MOMENTIVE
performance materials

Material Safety Data Sheet

Version: 1.4
11/20/2007

Silquest A-171* silane
Vinyltrimethoxysilane

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufactured By: **Momentive Performance Materials**
3500 South State Route 2
FRIENDLY WV 26146
Revised: 11/20/2007
Preparer: PRODUCT STEWARDSHIP COMPLIANCE AND STANDARDS
CHEMTREC 1-800-424-9300

Chemical Family/Use: Organosilane
Formula: Vinyltrimethoxysilane

HMIS

Flammability:	3	Reactivity:	1	Health:	2

NFPA

Flammability:	3	Reactivity:	1	Health:	2

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! Harmful or fatal if swallowed. Flammable. Causes skin irritation. May cause eye damage and blindness if swallowed. May cause dizziness and drowsiness. May cause heart muscle damage. May cause lung, liver and kidney injury. May cause anemia.

Form: Liquid Color: Clear, pale yellow Odor: Ester-like

POTENTIAL HEALTH EFFECTS

INGESTION

May cause burning or painful sensations. May be affected: - mouth, throat, chest and abdomen 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.

SKIN

Causes irritation. Causes the following effects: - discomfort - local redness - possible swelling Effects may be prolonged. Skin contact may cause: - a severe cumulative dermatitis

INHALATION

Low vapor concentrations may cause the following effects: - respiratory tract irritation - eye irritation - nasal discomfort and discharge - chest pain - coughing Prolonged overexposure may result in the inhalation of harmful or potentially fatal amounts of material. Vapor may cause: - injury to the lungs - injury to the kidney - anemia

EYES

Liquid or vapor causes irritation. Causes the following effects: - stinging - excess blinking - tear production - excess redness of the conjunctivae - swelling of the conjunctivae

MEDICAL CONDITIONS AGGRAVATED

May aggravate: - an existing kidney disease - an existing liver disease Skin contact may aggravate: - an existing dermatitis Vapor/Mist may aggravate: - asthma and inflammatory or fibrotic pulmonary disease

SUBCHRONIC (TARGET ORGAN)

Liver; Kidney; Respiratory system

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

Eyes; Inhalation; Dermal

3. COMPOSITION / INFORMATION ON INGREDIENTS

PRODUCT COMPOSITION	CAS REG NO.	WGT. %
A. HAZARDOUS		
Vinyltrimethoxysilane	2768-02-7	> 90 %
Methanol	67-56-1	< 1 %
B. NON-HAZARDOUS		
Vinyl Silesquioxanes	-	1 - 5 %

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

4. FIRST AID MEASURES

INGESTION
If conscious, drink plenty of water. Induce vomiting if person is conscious. Obtain medical attention immediately.

SKIN
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before re-use. Obtain medical attention.

INHALATION
Remove to fresh air. Artificial respiration and/or oxygen may be necessary. Obtain medical attention immediately.

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

NOTE TO PHYSICIAN
Product may hydrolyze 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:	28 °C; 82 °F
METHOD:	Tag closed cup
IGNITION TEMPERATURE:	No data available
FLAMMABLE LIMITS IN AIR - LOWER (%):	1.4 %(V)@ 54°C
FLAMMABLE LIMITS IN AIR - UPPER (%):	19.9 %(V)@ 82°C
SENSITIVITY TO MECHANICAL IMPACT:	No

SENSITIVITY TO STATIC DISCHARGE
Sensitivity to static discharge is expected; material has a flash point below 200 F.

EXTINGUISHING MEDIA
All standard extinguishing agents are suitable.

SPECIAL FIRE FIGHTING PROCEDURES
Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

Precautions for fire-fighting

Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point., Vapor may be ignited by static sparks., Use proper bonding and grounding during material transfer.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Warn other workers of spill. Remove all sources of ignition. Wear proper protective equipment as specified in the protective equipment section. Wipe, scrape, or soak up in an inert material and put in a container intended for flammable materials for disposal.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Use ground strap and appropriate precautions for dispensing flammable liquids. Use only spark-proof and explosion-proof tools and equipment. Avoid contact with skin, eyes and clothing. Keep away from children. Attention: Not for injection into humans.

Other precautions

DANGER! Harmful or fatal if swallowed due to methanol production in the stomach.

STORAGE

Store away from heat, sources of ignition, and incompatibles. Keep container closed. Store in original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Use only in an area equipped with a safety shower.; Eye wash bottle with pure water; General (mechanical) room ventilation is expected to be satisfactory if handled at low temperatures or in covered equipment.; Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

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
Impermeable or chemical resistant gloves.

