

## 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

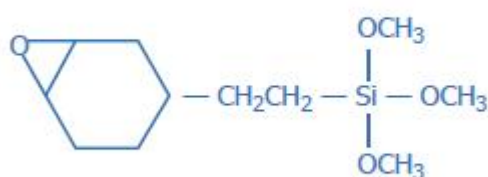
|                                      | Silquest A-186 Silane | Silquest A-187 Silane |
|--------------------------------------|-----------------------|-----------------------|
| Appearance                           | Clear, pale           | Clear, pale           |
| Molecular Weight                     | 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.

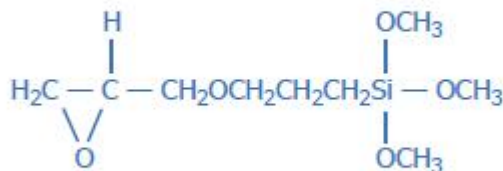
## Chemical Structure

### Silquest A-186 Silane



*Beta-(3,4-Epoxy cyclohexyl)ethyltrimethoxysilane*

### 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       |
| <b>*All American countries</b> | <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

**\*All Middle Eastern  
countries, Africa, India,**

**Korea  
+82 2 6201 4600**

For literature and technical assistance, visit our website at: [www.momentive.com](http://www.momentive.com)

**DISCLAIMER:**

**THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY “SUPPLIER”), ARE SOLD SUBJECT TO SUPPLIER’S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER’S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN.** Each user bears full responsibility for making its own determination as to the suitability of Supplier’s materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier’s products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier’s standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the

infringement of any patent or other intellectual property right.

\*Silquest™是 Momentive Performance Materials Inc. 的商标

The use of the "™" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies. Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.