

Silquest^{*} A-1637 Silane and Silquest A-2639 Silane

Product Description

Silquest A-1637 silane and Silquest A-2639 silane are non-yellowing adhesion promoters that can provide sealants, adhesives and coatings with good flexibility and excellent adhesion compared to other aminosilanes. They are primary aminosilanes and are good candidates for SPUR⁺* prepolymer-based technology, silicone, urethane, epoxy, silylated polyether and polyurethane adhesives, sealants and coatings. Our SPUR⁺ service means you'll develop silylated polyurethanes with license rights, cutting edge information and custom-tailored solutions.

Key Features and Typical Benefits

- Improve color stability and reduce yellowing versus other aminosilanes
- Provide excellent adhesion to both organic and inorganic substrates
- Enhance the performance of low modulus sealants during joint expansion
- Silquest A-1637 silane for improved sealant flexibility and elastic recovery
- Silquest A-2639 silane for super flexibility for sealants

Typical Physical Properties

	Silquest A-1637 Silane	Silquest A-2639 Silane
Specific Gravity, 25/25°C	0.9762	0.93
Molecular Weight	221	205
Flash Point °C (°F)	97 (207)	100 (212)

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

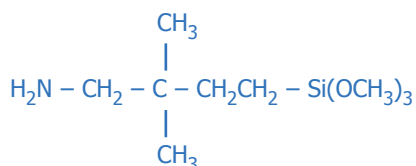
solve product, process, and performance problems; our silanes, fluids, elastomers, sealants, resins, adhesives, urethane additives, and other specialty products are delivering innovation in everything from car engines to biomedical devices.

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.

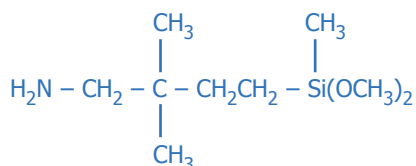


Silquest* A-1637 Silane and Silquest A-2639 Silane

Chemical Structure Silquest A-1637



Chemical Structure Silquest A-2639



Performance Data

Table 1: Formulation of Sealants for Testing of Mechanical Properties and Adhesion

Ingredients	Use Level
Silylated Polyurethane	100
Plasticizer DINP/DIDP (20/80)	80
Filler (CaCO ₃)	240
UV Stabilizers	2
Thixotrope	5
Whitener TiO ₂	5
Moisture Scavenger Silquest A-171* Silane	1.5
Adhesion Promoter Silquest Silanes	2.5

Silquest A-1637 silane, an adhesion promoter, provides improved flexibility and elongation to sealants compared with other aminosilane adhesion promoters (Table 2). Like other aminosilanes, Silquest A-1637 silane can provide excellent adhesion to both inorganic and organic substrates. (See Chart 1.)

Additionally, the branched structure of Silquest A-1637 silane can reduce the yellowing that sometimes occurs with conventional aminosilanes. The color of sealants and adhesives formulated with Silquest A-1637 silane is more stable under UV and heat exposure.

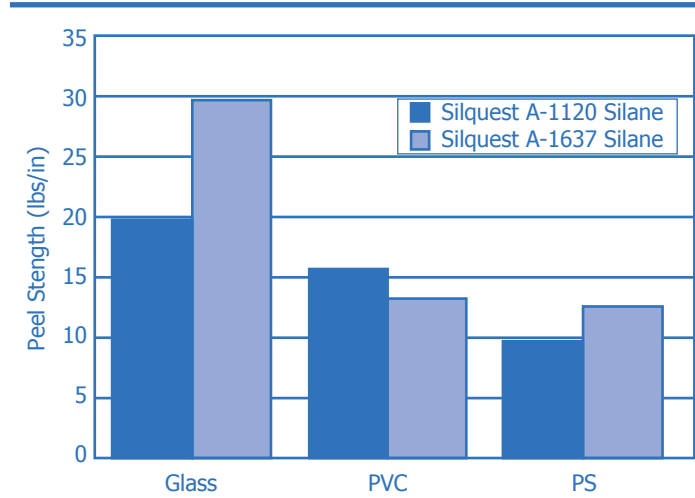
Silquest A-2639 silane offers similar advantages plus still greater flexibility.

Table 2: Silquest A-1637 Silane as Adhesion Promoter in a Formulated Sealant Based on WSP 725-80 Polymer

Adhesion Promoter	Silquest A-1110 Silane	Silquest A-1120 Silane	Silquest A-1637 Silane	Silquest A-2639 Silane
phr	2.5	2.5	2.5	2.5
Viscosity of sealant (cps)	134,000	134,000	128,000	128,000
Tensile Strength at break (MPa)	1.1	1.17	1.41	1.32
Modulus @ 100% (MPa)	0.53	0.54	0.37	0.33
Elongation at break (%)	551	503	736	903
Tear Resistance (N/mm)	6.71	6.92	6.24	6.12
Hardness Shore A	31	31	27	21
Bead Adhesion (% Cohesive Failure)				
Dry adhesion on Aluminum	100%	100%	100%	100%
Dry adhesion on Glass	100%	100%	100%	100%
Wet adhesion on Aluminum	100%	100%	100%	100%
Wet adhesion on Glass	0%	0%	100%	100%

Performance Data (continued)

Chart 1: Peel Strength (lbs/in) of Silquest A-1637 Silane vs. Silquest A-1120 Silane as Adhesion Promoters on Several Substrates (ASTM C 794-86)



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.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

Emergency Service

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Table 3 compares the color stability of a sealant formulated with Silquest A-1637 silane vs. a sealant formulated with Silquest A-1120 silane. Using Silquest A-1637 silane as adhesion promoter in a sealant system reduces yellowing, during heat aging, to a level similar to that of the same system without any aminosilanes.

Table 3: Reduction in Yellowing: Silquest A-1637 Silane vs. Other Aminosilanes

Silane	b value before aging(a)	b value after aging(a)	Δb
None	-4.33	4.29	8.62
Silquest A-1120	-4.58	6.58	11.16
Silquest A-1637	-4.56	4.32	8.88

(a) After cure, the samples were placed in an oven at 70°C for one week. The yellowness index was measured before and after the heat treatment by Minolta Chroma Meter CR-221.

The formulation used in the test of color stability was:

Silylated Polyurethane	20g
DIDP	30g
Calcium Carbonate	30g
SiO ₂ Thixotrope	5g
TiO ₂	5g
Silane	2.5g
DBTDL	0.8g

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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