep cool.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification:	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
Substance(s) formed under the conditions of use:	Reacts with water liberating small amounts of methanol.

3. Composition/information on ingredients

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Substances

Chemical Identity	CAS number	Content in percent (%)*
Gamma-Mercaptopropyltrimethoxysilane	4420-74-0	50 - <100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

- General information:** Move into fresh air and keep at rest. Get medical attention immediately.
- Ingestion:** If conscious, drink plenty of water. Do not induce vomiting. Call a physician or poison control center immediately.
- Inhalation:** Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Call a physician or poison control center immediately.
- Skin Contact:** Wash off promptly and flush contaminated skin with water. Promptly remove clothing if soaked through and flush skin with water. Wash contaminated clothing before reuse. Get medical attention.
- Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Most important symptoms/effects, acute and delayed

- Symptoms:** Product may hydrolyse upon contact with body fluids in the gastrointestinal tract to produce additional methanol; therefore, consider the signs/symptoms of methanol poisoning and also observe the known latency period of several days!
- Hazards:** No data available.

Indication of immediate medical attention and special treatment needed

- Treatment:** Treatment is symptomatic and supportive.

5. Fire-fighting measures

- General Fire Hazards:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Use standard firefighting procedures and consider the hazards of other involved materials. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

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Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media:** All standard extinguishing agents are suitable.
- Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: In case of fire, carbon monoxide and carbon dioxide may be formed. Acute overexposure to the products of combustion may result in irritation of the respiratory tract. Measurements at temperatures above 150°C in presence of air (oxygen) have shown that small amounts of formaldehyde are formed due to oxidative degradation. Vapors are heavier than air and may spread near ground to sources of ignition.

Special protective equipment and precautions for firefighters

- Special fire fighting procedures:** Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters:** Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures:** Caution: Contaminated surfaces may be slippery. Avoid contact with skin and eyes. See Section 8 of the SDS for Personal Protective Equipment. Keep out of reach of children.
- Methods and material for containment and cleaning up:** Wipe, scrape, or soak up in an inert material and put in a container intended for flammable materials for disposal. Wash walking surfaces with detergent and water to reduce slipping hazard. Wear proper protective equipment as specified in the protective equipment section.
- Environmental Precautions:** Do not allow runoff to sewer, waterway or ground.

7. Handling and storage

- Precautions for safe handling:** Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing mists or vapors. Wash hands after handling. All equipment used when handling the product must be grounded. Sensitivity to static discharge is expected; material has a flash point below 200 F.
- Conditions for safe storage, including any incompatibilities:** Keep container closed. Keep away from sources of ignition - No smoking. Use original container or packaging of similar material of construction

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8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls

Provide eyewash station and safety shower. General (mechanical) room ventilation is expected to be satisfactory if handled at low temperatures or in covered equipment. Provide adequate ventilation if fumes or vapors are generated.

Individual protection measures, such as personal protective equipment

General information:

General (mechanical) room ventilation is expected to be satisfactory if handled at low temperatures or in covered equipment.

Eye/face protection:

Monogoggles

Skin Protection

Hand Protection:

Chemical resistant gloves

Other:

Safety shoes Wear suitable protective clothing.

Respiratory Protection:

If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Supplied air respirators may be required for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA regulations (see 29CFR 1910.134).

Hygiene measures:

Avoid contact with eyes. When using do not smoke. Wash thoroughly after handling.

9. Physical and chemical properties

Appearance

Physical state:

liquid

Form:

liquid

Color:

Colorless

Odor:

ester like

Odor threshold:

No data available.

pH:

No data available.

Melting point/freezing point:

< 0 °C

Initial boiling point and boiling range:

212 °C (1,013 hPa)

Flash Point:

88 °C (Tagliabue Closed Cup)

Evaporation rate:

< 1

Flammability (solid, gas):

No data available.

Upper/lower limit on flammability or explosive limits

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Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Heat of combustion:	No data available.
Vapor pressure:	< 1.33 hPa (20 °C)
Vapor density:	> 1
Density:	1.0500 g/cm ³ (25 °C)
Relative density:	1.050 (25 °C)
Solubility(ies)	
Solubility in water:	Reactive.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water) Log Pow:	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
SADT:	No data available.
Viscosity, dynamic:	No data available.
Viscosity, kinematic:	No data available.
VOC:	999.86 g/l ;

10. Stability and reactivity

Reactivity:	No dangerous reaction if used as recommended.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerisation does not occur.
Conditions to avoid:	High Temperatures Keep away from moisture.
Incompatible Materials:	Oxidizing agents. Reacts with water or moisture to form: Methanol
Hazardous Decomposition Products:	In case of fire, gives off (emits): Carbon oxides Oxides of silicon. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

11. Toxicological information

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General information: Product may hydrolyze upon contact with body fluids in the gastrointestinal tract to produce additional methanol. The potential for toxic effects due to methanol formation (eye damage and blindness, metabolic acidosis, dizziness and drowsiness, fetal toxicity, and liver, kidney, and heart muscle damage) should be recognized.

Information on likely routes of exposure

Ingestion: No data available.

Inhalation: No data available.

Skin Contact: No data available.

Eye contact: No data available.

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion: No data available.

Inhalation: No data available.

