

# Silquest<sup>\*</sup> A-1120 Silane and Silquest A-2120 Silane diamino silane adhesion promoters

## Product Description

Silquest A-1120, N(beta-aminoethyl) gamma-aminopropyltrimethoxy-silane, and Silquest A-2120, N(beta-aminoethyl) gamma-aminopropylmethyldimethoxy-silane, are diaminofunctional silanes that may be used over a broad range of applications. They are used to promote the adhesion of amino-reactive resins such as silicone, silylated polyurethane, two-part urethanes and two-part epoxies to inorganic surfaces, plastic surfaces, and inorganic fillers or reinforcements.

Silquest A-1120 and Silquest A-2120 silanes find uses as:

- Adhesion promoters in polysulfide, polyvinyl chloride plastisol, silicone two-part urethanes and epoxy adhesives and sealants
- Additives in phenolic and epoxy molding compounds
- Additives to latex coatings, adhesives and sealants
- Adhesion promoters in one-part silylated urethane adhesives and sealants based on the Momentive Performance Materials SPUR<sup>\*</sup> prepolymer technology.

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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.



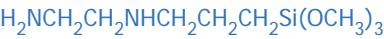
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Key Features and Typical Benefits

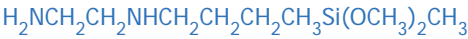
Feature	Benefit
Polyamino Functionality	<ul style="list-style-type: none"><li>• Provides reactive site for amino-reactive resins</li><li>• Good wetting of substrates</li></ul>
Silquest A-1120 Trifunctional Silane	<ul style="list-style-type: none"><li>• Excellent adhesion to inorganic substrates such as metal, glass, etc</li><li>• Superior adhesion to plastics when employed in SPUR* prepolymer technology-based adhesives or sealants</li></ul>
Silquest A-2120 Difunctional Silane	<ul style="list-style-type: none"><li>• Excellent adhesion to inorganic substrates such as metal, glass, etc</li><li>• Superior adhesion to plastics when employed in SPUR Technology-based adhesives or sealants</li><li>• Provides as much as a 35% improvement in elongation over Silquest A-1120 silane</li><li>• Provides superior stability in waterborne systems over other trifunctional amino silanes</li></ul>

Chemical Structure

Silquest A-1120 Silane



Silquest A-2120 Silane



Typical Physical Properties

	Silquest A-1120 Silane	Silquest A-2120 Silane
Physical Form	Straw-colored liquid	Straw-colored liquid
Specific Gravity, 25/25°C	1.03	0.98
Refractive Index, n <sub>D</sub> 25°C	1.448	–
Flash Point, Pensky-Martens Closed Cup <sup>(1)</sup> , °C (°F)	138 (280)	>93 (>200)

(1) ASTM Method D93

Potential Applications

Silquest A-1120 silane and Silquest A-2120 silane may be used as additives, helping to eliminate the need for special primers in numerous bonding applications. Specific systems that demonstrate improved adhesion when Silquest A-1120 silane or Silquest A-2120 silane are used include:

RTV Silicones and Hybrid Silane-Crosslinked Sealants  
Silquest A-1120 silane or Silquest A-2120 silane addition to one- and two-part silicone-crosslinked sealants improves adhesion to a variety of substrates, including glass, steel, aluminum and concrete. These silanes can dramatically enhance adhesion to a wide array of plastics when used in combination with the Momentive Performance Materials SPUR Technology for silylating urethane polymers. (For formulation and silylated prepolymer preparation information, please refer to Literature Bulletin 112-026-30, "Silquest Organofunctional Silanes – Crosslinkers and Adhesion Promoters for Urethane Adhesives and Sealants". This bulletin may be obtained from the Momentive Performance Materials sales office nearest you.)

Silquest A-2120 silane, a difunctional variant of Silquest A-1120 silane, can be utilized to provide an enhanced adhesion performance and as much as a 35% increase elongation performance.

Loading levels of 0.5 to 2.0 percent by weight are typically recommended for both products.

The performance of Silquest A-1120 silane in a one-part SPUR\* prepolymer-based sealant is shown in the following table. Similar results would be anticipated using Silquest A-2120 silane.

Table 1: Adhesion-in-Peel<sup>(1)</sup> Performance of One-Part SPUR Sealant Using Silquest A-1120 and Silquest A-2120 Silane<sup>(2)</sup>

Substrate	Peel Strength, pli <sup>(3)</sup> (Failure Mode)	
	Silquest A-1120 Silane	Silquest A-2120 Silane
Aluminum	21 (100% C <sup>(4)</sup> )	20 (100% C)
Glass	23 (100% C)	23 (100% C)
PVC	23 (100% C)	21 (100% C)
ABS	20 (75% C)	25 (100% C)
Polystyrene	23 (100% C)	3 (<75% C)

(1) ASTM Method C-794  
(2) 1.5 weight percent silane  
(3) Pounds per linear inch  
(4) Cohesive failure of the bond

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### Potential Applications (continued)

#### Polysulfide Sealants

When added to one- and two-part polysulfide sealants, Silquest A-1120 silane and A-2120 silane provide better adhesion to a variety of substrates, including glass, aluminum and steel. Silquest A-1120 silane and A-2120 silane are typically used at a loading of 0.5 to 1.0 percent by weight to the sealant. They disperse well and produce cohesive failure in the sealant rather than adhesive failure of the bond between the sealant and the substrate.

Furthermore, the use of Silquest A-1120 silane or A-2120 silane can eliminate the need for primers normally required to achieve adhesion to surfaces.

#### Plastisol Sealants

Adding Silquest A-1120 silane (0.5 to 1.5 weight percent) as a replacement for polyaminoamide adhesion promoters in plastisol sealants improves bonding to metal substrates.

Silquest A-1120 silane-modified plastisol systems have a very light color, and the cured compound is bubble-free.

#### Additive in Phenolic and Epoxy Molding Compounds

Silquest A-1120 silane, as an additive in phenolic and epoxy molding compounds, reduces the water absorption of molded composites. This, in turn, leads to improved wet electrical properties, particularly at low frequencies. High-temperature strength properties are also improved.

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### 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.

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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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performance materials

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<b>Europe, Middle East, Africa and India</b> Leverkusen Germany	00.800.4321.1000 + 31.164.293.276	+ 31.164.241750
<b>Pacific</b> Akasaka Park Building 5-2-20 Akasaka Minato-ku, Tokyo 107-6112 Japan	+ 81.3.5544.3100	+ 81.3.5544.3101
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	<b>RTV Products-Elastomers</b> 800.332.3390	304.746.1623
	<b>Sealants and Adhesives and Construction</b> 877.943.7325	304.746.1654
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