

## Silquest™ A-186

Silquest\* A-186

### Description

Silquest A-186 silane and Silquest A-187 silane are epoxy functional silanes which may be suitable for use as adhesion promoters in SPUR<sup>+</sup>, urethane, epoxy, polysulfide, silicone, and acrylic caulks, coatings, sealants and adhesives.

### Key Features and Benefits

Features	Benefits
Epoxy Functionality	<ul style="list-style-type: none"> <li>• Epoxy ring is reactive with many organic functionalities.</li> <li>• Epoxy functionality will offer non-yellowing adhesion in many resin systems.</li> <li>• May improve flexibility of systems vs. other adhesion promoters.</li> </ul>
Trimethoxy Silane Functionality	<ul style="list-style-type: none"> <li>• Bonds to inorganic substrates to provide excellent wet and dry adhesion.</li> <li>• Very fast hydrolysis rate.</li> </ul>

- Enhanced electrical properties of epoxy based electronic encapsulant and packaging materials, resulting from improved bonding between resin and substrate or filler.
- An excellent candidate for waterborne applications such as acrylic and vinyl-acrylic caulks.

- Improved adhesion to glass, and metal substrates can be obtained in epoxy, polysulfide, urethane and acrylic bases adhesives, sealants and caulks.
  - SPUR+ perpolymer applications benefit from adhesion without decrease in elongation and yellowing.
  - Urethane applications benefit from enhanced adhesion to glass and metal substrates, while providing improved shelf stability over amino silane alternatives. Typical use level ranges from 0.5 to 1.5 pbw.
  - Epoxy applications benefiting from the use of Silquest A-186 silane or Silquest A-187 silane include quartz filled epoxy encapsulants, pre-mix formulations, sand-filled epoxy concrete patching materials, and metal filled epoxy materials suitable for mold die tools. Epoxy encapsulation systems benefit from Momentive Performance Materials epoxy family of Silquest silanes' ability to enhance wet adhesion, reducing the risk of semiconductor or integrated circuit failure due to water ingress or surface corrosion. Typical use level is 1.0 pbw.
  - Polysulfide applications benefit from enhanced adhesion performance, without suffering odor issues associated with mercapto based silanes. Typical use level ranges from 0.5 to 1.5 pbw.
  - Latex caulk applications benefit from enhanced adhesion to glass and metal substrates, without suffering yellowing issues associated with amino silane adhesion promoters. Typical use level ranges from 0.2 to 0.5 pbw.

**Typical Physical Properties**

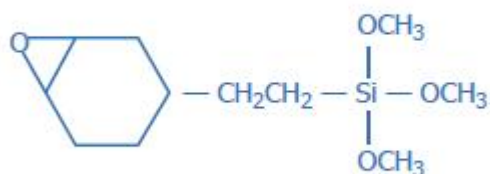
	Silquest A-186 Silane	Silquest A-187 Silane
Appearance	Clear, pale	Clear, pale
Molecular Weight	246.1	236.1
Specific Gravity at 25/25°C	1.065	1.069
Refractive Index nD 25°C	1.448	1.427
Flash Point, Tag Closed Cup, °C (°F)	113 (235)	
Flash Point, ASTM D 93, °C (°F)		110 (230)
Boiling Point, °C (°F)	310 (590)	290 (554)

**Solubility**

Silquest A-186 silane and Silquest A-187 silane are soluble in water after hydrolysis, alcohol, acetone and most aliphatic esters at normal application levels under five percent. Hydrolysis releases methanol.

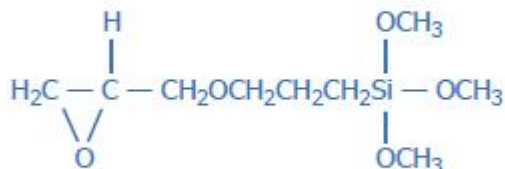
## Chemical Structure

### Silquest A-186 Silane



*Beta-(3,4-Epoxy)cyclohexylethyltrimethoxysilane*

### Silquest A-187 Silane



*Gamma-Glycidoxypropyltrimethoxysilane*

## Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

### Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

### Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

### Contact Information

Email

[commercial.services@momentive.com](mailto:commercial.services@momentive.com)

### Telephone

<b>Americas</b>	<b>Latin America</b>	<b>EMEAI- Europe, Middle East, Africa &amp; India</b>	<b>ASIA PACIFIC</b>
+1 800 295 2392	<b>Brazil</b>	<b>Europe</b>	<b>China</b>
Toll free*	+55 11 4534 9650	+390510924300	800 820 0202
+704 805 6946	Direct Number	Direct number	Toll free
Direct Number			+86 21 3860 4892
			Direct number
*All American countries	<b>Mexico</b>	<b>India, Middle East &amp; Africa</b>	<b>Japan</b>
	+52 55 2169 7670	+ 91 44 71212207	+81 3 5544 3111

Direct Number	Direct number*	Direct number
	<b>*All Middle Eastern countries, Africa, India,</b>	<b>Korea</b>
		+82 2 6201 4600

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