

# SILQUEST™

Silanes for Reinforced Composites

**MOMENTIVE®**  
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## Product Description

Glass fiber is widely used to reinforce thermoplastic and thermoset resins for fabrication of high performance composites. Nevertheless, the naturally low compatibility of glass fiber with matrix resins causes poor interfacial bonding and thus low composites performance. Silquest silane, functioning as interfacial coupling agent, is proven to enhance interfacial bonding between glassfiber and matrix resins to significantly improve composites' mechanical performance, thermal stability and resistance to degradation and environmental aging. Silquest silanes have enabled composites for many high end applications, such as automotive, windmills, marine and aerospace, etc.

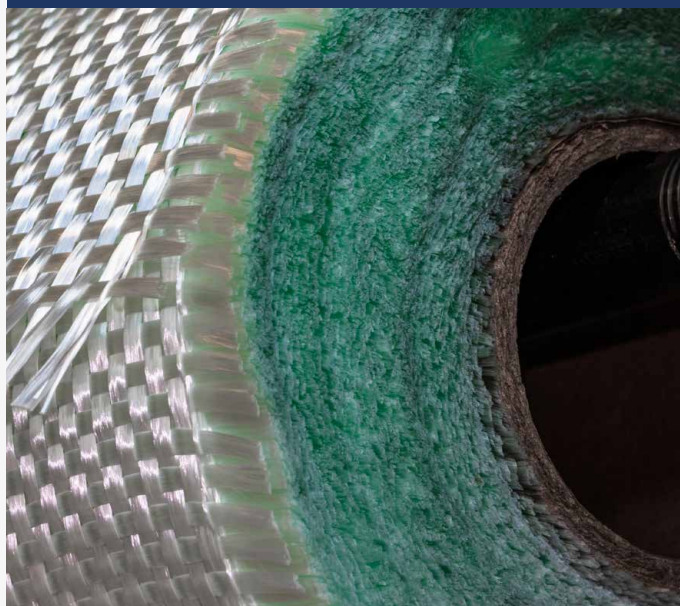
A Silquest silane molecule typically has two kinds of functional groups, an alkoxysilyl group on one end and a reactive functional group on the other end. The interfacial bond is formed through alkoxysilyl group reacting with glass fiber surface and the reactive functional group reacts with thermoset resins during curing or with thermoplastic resins during thermal processing. The strong interfacial bond can then effectively transfer stress from weak matrix resin to strong glassfiber to reinforce the composite.

Momentive's Silquest product line offers a broad selection of functional silanes for all kinds of thermoset and thermoplastic resins. To achieve best performance, the silane product for a specific application is recommended to be chosen to match the chemistry of the matrix resin.

## KEY FEATURES & TYPICAL BENEFITS

Throughout the process of glass fiber drawing, processing, composites fabrication and subsequent applications, Silquest silanes may provide a variety of benefits, including:

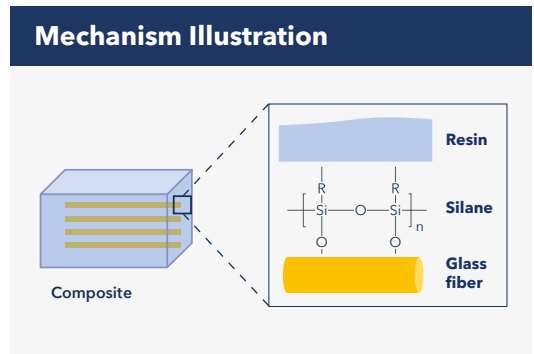
- Increased glass fiber tensile strength
- Reduced fuzz during glass fiber processing
- Enhanced glass fiber strand integrity
- Reduced hygrothermal degradation in corrosive environments
- Enhanced composites strength
- Long-term durability of the composition



## Product Selections

Silquest silanes are selected based upon the resin used in fabricating the composite. A typical guide to selecting the silane for the resin is:

Name	Functionality	Compatible Resins	Features
E-Free™ 1100 silane	Amino	Epoxies, Phenolics, Polyamides, PET, PBT, Polycarbonates	Lower VOC
Silquest A-1524CF silane	Ureido	Polyamides, Epoxies, Phenolics	Low yellowing
Silquest A-274	Acryloxy	Unsaturated polyester resins, Polyolefin, Elastomers etc.	<ul style="list-style-type: none"> <li>High reactivity</li> <li>UV and moisture cureable</li> </ul>
Silquest A-2387 silane	Amino	Epoxies, Polyamides	<ul style="list-style-type: none"> <li>High strand integrity</li> <li>Fiber protection</li> <li>Choppability</li> <li>Formulated without HAPS</li> </ul>
Silquest A-1387 silane	Amino	Epoxies, Polyamides	<ul style="list-style-type: none"> <li>High stand integrity</li> <li>Fiber protection</li> <li>Choppability</li> </ul>



For product prices, availability, order placement, contact customer service at: [commercial.services@momentive.com](mailto:commercial.services@momentive.com)

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### General Considerations For Use

Fillers are typically treated by dissolving 2-5 wt% silane in an alcohol/water (90/10 by volume) mixture. Acidify non-amino silanes to pH =4 with acetic acid. The silane solution is applied to the filler using conventional equipment such as blender or mixers. If low VOC application is desired, silanes can be dissolved in a water only solution or applied as received to the filler with adequate mixing.

### 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.

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