



Silquest* Wetlink 78

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Description

Silquest Wetlink 78 silane provides shelf stable non-yellowing adhesion promoter performance while enhancing physical properties in latexes and waterborne adhesive and sealant systems. When Silquest Wetlink 78 silane is incorporated as a crosslinker or adhesion promoter, it provides improved water resistance and wet adhesion, with good shelf stability.

Key Features and Benefits

- Excellent wet and dry adhesion, without yellowing
- Enhances tensile strength, while maintaining elongation performance
- Improves tear strength and durability
- Performance consistency with aging
- Improves water resistance of cured material

Typical Physical Properties

Property	Silquest Wetlink 78
Specific Gravity at 25/25°C	0.979
Viscosity at 25°C, cSt	3
Flash Point, °C (°F)	104 (220)

Chemical Structure



Potential Applications

Silquest Wetlink 78 silanes are excellent candidates for formulations employing carboxylated latexes (acrylic, SBR polyurethane, etc.) exhibiting a pH between 6 and 8.5.

Silquest Wetlink 78 silane can be employed as an adhesion promoter or crosslinker. It may be suitable for use as a water stable single component crosslinker in applications such as:

- Automotive laminate adhesives
- Furniture laminate adhesives
- Flocking adhesives

In such applications, Silquest Wetlink 78 silane should provide a means of replacing a 2 part waterborne adhesive with a single component system. The benefits of a silane crosslinked water stable single component system include reduced scrap, improved process efficiency and reduced crosslinker toxicity.

As an adhesion promoter for waterborne systems such as the acrylic sealant featured ar right, Silquest Wetlink 78 silane offers consistent and dramatic improvements in water stable adhesion performance.

All data presented were prepared using the acrylic caulk test formulation outlined below:

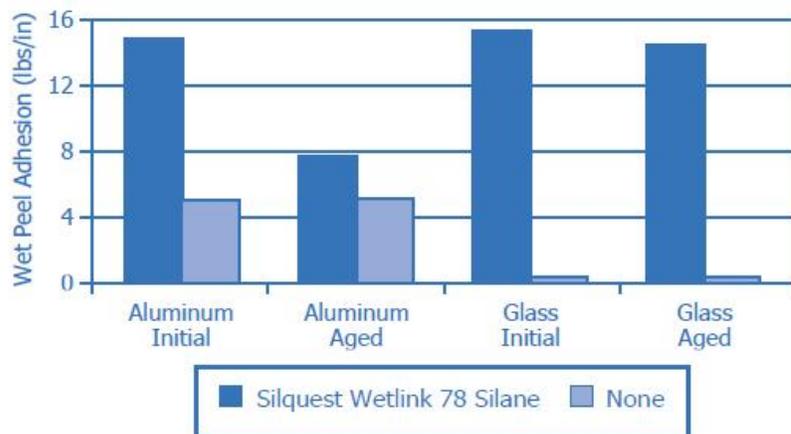
Table 1: Acrylic Latex Test Formulation

Material	phr
Latex	100
Surfactant	2.85
Biocides	0.52
Propylene Glycol	2.89
Condensing Solvents	2.39
Potassium Triphosphate	0.40
Plasticizer	22.06
Dispersant	0.40
Calcium Carbonate White (particle size 5.5m)	77.38
Ti-O ₂	1.88
Mineral Spirits	3.63
Ammonium Hydroxide (25%)	0.02
Silquest Silane	1.00

Adhesion Performance

Silquest Wetlink 78 silane provides enhanced wet and dry adhesion. At 1 phr (or approxi mately 0.4% use level) Wetlink 78 silane provides substantial improvements in non-yellowing wet peel adhesion performance in comparison to the silane-free control.

Figure 1: Initial vs Aged Wet Peel Adhesion

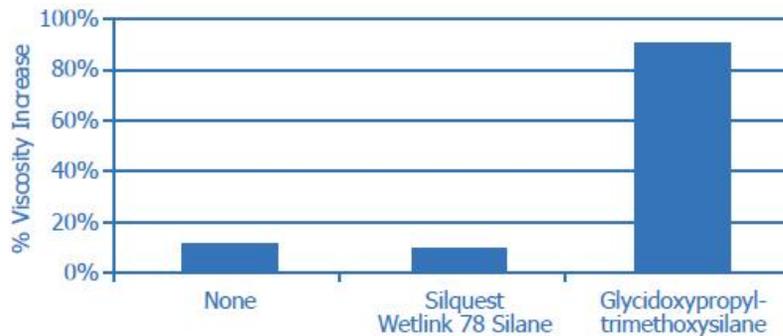


Shelf Stability Performance

Silquest Wetlink 78 silane has been developed specifically to help deliver enhanced adhesion performance without negatively impacting the adhesives' or sealants' shelf stability. Formulations aged 4 weeks at 50°C (122°F) exhibited changes in viscosity comparable to the silane-free control, and substantially less than silane technology practiced today.

Shelf stability has traditionally limited the acrylic latex market from reaping the performance benefits enabled by silanes in high solid and solventborne chemistries. Silquest Wetlink 78 silane effectively eliminates this limitation, opening the door to excellent adhesion performance, and the possibility for shelf stable silane crosslinking technologies.

