



SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

Silquest* A-1120 silane

Section 1. Product and company identification

Product name : Silquest* A-1120 silane

Chemical name : N-beta-(aminoethyl)-gamma-aminopropyltrimethoxysilane

Manufacturer/Importer/Distri

butor 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

Section 2. Hazards identification

Classification of the substance or

mixture

ACUTE TOXICITY:inhalation - Category 4

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

RESPIRATORY SENSITIZATION - Category 1

SKIN SENSITIZATION - Category 1

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

- Category 1

SPECIFIC TARGET ORGAN TOXICITY (REPEATED

EXPOSURE) - Category 2

GHS label elements

Hazard pictograms

Signal word

: Danger

Hazard statements : H332 Harmful if inhaled.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing

difficulties if inhaled.

H317 May cause an allergic skin reaction.

H370 Causes damage to organs: (central nervous system (CNS),

optic nerve, Respiratory tract irritation)

H373 May cause damage to organs through prolonged or repeated

exposure (kidneys, liver)

Precautionary statements

General : Not applicable.

Prevention: Wear protective gloves.

Wear eye or face protection.

In case of inadequate ventilation wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Do not breathe vapor.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Contaminated work clothing should not be allowed out of the

workplace.

Response : Get medical attention if you feel unwell.

IF exposed:

Call a POISON CENTER or physician.

IF INHALED:

Remove victim to fresh air and keep at rest in a position

comfortable for breathing.

Call a POISON CENTER or physician if you feel unwell.

If experiencing respiratory symptoms: Call a POISON CENTER or physician.

IF ON SKIN:

Wash with plenty of soap and water. Wash contaminated clothing before reuse.

If skin irritation or rash occurs:

Get medical attention.

IF IN EYES:

Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or physician.

Storage : Store locked up.

Disposal : P501Dispose of contents and container in accordance with all local,

regional, national and international regulations.

Other hazards which do not result in classification

Additional methanol may be formed by reaction with moisture. None

known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : N-beta-(aminoethyl)-gamma-aminopropyltrimethoxysilane

CAS number/other identifiers

CAS number : 1760-24-3 **EC number** : Not available

Hazardous ingredients	% by weight	CAS
		number
N-(3-(trimethoxysilyl)propyl)ethylenediamine	70 - 100	1760-24-3
Methanol	1 - 5	67-56-1
1,2-Ethylenediamine	0.1 - 1	107-15-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require

Silquest* A-1120 silane Page: 3/13

reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or

physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical

burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or

physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms,

avoid further exposure.

Skin contact : Get medical attention immediately. Call a poison center or

physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse.

Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or

physician. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under

medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first aid personnel : No action shall be taken involving any personal risk or without

suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Silquest* A-1120 silane Page: 4/13

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Unsuitable extinguishing media Use dry chemical, CO2, alcohol-resistant foam or water spray (fog).

water jet

Specific hazards arising from the chemical

Hazardous thermal decomposition products

In a fire or if heated, a pressure increase will occur and the container may burst.

: Decomposition products may include the following materials:

carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides

Measurements at temperatures above 150°C in presence of air (oxygen) have shown that small amounts of formaldehyde are

formed due to oxidative degradation.

Special protective actions for firefighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without

suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil,

waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways,

soil or air).

Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute

with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste

disposal.

Large spill : Stop leak if without risk. Move containers from spill area. Approach

release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent

treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Methanol	OSHA PEL 1989 Vacated (1989-03-01)
	Time Weighted Average (TWA) 260 mg/m3 200 ppm
	Pollutant concentration that should not be exceeded during
	working hours and which workers are believed to be exposed
	during a period of 15 minutes maximum, without experiencing:
	a) irritation. b) chronic or irreversible tissue damage. c)
	dependent toxic effects of exposure rate. d) Narcosis of sufficient
	magnitude to increase susceptibility to accidents. e) The
	reduction of ability to get to safety by their own means. 325
	mg/m3 250 ppm
	OSHA PEL (1993-06-30)
	Time Weighted Average (TWA) 260 mg/m3 200 ppm
	NIOSH REL (1994-06-01)
	Time Weighted Average (TWA) 260 mg/m3 200 ppm
	Pollutant concentration that should not be exceeded during

