

Silquest A-171™

Description

Silquest A-171 silane offers vinyl and silane functionality, making them suitable for crosslinking organic polymers. The resulting Si-O-Si crosslink sites are highly resistant to exposure to moisture, chemicals and UV. Siloxane crosslinks tend to not generate color and are resistant to environmental factors, such as acid rain.

Silquest A-171 silane may also be useful as a moisture scavenger in moisture cure systems where enhanced shelf-life is sought.

Key Features and Benefits

Feature	Benefit
Vinyl Functionality	<ul style="list-style-type: none"> • Vinyl functionality allows free radical addition to polymers. • Increases the rate of silane hydrolysis.
Trimethoxy Silane Functionality	<ul style="list-style-type: none"> • Bonds to inorganic substrates to provide excellent wet and dry adhesion. • Functions as a crosslinker. • Useful as a moisture scavenger.

Typical Physical Properties

	Silquest A-171 Silane
Appearance	Colorless to Light Straw
Specific Gravity at 25/25°C	0.97
Refractive Index n_D 25°C	1.3905
Flash Point, Tag Closed Cup, °C (°F)	28 (82)
Boiling Point, °C (°F)	122 (252)

Solubility

Momentive Performance Materials family of vinyl Silquest silanes are soluble in water after they have been hydrolyzed. Hydrolyzing Silquest A-171 silane in water is aided by adjusting the pH of the water to 5.0-5.5 with acetic acid prior to adding the silane.

Chemical Structure

SilanesSilquest A-171 MB.indd_Chemical Structures_Image2.JPG

Potential Applications

Crosslinking with the Momentive Performance Materials family of vinyl Silquest silanes Silquest A-171 silane are monomeric vinyl functional silanes in vinyl, vinyl acrylic and acrylic resins. The vinyl silanes can be added as monomers during emulsion polymerization to form silane modified latexes. The silanes in such latexes function as crosslinkers, forming very stable Si-O-Si linkages.

Vinyl silanes can also be grafted to select unsaturated polymers such as polyethylene, polyester, and styrene-butadiene co-polymers, via free radical chemistry. Once grafted to the resin, the resin exhibits silane functionality through which the resin can be crosslinked via an ambient moisture cure mechanism. This approach can be utilized to provide improved high temperature resistance, tensile and tear strengths to thermoplastic resin-based materials.

With the addition of an adhesion promoting silane, such as Silquest A-1110 silane or

Silquest A-1120 silane, excellent adhesion to a wide array of substrates can be obtained (Note: See literature on SPUR* prepolymer-based technology for additional information on synergistic use of Silquest silane crosslinkers and adhesion promoters for excellent adhesion to difficult substrates). This approach may be suitable to warm applied hot melt adhesive and sealant applications.

Moisture Scavenging with Momentive Performance Materials vinyl functional Silquest silanes.

The electron withdrawing effect imparted by the silanes vinyl functionality enhances the rate of hydrolysis. This increased reactivity makes Silquest A-171 silane one of the fastest hydrolyzing alkoxy silanes available. The elevated rate of hydrolysis is sufficient to enable Silquest A-171 silane to be utilized as a moisture scavenging agent in moisture sensitive systems.

Silquest A-171 silane can be incorporated into urethane, silylated polyurethane (SPUR prepolymer) or other silane modified polymer based sealants and adhesives to extend the systems shelf-life.

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Limitations

Standard copy to come

Contact Information

Email

commercial.services@momentive.com

Telephone

Americas	Latin America	EMEAI- Europe, Middle East, Africa & India	ASIA PACIFIC
+1 800 295 2392 Toll free*	Brazil +55 11 4534 9650 Direct Number	Europe +390510924300 Direct number	China 800 820 0202 Toll free +86 21 3860 4892 Direct number
+704 805 6946 Direct Number			
All American countries	Mexico +52 55 2169 7670 Direct Number	India, Middle East & Africa + 91 44 71212207 Direct number	Japan +81 3 5544 3111 Direct number
		*All Middle Eastern countries, Africa, India,	Korea +82 2 6201 4600

For literature and technical assistance, visit our website at: www.momentive.com

DISCLAIMER:

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY “SUPPLIER”), ARE SOLD SUBJECT TO SUPPLIER’S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER’S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Supplier’s materials, services, recommendations, or advice for its own particular use. Each user must identify and

perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

*Silquest™ es una marca comercial de Momentive Performance Materials Inc.

The use of the "™" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies. Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.