

SILQUEST A-187 SILANE/TSP/18KG
Gamma-Glycidoxypropyltrimethoxysilane**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Manufacturer Name: Momentive Performance Materials - Sistersville
10851 Energy Highway
FRIENDLY WV 26146

Revised: 05/20/2014
Prepared by Product Safety Team
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Chemical Family/Use: Interface additive and adhesion promoter for coatings. Sizing agent for glass fibers used in insulation and reinforcement.

Formula: Gamma-Glycidoxypropyltrimethoxysilane

HMIS

Health: 2 Flammability: 1 Reactivity: 1

NFPA

Health: 2 Flammability: 1 Reactivity: 1

2. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

DANGER! Harmful or fatal if swallowed. May cause drowsiness or dizziness. May cause heart muscle damage. May cause damage to the liver and kidneys.

Form: Liquid

Color: Colorless

Odor: ester like

POTENTIAL HEALTH EFFECTS**INGESTION**

This product hydrolyzes in the stomach to form methanol. Methanol may cause nausea, abdominal pain, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behavior, visual disturbances, drowsiness, coma, and death. There may be a delay of several hours between swallowing methanol and the onset of signs and symptoms. The effects observed are in part due to acidosis and partially to cerebral edema. Visual effects include blurred vision, diplopia, changes in color perception, restriction of visual fields, complete blindness. Ingestion of moderate quantities of methanol also produces metabolic acidosis. Onset of symptoms may be delayed up to 48 hours. 60-200 ml methanol is fatal dose for most adults. Ingestion of as little as 10 ml methanol has caused blindness. With massive overdoses, liver, kidney and heart muscle injuries have been described.

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Causes irritation. Causes the following effects: - local redness Increased pigmentation of the skin may occur.

INHALATION

Short-term harmful health effects are not expected from vapor generated at ambient temperature. However, this material is capable of forming methanol if hydrolyzed. Methanol vapor may cause dizziness, drowsiness, disturbances of vision, and tingling, numbness, and shooting pains in the hands and forearms.

EYES

Causes irritation. Causes the following effects: Pain - excess blinking - tear production - marked excess redness of the conjunctivae - swelling of the conjunctivae

MEDICAL CONDITIONS AGGRAVATED

May aggravate: - an existing liver disease - pre-existing upper respiratory tract and lung diseases, such as, but not limited to, bronchitis, emphysema and asthma Allergies. May cause eczema-like skin disorders (dermatitis).

SUBCHRONIC (TARGET ORGAN)

Liver; Kidney

CHRONIC EFFECTS / CARCINOGENICITY

This product or one of its ingredients present at 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

ROUTES OF EXPOSURE

Ingestion; Eye; Dermal

3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>PRODUCT COMPOSITION</u>	<u>CAS-No.</u>	<u>WGT. %</u>
<u>A. HAZARDOUS</u>		
3-glycidyl-oxypropyl-trimethoxy-silane	2530-83-8	60 - 100 %
Methanol	67-56-1	0.1 - 1 %

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B. NON-HAZARDOUS

Note(s): Additional methanol may be formed by reaction with moisture.

4. FIRST AID MEASURES**INGESTION**

If conscious, drink plenty of water. Do not induce vomiting. Call a physician or poison control center immediately.

SKIN

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.

INHALATION

Move the exposed person to fresh air at once. If respiratory problems, artificial respiration/oxygen. Call a physician or poison control center immediately.

EYES

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

NOTE TO PHYSICIAN

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!

5. FIRE-FIGHTING MEASURES

FLASH POINT: 110 °C; 230 °F
METHOD ASTM D 93
FLAMMABLE LIMITS LEL: No data available.
FLAMMABLE LIMITS UEL: No data available.

SENSITIVITY TO MECHANICAL IMPACT: No

SENSITIVITY TO STATIC DISCHARGE

Sensitivity to static discharge is not expected.

EXTINGUISHING MEDIA

All standard extinguishing agents are suitable.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing

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apparatus with full face mask and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES**ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED**

Wipe, scrape or soak up in an inert material and put in a container for disposal. Wash walking surfaces with detergent and water to reduce slipping hazard. Wear proper protective equipment as specified in the protective equipment section.