Skin Contact: No data available.

Eye contact: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50 (Rat, female): 850 mg/kg

Dermal

Product: LD 50 (Rat, female): 1,922 mg/kg

Specified substance(s):

Gamma-
Mercaptopropyltrimethox
ysilane
LD 50 (Rat): 2,583 mg/kg
LD 50 (Rat): 2,247 mg/kg

Inhalation

Product: Not classified for acute toxicity based on available data.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: (Rabbit): No skin irritation

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Serious Eye Damage/Eye Irritation

Product: No data available.

Respiratory or Skin Sensitization

Product: Sensitisation, skin, OECD Test Guideline 406 (Guinea Pig): positive

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: Ames-Test: positive

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

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Fish

Product: No data available.

Aquatic Invertebrates

Product: EC50 (Daphnia magna, 48 h): 6.7 mg/l

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: No data available.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: No data available.

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Gamma-Mercaptopropyltrimethoxysilane
No data available.

Other adverse effects: No data available.

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13. Disposal considerations

General information: See Section 8 for information on appropriate personal protective equipment. The generation of waste should be avoided or minimized wherever possible. Do not discharge into drains, water courses or onto the ground.

Disposal instructions: Disposal should be made in accordance with federal, state and local regulations.

Contaminated Packaging: Dispose of as unused product.

14. Transport information

DOT

UN Number: NA 1993
 UN Proper Shipping Name: Combustible liquid, n.o.s.(Gamma-Mercaptopropyltrimethoxysilane)
 Transport Hazard Class(es)
 Class: CBL
 Label(s): NONE
 Packing Group: III
 Marine Pollutant: Yes

IMDG

UN Number: UN 3082
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Gamma-Mercaptopropyltrimethoxysilane)
 Transport Hazard Class(es)
 Class: 9
 Label(s): 9
 EmS No.: F-A, S-F
 Packing Group: III
 Marine Pollutant: Yes
 Limited quantity 5.00L
 Excepted quantity E1

IATA

UN Number: UN 3082
 Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.(Gamma-Mercaptopropyltrimethoxysilane)
 Transport Hazard Class(es):
 Class: 9
 Label(s): 9MI
 Packing Group: III
 Cargo aircraft only Packing Instructions: 964
 Passenger and cargo aircraft Packing Instructions: 964

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Limited quantity: Y964
Packing Instructions:
Excepted quantity E1

Environmental Hazards: Environmentally hazardous
Marine Pollutant: Yes

Special precautions for user: This product must be classified as a Combustible liquid, n.o.s. only when shipped in containers > 450 L (119 gallons) for both import and domestic shipment. Non-bulk containers are classified as shown in the IMDG and IATA classification for both domestic and international shipment.
This substance/preparation meets the criteria of a Marine Pollutant (see IMDG paragraph 2.9.3.3) but is not identified in the IMDG Code (Marpol list). As such, substance/preparation shall be transported as a marine pollutant in accordance with the IMDG code.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Hazards Not Otherwise Classified (HNOC)
Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Respiratory or Skin Sensitization

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

None present or none present in regulated quantities.

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SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Gamma-Mercaptopropyltrimethoxy silane	10000 lbs

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65



WARNING

Reproductive Harm - www.P65Warnings.ca.gov

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Gamma-Mercaptopropyltrimethoxysilane
3-Chloropropyltrimethoxysilane
Related Silanes and Silsesquioxanes
Methanol
organoalkoxysilane sulfide

US. Massachusetts RTK - Substance List

Chemical Identity

Hydrogen Sulfide

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

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Inventory Status:

REACH:	If purchased from Momentive Performance Materials GmbH in Leverkusen, Germany, all substances in this product have been registered by Momentive Performance Materials GmbH or upstream in our supply chain or are exempt from registration under Regulation (EC) No 1907/2006 (REACH). For polymers, this includes the constituent monomers and other reactants.	Remarks: None.
Australia AICS:	On or in compliance with the inventory	Remarks: None.
Canada DSL Inventory List:	On or in compliance with the inventory	Remarks: None.
EINECS, ELINCS or NLP:	On or in compliance with the inventory	Remarks: None.
Japan (ENCS) List:	On or in compliance with the inventory	Remarks: None.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory	Remarks: None.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory	Remarks: None.
Canada NDSL Inventory:	Not in compliance with the inventory.	Remarks: None.
Philippines PICCS:	On or in compliance with the inventory	Remarks: None.
US TSCA Inventory:	On or in compliance with the inventory	Remarks: None.
New Zealand Inventory of Chemicals:	On or in compliance with the inventory	Remarks: None.
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory	Remarks: None.

16. Other information, including date of preparation or last revision

HMIS Hazard ID

Health	2
Flammability	2
Physical Hazards	1
PERSONAL PROTECTION	

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

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Revision Date: No data available.
Version #: 5.0
Further Information: No data available.
Disclaimer:

Notice to reader

Unless otherwise specified in section 1, Momentive products are intended for use in the manufacture and/or formulation of products and are not intended for direct consumer use. These products are not intended for long-lasting (> 30 days) implantation, injection or direct ingestion into the human body, nor for use in the manufacture of multiple use contraceptives. Keep out of the reach of children.

Further Information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safehandling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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