

Silquest^{*} A-1110 Silane

Product Description

Silquest A-1110 silane, a primary amino silane, is a candidate for use as an adhesion promoter in silane modified urethane (SPUR^{*} prepolymer), filled silicone, epoxy and 2 part urethane adhesives and sealants. Additionally, Silquest A-1110 silane may be particularly useful in applications in which adhesion to plastic is sought. When utilized as an adhesion promoter in a two part urethane system exceptional adhesion to glass, metal and many difficult plastics such as PVC, Polystyrene, and Nylon can be anticipated.

Silquest A-1110 silane can also be employed as an endcapper in polyurethane resins to provide an isocyanate-free moisture cure crosslinking mechanism in one part systems.

Key Features and Typical Benefits

Feature	Benefit
Amino Functional	<ul style="list-style-type: none">• Fast amino reactivity with isocyanate functional polymers• Amino group is reactive with many resins such as: epoxies, phenolics and acrylics• Catalyzes silane reactivity
Trimethoxy Silane Functionality	<ul style="list-style-type: none">• Bonds to inorganic containing substrates to provide excellent wet and dry adhesion• Fast adhesion and/or cure rates

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.

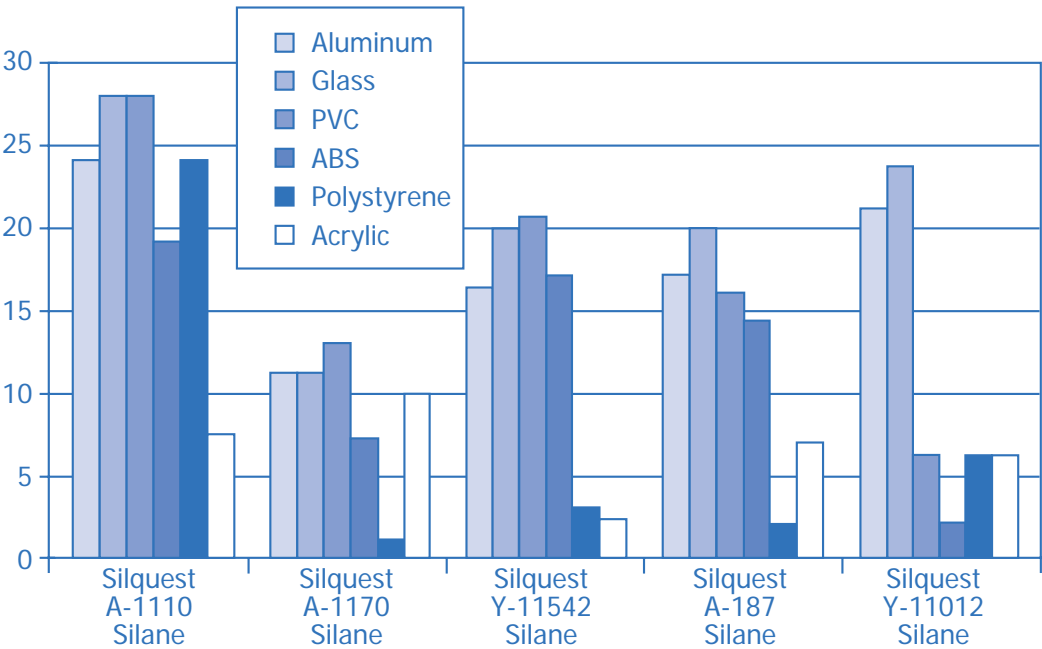


Key Features and Typical Benefits (continued)

Adhesion Promotion with Silquest A-1110 Silane

- Silquest A-1110 silane can be utilized in two part epoxy based systems to enhance wet adhesion. Its primary amino functionality will also act as a hardening agent.
- Silquest A-1110 silane can be utilized on the polyol side of a 2 part urethane adhesive or sealant to enhance wet adhesion.

Silquest A-1110 silane may provide exceptional adhesion to many plastics. The use of Silquest A-1110 silane as an adhesion promoter in sealants and adhesives using silane modified urethanes (prepared using Momentive Performance Materials SPUR* prepolymer technology) provided exceptional adhesion to PVC, ABS, Polystyrene, and Nylon, in addition to the traditional improvements in wet adhesion to glass and various metals. (For more information on SPUR prepolymer refer to Momentive Performance Materials SPUR prepolymer Technology Literature). Examples of relative adhesion promoter performance offered by Silquest A-1110 silane in a silane modified urethanes (SPUR Technology) is summarized in the chart below.



Key Features and Typical Benefits (continued)

Substrate	Adhesion Promoter (1.5 phr)				
	Silquest A-1110 Silane	Silquest A-1170 Silane	Silquest Y-11542 ^(g) Silane	Silquest A-187 ^(g) Silane	Silquest Y-11012 ^(g) Silane
Aluminum	24 (C) ^(f)	11 (C)	16 (C)	17 (C)	21 (C)
Glass	28 (C)	11 (C)	20 (C)	20 (C)	24 (C)
PVC	28 (C)	13 (C)	21 (C)	16 (C)	6 (C/A)
ABS	19 (C)	7 (A)	17 (C/A)	14 (C)	2 (C/A)
Polystyrene	24 (C)	1 (A)	3 (C)	2 (A)	6 (C/A)
Acrylic	7 (A)	10 C/A	2 (A)	7 (A)	6 (A)
Tack Free Time (hrs.) ^(a)	5.0	3.0	4.0	4.0	4.0
Hardness (Shore A) ^(b)	23	23	28	26	21
Elongation (%) ^(c)	357	272	366	464	872
Tensile Strength (psi) ^(c)	173	155	182	160	190
100% Modulus (psi) ^(c)	57	64	57	42	29
200% Modulus (psi) ^(c)	101	117	103	83	50
Tear (lbs/in) ^(d)	26	27	25	25	33
Sealant Viscosity (cps)	422,400	409,600	435,200	425,000	448,000

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Key Features and Typical Benefits (continued)

Crosslinking with Silquest A-1110 Silane

Silquest A-1110 silane can also be utilized as an isocyanate terminated urethane prepolymer endcapper. Due to the reactivity of its primary amino group, best results are achieved when the urethane prepolymer has been fully endcapped. The primary amino functionality will crosslink the system unless a slight silane excess is used. Fully endcapping the polymer yields a moisture curable isocyanate-free polymer. When utilized in combination with another aminosilane adhesion promoter (e.g., additional Silquest A-1110 silane or Silquest A-1120 silane) exceptional adhesion to plastics can be obtained.

For additional information regarding Momentive Performance Materials SPUR* prepolymer Technology review the following Momentive Performance Materials literature pieces:

- Momentive Performance Materials Y-9669 Silane
- Hybrid Urethane Construction Sealants
- Adhesion to Plastics with SPUR Sealants.

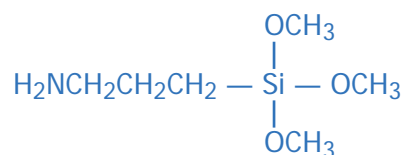
Typical Physical Properties

Appearance	Light straw
Molecular Weight	179
Specific Gravity at 25/25°C	1.014
Flash Point, Tag Closed Cup, °C (°F)	82 (180)
Boiling Point, °C (°F)	210 (410)

Solubility

Silquest A-1110 silane is soluble in a wide range of organic solvents. When dissolved in water it hydrolyzes to form a water soluble solution of silane triol.

Chemical Structure



Gamma-Aminopropyltrimethoxy Silane

Commercial Status

Silquest A-1110 silane is commercially available. Contact your sales or customer service representative to enter a sample request, or place an order.

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 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.

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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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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.	

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