7. HANDLING AND STORAGE**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

Avoid contact with skin and eyes. Keep out of reach of children. Attention: Not for injection into humans.

OTHER PRECAUTIONS

DANGER! Harmful or fatal if swallowed due to methanol production in the stomach. **POLYMERIZATION - HYDROLYSIS** The epoxysilane esters are not monomers in the usual sense, but polymeric materials may be produced under certain conditions of catalyzed partial hydrolysis. Polysiloxanes are produced by polymerization of the silyl ester group in the presence of controlled amounts of water and alkali or acid catalyst at ambient temperatures. At slightly higher temperatures (ca. 50 °C), polyglycols or polyglycol ethers are produced via the epoxy functional group under the same conditions of water concentration and alkali or acid catalyst. In as much as both of these reactions are exothermic and may occur simultaneously, the heat evolved may be cumulative and greatly accelerate the rate of reactions. It is imperative, therefore, that unintentional contamination of the epoxysilane esters with water be avoided, and that intentional hydrolysis be properly controlled to avoid hazardous consequences.

STORAGE

Keep container tightly closed. Purge opened containers with bone dry inert gas before resealing.

FURTHER INFORMATION ON STORAGE CONDITIONS

No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**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.

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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).

PROTECTIVE GLOVES

Chemical resistant gloves

EYE AND FACE PROTECTION

Safety glasses with side-shields conforming to EN166

OTHER PROTECTIVE EQUIPMENT

Safety shoes; Wear suitable protective clothing.

Exposure Guidelines

Component	CAS-No.	Source	Value
Methanol	67-56-1	ACGIH, TWA	200 ppm
Methanol	67-56-1	ACGIH, STEL	250 ppm
Methanol	67-56-1	ACGIH, SKIN_DES	Can be absorbed through the skin.
Methanol	67-56-1	OSHA Z1, PEL	200 ppm; 260 mg/m3

Absence of values indicates none found

PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average; INTL REL - Internal Recommended Exposure Limit

OSHA revoked the Final Rule Limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA) effective June 30, 1993. See 29 CFR 1910.1000 (58 FR 35338).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (°C):	290 °C; 554 °F
VAPOR PRESSURE (20 C) (MM HG):	< 0.75
VAPOR DENSITY (AIR=1):	No data available.
FREEZING POINT:	< -70 °C; -94 °F
PHYSICAL STATE:	Liquid
ODOR:	ester like
Color:	Colorless
EVAPORATION RATE (BUTYL ACETATE=1):	< 1
SPECIFIC GRAVITY:	No data available.
DENSITY:	1.07 g/cm3

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pH: No data available.
SOLUBILITY IN WATER (20 C): Reactive.
VOC EXCL. H2O & EXEMPTS (G/L): 1,065.87 g/l

10. STABILITY AND REACTIVITY**STABILITY**

Stable

HAZARDOUS POLYMERIZATION.

POLYMERIZATION - HYDROLYSIS The epoxysilane esters are not monomers in the usual sense, but polymeric materials may be produced under certain conditions of catalyzed partial hydrolysis. Polysiloxanes are produced by polymerization of the silyl ester group in the presence of controlled amounts of water and alkali or acid catalyst at ambient temperatures. At slightly higher temperatures (ca. 50 °C), polyglycols or polyglycol ethers are produced via the epoxy functional group under the same conditions of water concentration and alkali or acid catalyst. In as much as both of these reactions are exothermic and may occur simultaneously, the heat evolved may be cumulative and greatly accelerate the rate of reactions. It is imperative, therefore, that unintentional contamination of the epoxysilane esters with water be avoided, and that intentional hydrolysis be properly controlled to avoid hazardous consequences.

HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS

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.;

INCOMPATIBLE MATERIALS

Reacts with water or moisture to form: Methanol

CONDITIONS TO AVOID

Temperature > 300 °C
Avoid contact with: Ignition sources.

11. TOXICOLOGICAL INFORMATION**ACUTE ORAL**

Remarks: No data available.

REPEATED DOSE TOXICITY

No data available.

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ACUTE DERMAL

Remarks: No data available.

ACUTE INHALATION

Remarks: No data available.