Silquest* A-1120 silane Page:6/13

		working hours and which workers are believed to be exposed during a period of 15 minutes maximum, without experiencing: a) irritation. b) chronic or irreversible tissue damage. c) dependent toxic effects of exposure rate. d) Narcosis of sufficient magnitude to increase susceptibility to accidents. e) The reduction of ability to get to safety by their own means. 325 mg/m3 250 ppm ACGIH TLV (1994-09-01) Time Weighted Average (TWA) 262 mg/m3 200 ppm Short Term Exposure Limit (STEL) 328 mg/m3 250 ppm
1,2-Ethylenediamine		OSHA PEL 1989 Vacated (1989-03-01) Time Weighted Average (TWA) 25 mg/m3 10 ppm OSHA PEL (1993-06-30) Time Weighted Average (TWA) 25 mg/m3 10 ppm NIOSH REL (1994-06-01) Time Weighted Average (TWA) 25 mg/m3 10 ppm ACGIH TLV (1996-05-18) Time Weighted Average (TWA) 10 ppm
Appropriate engineering controls Environmental exposure controls	:	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Individual protection measures		
Hygiene measures Eye/face protection	:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Skin protection		
Hand protection	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated

Version: 1.2 Date of issue/Date of revision: 09/16/2015 Date of previous issue: 07/27/2015

Body protection

gloves cannot be accurately estimated.

Personal protective equipment for the body should be selected based

on the task being performed and the risks involved and should be

approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks

involved and should be approved by a specialist before handling this

product.

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). Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working

limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid

Color : colorless. / Light yellow

Odor : Amine-like.
Odor threshold : Not available
pH : Not available
Melting point : < -36 °C (32.80- °F)

Boiling point : 259 °C (498.20 °F)

Flash point : 138 °C (280.40 °F) (ASTM D 93)

Burning time: Not availableBurning rate: Not available

Evaporation rate : <1

(n-Butyl acetate=1)

Flammability (solid, gas) : Not available

Lower and upper explosive : Lower: Not available (flammable) limits : Upper: Not available

Vapor pressure : < 1.33 hPa @ 20 °C (68.00 °F)

Vapor density : Vapors are heavier than air and may spread near ground to sources

of ignition.

Relative density : 1.0300 @ 25 °C (77.00 °F)

Density : 1.0300 g/cm3

Solubility : Not available **Solubility in water** : Reactive

Partition coefficient: n-

octanol/water

Not available

Auto-ignition temperature:Not availableDecomposition temperature:Not availableSADT:Not available

Viscosity : Dynamic: Not available

Kinematic: Not available

Volatile organic content : 205.4 g/l

3 % (w/w)

Silquest* A-1120 silane Page:8/13

Other information

No additional information.

Section 10. Stability and reactivity

Reactivity : Stable under normal conditions.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions

will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition

products

 Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
N-(3-(trimethoxysilyl)propyl)ethylenediamine			
	LC50 Inhalation	Rat	1.49 - 2.44 mg/l	-
	LD50 Dermal	Rabbit	2,000 mg/kg	-
Product Toxicological Data				
	LD50 Oral	Rat - Male	8,000 mg/kg	-
	LD50 Dermal	Rat - Male	16,000 mg/kg	-

Conclusion/Summary : Not determined

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Product Toxicological Data	eyes	Rabbit			-
Remarks:	Corrosive to eyes.				