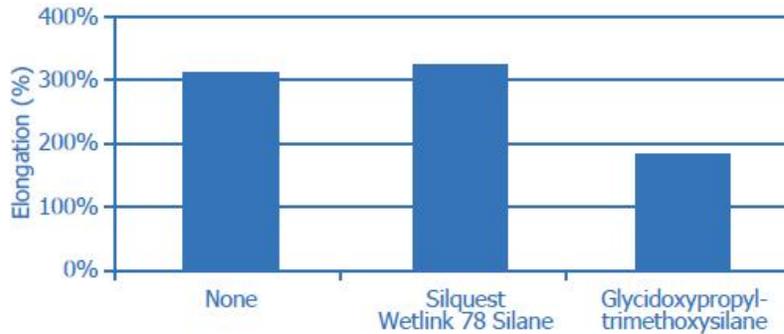
Figure 2: Waterborne Acrylic Sealant Shelf Stability % Change in Viscosity after 4 weeks at 50°C (122°F)



Elongation

Where traditional silane technologies negatively impacted elongation, Silquest Wetlink 78 silane enables the formulator to maintain the resin's natural elongation.

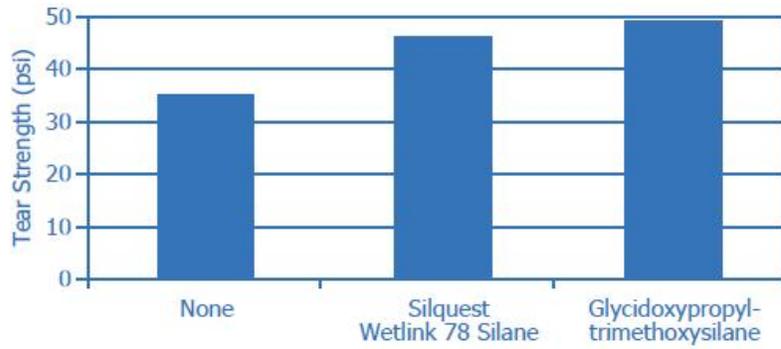
Figure 3: Silane Adhesion Promoter Selection



Tear Strength

While the impact on elongation has been modified, the improvement in tear strength associated with the incorporation of silane has been retained.

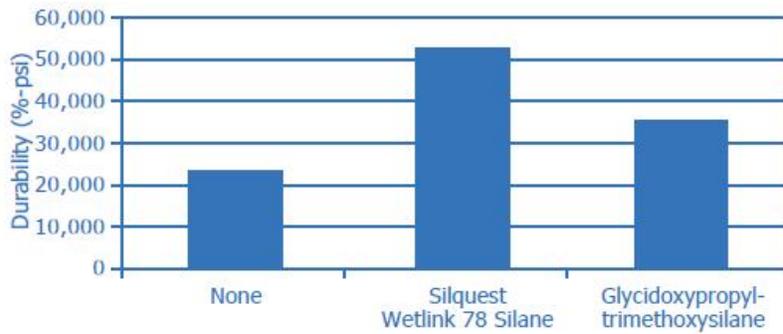
Figure 4: Waterborne Acrylic Sealant Silane Selection vs Tear Strength



Durability

Durability, the product of elongation and tensile strength, is greater than provided by existing technologies and by the silane-free control.

Figure 5: Waterborne Acrylic Sealant Silane Selection vs Durability

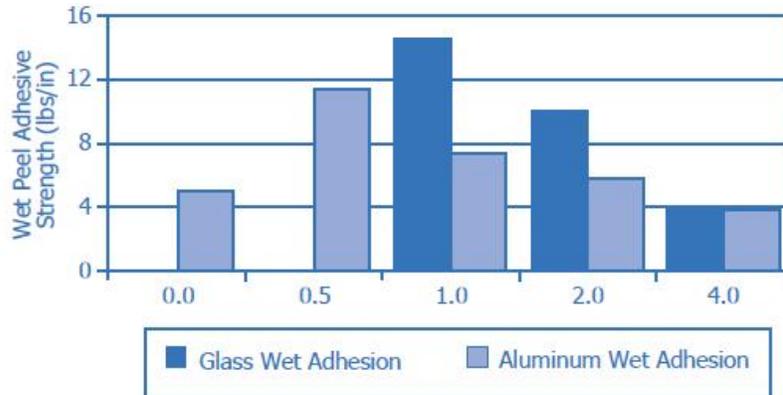


Recommended Loading Levels

As an epoxy silane, Silquest Wetlink 78 silane will not contribute to yellowing. Furthermore, this silane retains its ability to bond, even after the formulated sealant was aged for 4 weeks at 50°C (122°F).

Initial loading levels of 1.0 phr (or 0.4% in a 65% solid latex) are recommended, when seeking enhancement of adhesion strength. Higher loading levels may be required when Silquest Wetlink 78 silane is employed as the sole crosslinker. Loading levels as high as 2.5 phr can be utilized prior to impacting shelf life.

Figure 6: Waterborne Acrylic Sealant Adhesion vs Silquest Wetlink 78 Silane Loading Level



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