Technical Data Sheet

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	• Vinyl functionality allows free radical addition to polymers. • Increases the rate of silane hydrolysis.
Trimethoxy Silane Functionality	• Bonds to inorganic substrates to provide excellent wet and dry adhesion. • Functions as a closslinker. • 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 poly merization 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

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