

# Silquest<sup>\*</sup> Silane Y-9669

phenylaminosilane adhesion promoter

## Product Description

Silquest silane Y-9669 combines phenyl and amino functionality in the same molecule. It is an extremely effective adhesion promoter for many filled and reinforced resin systems.

Silquest silane Y-9669 is a versatile adhesion promoter, particularly for resin systems that will react with a secondary amino group, such as isocyanates, acrylates, epoxies, phenolics and RTV silicones. This silane is especially useful when the resulting material must withstand higher temperatures; e.g., in phenolic resin/fiberglass composites. Silquest silane Y-9669 has the following chemical structure:

## Key Features and Typical Benefits

- Secondary phenyl amino group reacts with such resin systems as isocyanates, acrylates, epoxies, phenolics and silicones
- Methoxy silane ester for fast hydrolysis time
- Aromatic amino group for increased stability of resin/silane bond at elevated temperature
- Phenyl group for good resin wet-out

## Typical Physical Properties

Appearance	Clear liquid
Color	Straw-to-amber
Specific Gravity at 25/25°C	1.07
Boiling Point, °C (°F)	310 (590)
Flash Point, Pensky-Martens Closed Cup <sup>(1)</sup> , °C (°F)	146 (295)

(1) ASTM Method D 93

Momentive Performance Materials provides versatile materials as the starting point for our creative approach to ideas that help enable new developments across hundreds of industrial and consumer applications. We are helping customers

solve product, process, and performance problems; our silanes, fluids, elastomers, sealants, resins, adhesives, urethane additives, and other specialty products are delivering innovation in everything from car engines to biomedical devices.

From helping to develop safer tires and keeping electronics cooler, to improving the feel of lipstick and ensuring the reliability of adhesives, our technologies and enabling solutions are at the frontline of innovation.



Potential Applications

Silquest silane Y-9669 significantly improves adhesion between inorganic surfaces and polymers that react with a secondary amine. Evaluation is recommended for such polymers as urethanes, epoxies, acrylates and phenolics that must adhere to inorganic substrates; e.g., glass, metals, fiberglass and particulate fillers. Applications include adhesives and sealants, coatings, glass fiber sizes and finishes, primers and foundry sand binders.

The excellent high-temperature performance of silane Y-9669 is demonstrated by the improvement in durability of a glass fiber reinforced phenolic resin laminate. As shown in Table 1, composites prepared with silane Y-9669 better maintained the superior flexural strength of the laminate, even after prolonged exposure to high temperature and moisture, as compared to similar composites prepared with Silquest A-1100\* silane.

Chemical Structure

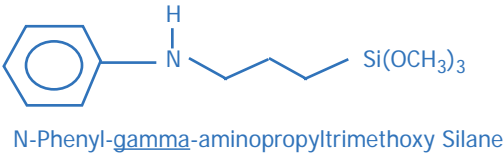


Table 1: Effect of Silanes on High-Temperature Flexural Strength Properties of Phenolic/Fiberglass Composites

Silane	Flexural Strength, psi x 10 <sup>-3</sup>		
	Initial	96 hr at 500°F (260°C)	192 hr at 500°F (260°C)
	Dry/Wet	Dry/Wet	Dry/Wet
Silquest A-1100	64/62	47/41	22/13
Silquest Y-9669	65/66	58/48	41/34

These data confirm that silane Silquest silane Y-9669 offers superior high-temperature aging characteristics in GFR composites. Consequently, it is a likely candidate for other resin systems and applications that involve high-temperature exposure.

Formulation and Use

Silquest silane Y-9669 may be added directly to the matrix resin or during formulation, or used independently as a primer. For waterborne applications, the silane can be diluted in acidified water. When properly diluted, these aqueous solutions are stable for up to 72 hours. A typical solution is prepared by adding 1 gram of Silquest silane Y-9669 to 99 grams of water acidified to pH 2.9 with glacial acetic acid.

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 considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any Momentive Performance Materials representative. Use of other materials in conjunction with Momentive Performance Materials 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.

Emergency Service

Momentive Performance Materials maintains an around-the-clock emergency service for its products. The American Chemistry Council (CHEMTREC), Transport Canada (CANUTEC), and the Chemical Emergency Agency Service also maintain an around-the-clock emergency service for all chemical products:

Location	Momentive Performance Materials Products	All Chemical Products
Mainland U.S., Puerto Rico	518.233.2500	CHEMTREC: 800.424.9300
Alaska, Hawaii	518.233.2500	CHEMTREC: 800.424.9300
Canada	518.233.2500	CANUTEC: 613.996.6666 (collect) or CHEMTREC: 800.424.9300
Europe, Middle East, Africa	+32.(0)14.58.45.45 (Belgium)	CHEMTREC: +1-703.527.3887 (collect)
Latin America, Asia/Pacific, all other locations worldwide	+518.233.2500	CHEMTREC: +1-703.527.3887 (collect)
At sea	Radio U.S. Coast Guard, which can directly contact Momentive Performance Materials at 518.233.2500 or CHEMTREC at 800.424.9300.	

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

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