OTHER

Long-term repeated overexposure to methanol vapor concentrations of 3000 ppm or greater may allow a cumulative effect to occur with resulting nausea, vomiting, headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, clouded and double vision. Liver and/or kidney injury may occur.

Prolonged overexposure at levels of 800-1000 ppm may result in severe eye damage in some persons. ,Gamma-Glycidoxypropyltrimethoxysilane, This organosilane ester was weakly mutagenic in the following in vitro procedures: Ames test, mouse lymphoma assay, and a sister chromatid exchange test. This weak in vivo mutagenic activity was reduced by the inclusion of metabolic activation in the test systems. Results of in vivo genotoxicity studies have shown mixed results. Repeated exposure of rats or rabbits to this material did not result in an increase in sister chromatid exchange, while single exposures of mice to a hydrolyzate of this material resulted in a significant increase in micronucleated polychromatic erythrocytes. It is unlikely that this material presents a significant genotoxic hazard, in that it lacks any local tumorigenic response to the chronic recurrent application to mouse skin. In a developmental toxicity study with rats given this organosilane ester by gavage over the period of organogenesis, the only effect was minimal fetotoxicity at 3000 mg/kg/day (reduced ossification at one site) in the presence of maternal toxicity. There were no embryotoxic or teratogenic effects. No effects were seen at 500 and 1500 mg/kg/day.

,A subsequent developmental study in the rabbit, using gavage dosages of 50, 200 and 400 mg/kg/day given over gestational days 6 through 18, resulted in one maternal death at 400 mg/kg/day; there were no other indications of maternal toxicity at this or lower dosages. At no dosage was there any evidence for developmental toxicity (embryofetal toxicity or teratogenicity).

GENETIC TOXICITY IN VITRO

No data available.

GENETIC TOXICITY IN VIVO

No data available.

SENSITIZATION

No data available.

SKIN IRRITATION.

No data available.

EYE IRRITATION

No data available.

MUTAGENICITY

No data available.

OTHER EFFECTS OF OVEREXPOSURE

No adverse effects anticipated from available information.

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All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this Safety Data Sheet.

13. DISPOSAL CONSIDERATIONS**DISPOSAL METHODS**

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

14. TRANSPORT INFORMATION**Further Information:**

This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods. Keep away from food, drink and animal feeding stuffs.

15. REGULATORY INFORMATION**Inventories**

Australia Inventory of Chemical Substances (AICS)	y (positive listing)
EU list of existing chemical substances	y (positive listing)
Japan Inventory of Existing & New Chemical Substances (ENCS)	y (positive listing)
China Inventory of Existing Chemical Substances	y (positive listing)
Korea Existing Chemicals Inventory (KECI)	y (positive listing)
Canada DSL Inventory	y (positive listing)
Canada NDSL Inventory	n (Negative listing)
New Zealand Inventory of Chemicals	y (positive listing)
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	y (positive listing)

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TSCA list y (positive listing)
For inventories that are marked as quantity restricted or special cases, please contact Momentive.

US Regulatory Information**SARA (311,312) HAZARD CLASS**

Acute Health Hazard; Chronic Health Hazard

CALIFORNIA PROPOSITION 65

Warning! This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Canadian Regulatory Information**WHMIS CLASSIFICATION**

D1A - Very Toxic Material Causing Immediate and Serious Toxic Effects

D2A - Very Toxic Material Causing Other Toxic Effects

D2B - Toxic Material Causing Other Toxic Effects

Other**SCHDLE B/HTSUS:** 2931.00.9010 Organo-silicon compounds**ECCN:** EAR99**16. OTHER INFORMATION****OTHER**

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

,C = ceiling limit NEGL = negligible
EST = estimated NF = none found
NA = not applicable UNKN = unknown
NE = none established REC = recommended
ND = none determined V = recommended by vendor
SKN = skin TS = trade secret
R = recommended MST = mist
NT = not tested STEL = short term exposure limit
ppm = parts per million ppb = parts per billion
By-product= reaction by-product, TSCA inventory status not required under 40 CFR part 720.30(h-2).



**MATERIAL SAFETY DATA
SHEET**

Version: 1.6
05/20/2014

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