

Silquest™ VX-225

Silquest* VX-225

Description

Silquest VX-225 silane is an amino-functional oligosiloxane adhesion promoter that may be considered for use over a broad range of adhesives and sealants applications.

Key Features and Benefits

Silquest VX-225 silane can improve the performance of moisture curable hybrid sealants, room temperature vulcanization (RTV) silicones and polyurethane sealants, adhesives and coatings.

Silquest VX-225 silane not only acts as an adhesion promoter but can modify the physical properties of Hybrid and RTV sealants by increasing their elasticity, lowering modulus and decreasing residual surface tack of the final cured product. It can also help reduce yellowing in sealant formulations.

As such, the beneficial characteristics of Silquest VX-225 silane include:

- Multi amino functionality for improved adhesion especially under wet conditions
- Reduced VOCs of the final formulation vs typical amino silanes - reduced hazardous air pollutants (HAPs) emissions
- Lower sealant viscosity to improve sealant application rate
- Lower sealant residual surface tack compared to typical amino silanes
- Improved elasticity and lower modulus of the cured sealant
- Reduced yellowing with outdoor exposure

Typical Physical Properties

Appearance	Clear liquid
Color Index (Gardner)	1
Density (g/ml)	0.99
Refractive Index (nD25°C)	1.42
Viscosity (mPas)	20
Boiling Point (@ 1.1013 hPa), °C	266
Flash Point (°C)	80

Typical physical property values should not be used as specifications.

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Potential Applications

Adhesion in Peel Performance of SPUR⁺ prepolymer-based Sealant

The following sealant formulation was used to evaluate the performance characteristics of Silquest VX-225 silane.

Ingredients	wt%
SPUR ⁺ 1015 LM Prepolymer	22.94
Plasticizer (DIDP)	18.35
Moisture Scavenger (Silquest A-171* silane)	0.34
Calcium Carbonate	55.05
UV Stabilizers	0.46
Silica	1.115
Titanium Dioxide	1.15
Adhesion Promoter	0.57
Tin Catalyst	0.03
Total	100

Product formulations are included as illustrative examples only. Momentive makes no representation or warranty of any kind with respect to any such formulations, including, without limitation, concerning the efficacy or safety of any product manufactured using such formulations.

SPUR⁺ 1015 LM prepolymer is available from Momentive Performance Materials.

The physical properties of one-part SPUR+ prepolymer-based sealant using Silquest VX-225 silane were evaluated using European test methods (ISO 34, 37, 868, 4578, 9046, 7389). The adhesion in peel was measured using ASTM method C 794.

The properties of SPUR+ prepolymer-based sealant using Silquest VX-225 silane as adhesion promoter are shown in the following table. Silquest VX-225 silane appeared to outperform Silquest A-1110 silane (aminopropyltrimethoxysilane) on glass, aluminum and concrete substrates.

	Adhesion Promoter 0.57 wt%	
Physical Properties	Silquest A-1110 Silane	Silquest VX-225 Silane
Tensile Strength (MPa)	1.29	1.23
Elongation at Break (%)	381	1023
Tensile Modulus at 100% (MPa)	0.67	0.32
Shore A Hardness	30.2	23.8
Substrate (CF = cohesive failure)		
Aluminum	3.8/100%CF	5.3/100%CF
Glass	3.5/100%CF	4.2/100%CF
Dry Concrete (surface smooth and flat)	2.8/100%CF	3.6/40%CF
Dry Concrete (surface rough and porous)	2.9/100%CF	5.3/100%CF

Note: Test data. Actual results may vary.

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Patent Status

Standard copy to come

Product Safety, Handling and Storage

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Limitations

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