EYE AND FACE PROTECTION
Safety glasses

OTHER PROTECTIVE EQUIPMENT
Safety shoes; Protective suit

Exposure Guidelines

Component	CAS RN	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
Vinyltrimethoxysilane	2768-02-7	Z_INTL_OEL,	5 ppm

Absence of values indicates none found

PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average

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 & F:	122 °C; 252 °F
VAPOR PRESSURE (20 C) (MM HG):	9
VAPOR DENSITY (AIR=1):	> 1
FREEZING POINT:	< -70 °C; < -94 °F
MELTING POINT:	< -70 °C; < -94 °F
PHYSICAL STATE:	Liquid
ODOR:	Ester-like
COLOR:	Clear, pale yellow
EVAPORATION RATE (BUTYL ACETATE=1):	< 1
SPECIFIC GRAVITY (WATER=1):	0.967
DENSITY:	0.9670 g/cm3
ACID / ALKALINITY (MEQ/G):	No data available
pH:	No data available
VOLATILE ORGANIC CONTENT (VOL):	Not determined
SOLUBILITY IN WATER (20 C):	Reacts slowly
SOLUBILITY IN ORGANIC SOLVENT (STATE SOLVENT):	No data available

10. STABILITY AND REACTIVITY

STABILITY
Stable

HAZARDOUS POLYMERIZATION
Avoid contact with: Peroxides Catalytic metals. Polymerization catalysts. Avoid exposure to: High temperatures. >150 °C

HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS
Burning can produce the following combustion products:; Oxides of carbon.; 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.

INCOMPATIBILITY (MATERIALS TO AVOID)
Halogens (chlorine) in the presence of sunlight or ultraviolet light. Peroxides. Reacts with water or moisture to form: Methanol.

CONDITIONS TO AVOID
Stable under normal conditions. Vinyl polymerization may occur at temperatures: >150 °C (in the presence of air)

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL
LD50; Species: Rat.; > 7,300 mg/kg; Remarks: Very low order of toxicity

ACUTE DERMAL
LD50; Species: Rabbit.; > 3,400 mg/kg; Remarks: Very low order of toxicity

ACUTE INHALATION
LC50; Species: Rat.; 16.79 mg/l; Remarks: Slight order of toxicity

OTHER
Exposure of primates for about 3 months to organosilane ester vapor at 100 ppm (6 hr/day for 5 days/week) did not cause any adverse effects on the respiratory tract, but did result in mild eye irritation and minor anemia. No such effects were seen at 10 ppm. In another experiment, exposure of rats to 750 ppm and higher vapor concentrations for 6 hr/day for 9 days produced nasal mucosal inflammation, minor anemia, and kidney injury, with mortalities at concentrations around 1500 ppm. For rats, a marginal effects concentration was established at 150 ppm for short-term repeated overexposure, on the basis of body weight changes. In a subsequent subchronic (14 week) study in rats it was found that kidney injury was produced at 400 ppm which was reversible over a 4-week recovery period. Marginal signs of toxicity were seen at 100 ppm, and 10 ppm was a no-effects concentration by subchronic exposure. The material was not mutagenic in an Ames bacterial assay, a

forward gene mutation test in CHO cells, and in a test to assess sister chromatid exchanges in CHO cells. An in vitro cytogenetics test in CHO cells showed a concentration-related increase in the incidence of chromosome aberrations, particularly in the presence of a metabolic activation system. However, with a micronucleus test in mice the material did not produce any evidence for clastogenic activity. This in vivo finding must be regarded as having the greater relevance with respect to biological implications.

SENSITIZATION

Species: guinea pig
; Result: did not elicit a delayed contact hypersensitivity response

SKIN IRRITATION

Species: Rabbit.
; Result: Moderate irritation

EYE IRRITATION

Species: Rabbit.
; Result: Minimal irritation

MUTAGENICITY

No data available

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY

The product degrades through hydrolysis into alcohols and silanol- and/or siloxanol compounds.

ECOTOXICITY

This material is not readily biodegradable.

DISTRIBUTION

No data available

CHEMICAL FATE

No data available

ECOTOXICITY EFFECTS

Toxicity to fish
Static LC50
Species: Brachydanio rerio
Dose: > 100 mg/l
Exposure time: 96 h
Method: OECD 203

Toxicity to other organisms
Static EC50
Species: Daphnia magna
Dose: > 100 mg/l
Exposure time: 48 h
Method: OECD 202

Toxicity to algae
Static EC50
Species: Scenedesmus subspicatus
Dose: > 100 mg/l
Exposure time: 72 h
Method: OECD 201

Toxicity to microorganisms
Static NOEC
Species: Bacteriae
Dose: > 1,000 mg/l
Exposure time: 3 h
Method: OECD 209
(highest concentration tested)

Elimination information (persistence and degradability)

Biodegradation
Exposure time: 28 d
Method: OECD-Guideline 301 F (Manometric Respirometry Test)
Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

DOT SHIPPING NAME:	FLAMMABLE LIQUID, N.O.S. (VINYLTRIMETHOXYSILANE)
DOT HAZARD CLASS:	3
DOT LABEL (S):	3
UN/NA NUMBER:	UN1993
PACKING GROUP:	III
IMDG SHIPPING NAME:	FLAMMABLE LIQUID, N.O.S. (VINYLTRIMETHOXYSILANE)
CLASS:	3
IMDG-LABELS:	3
UN NUMBER:	UN1993
PACKING GROUP:	III
EMS No:	F-E; S-E
IATA:	FLAMMABLE LIQUID, N.O.S. (VINYLTRIMETHOXYSILANE)
CLASS:	3
ICAO-LABELS:	3
UN NUMBER:	UN1993
PACKING GROUP:	III

15. REGULATORY INFORMATION

Inventories

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

Canada DSL Inventory	y (Positive listing)
Canada NDSL Inventory	n (Negative 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; Fire Hazard

SARA (313) CHEMICALS

CALIFORNIA PROPOSITION 65

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

Canadian Regulatory Information

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).