Conclusion/Summary

Skin:Not determinedeyes:Not determinedRespiratory:Not determined

Sensitization

Conclusion/Summary

Skin : Not determined Respiratory : Not determined

Mutagenicity

Conclusion/Summary : Not determined

Carcinogenicity

Conclusion/Summary : Not determined

Reproductive toxicity

Conclusion/Summary : Not determined

Teratogenicity

Conclusion/Summary : Not determined

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Methanol	Category 3 Category 1 Category 2		Respiratory tract irritation central nervous system (CNS)
			optic nerve

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Methanol	Category 2		kidneys liver
1,2-Ethylenediamine	Category 2		liver kidneys

Aspiration hazard

Not available

Skin contact

Information on the likely routes of :

exposure

Not available

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled. May give off gas, vapor or dust that is very

irritating or corrosive to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects

may be delayed following exposure.May cause an allergic skin reaction.

Ingestion : May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:

pain watering redness

Inhalation : Adverse symptoms may include the following:

wheezing and breathing difficulties

asthma

Skin contact : Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion : Adverse symptoms may include the following:

stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available **Potential delayed effects** : Not available

Long term exposure

Potential immediate effects : Not available
Potential delayed effects : Not available

Potential chronic health effects

Conclusion/Summary : Not determined

General : May cause damage to organs through prolonged or repeated

exposure Once sensitized, a severe allergic reaction may occur

when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity: This material was not mutagenic in an Ames bacterial assay. This

material was negative in a CHO gene mutation assay. This material was negative in a SCE assay. This material was negative in a mouse micronucleus assay. No known significant effects or critical

hazards.

TeratogenicityNo known significant effects or critical hazards. **Developmental effects**No known significant effects or critical hazards.

Fertility effects : Not classified based on available information. No known

significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Inhalation (vapors)	272.7 mg/l
Route	ATE value
Inhalation (dusts and mists)	1.852 mg/l

Section 12. Ecological information

Ecotoxicity

Product/ingredient name	Result	Species	Exposure		
N-(3-(trimethoxysilyl)propyl)ethylenediamine					
	Acute EC50 87.4 mg/l Fresh water	Aquatic invertebrates. Water flea	48 h		
	Acute IC50 30.7 mg/l Fresh water	Aquatic plants - Algae	-		

Conclusion/Summary : Not available

Persistence/degradability

Conclusion/Summary : Not available

Bioaccumulative potential

Product/ingredient name	Species	Exposure	LogPow	BCF	Potential
Methanol			-0.77	-	low
1,2-Ethylenediamine			-3.23- 1.62-7.02- 4.42	-	low

Mobility in soil

Soil/water partition coefficient

(KOC)

Other adverse effects

Not available

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. See Section 8 for information on appropriate personal protective equipment.

Section 14. Transport information

Special precautions for user

: This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods.

15.Regulatory information

United States

U.S. Federal regulations

United States - TSCA 12(b) - Chemical export notification: None required.

United States - TSCA 5(a)2 - Final significant new use rules: Not

listed

United States - TSCA 5(a)2 - Proposed significant new use rules:

Not listed

United States - TSCA 5(e) - Substances consent order: Not listed

SARA 311/312

Classification

Immediate (acute) health hazard Delayed (chronic) health hazard

SARA 313

		Product name	CAS number
Form R - Reporting requirements	:	Methanol	67-56-1
Supplier notification	:	Methanol	67-56-1

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

California Prop. 65:

: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada

WHMIS (Canada)

: Class D-1B: Material causing immediate and serious toxic effects

(Toxic).

Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.

Japan inventory: All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Korea inventory: All components are listed or exempted. **Canada inventory:** All components are listed or exempted.

New Zealand Inventory (NZIoC): All components are listed or exempted. Philippines inventory (PICCS): All components are listed or exempted. United States inventory (TSCA 8b): All components are listed or exempted.

Taiwan inventory (CSNN): All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System III (U.S.A.):

Health	3
Flammability	1
Physical hazards	2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

Full text of abbreviated H statements

Not applicable.

History

Date of printing: 07/11/2016Date of issue/Date of revision: 09/16/2015Date of previous issue: 07/27/2015

Version : 1.2

Prepared by

Key to abbreviations

: Product Safety Stewardship

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods

by Rail

UN = United Nations

References : Not available

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 safe handling, 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.

®,*, and TM indicate trademarks owned by or licensed to Momentive.