



One-Component, Moisture Curing Silane Terminated Polyurethane Sealant Formulation

DESCRIPTION

The following formulation is for construction sealant applications. The product provides a low VOC, high elongation sealant. This formulation would typically be applied as a one-component sealant in a caulking tube. The formulation is a recommended guide formulation that uses Desmoseal® S XP 2636, a product supplied by Covestro.

KEY FEATURES

- **High elongation**
- White color
- Low VOC
- High filler content

FORMULATION AND RAW MATERIAL DETAIL

Material	Parts	Function	Supplier
Components			
Desmoseal® S XP 2636	27.86	Resin	Covestro
Jayflex™ DINP	24.91	Plasticizer	ExxonMobil Chemical Company
TINUVIN® 1130	0.18	UV absorber	BASF Corporation
TINUVIN® 292	0.18	UV stabilizer	BASF Corporation
ULTRA-PFLEX®	44.83	Filler	Minerals Technologies, Inc.
Titanium Dioxide	1.33	Pigment	
Dynasylan® VTMO	0.48	Moisture scavenger	Evonik Industries
DBU	0.23	Catalyst	Sigma-Aldrich
Total Formulation	100.00		

Typical Results			
Weight Solids (%)	100.00	Density (lb./gal)	11.69
Volume Solids (%)	100.00	P/B	0.87
VOC (lb./gal)	0	PVC (%)	24.08

MANUFACTURING INSTRUCTIONS AND COMMENTS

- A planetary mixer equipped with a dispersing blade, side scraper, cooling water jacket, and vacuum adapter should be used in preparation of the sealant.
- Pre-dry all fillers and pigments in an oven to eliminate moisture.
- Charge the vessel with the dried fillers, pigment, plasticizer, and UV stabilizers. Under vacuum, mix using the planetary blade to eliminate air. Add Desmoseal® S XP 2636, and then reapply vacuum with mixing with the planetary blade and the dispersing blade.
- Maintain batch temperature below 40°C using the mixer's cooling system.
- Release vacuum and verify water content via Karl Fisher titration. Once at an acceptable level, add VTMO under continuous planetary blade mixing.
- Add the catalyst, mix thoroughly, and pack. Purge headspace with dry nitrogen prior to sealing.

APPLICATION GUIDELINES

- Remove any existing sealant using a scarper, putty knife, or wire brush. Clean the joint with solvent if necessary. If the substrate is concrete, apply a concrete primer prior to sealing.
- The sealant must be dispensed into plastic cartridges or internally coated aluminum cartridges only.
- Apply the sealant into the joint using a one-component caulking gun. Smooth the sealant surface with a jointing tool immediately after application.
- Allow the sealant to cure undisturbed under ambient moisture conditions.

TROUBLE SHOOTING

- The cure rate can be adjusted by increasing or decreasing the catalyst level.
- Alternatively, DBN can be used as a catalyst for amine, base catalyst options.
- CAB-O-SIL® can be added to improve thixotropic behavior.

APPLICATION AND CURED SEALANT PROPERTIES

Typical Application Properties	
Skin Time (23°C RT, 50% RH) Observation, internal test method	49 minutes
Vertical Sag Observation from application line	1.45 cm

Typical Cured Sealant Properties	
Shore A Hardness, 1 sec (5 sec) ASTM D 2240 Durometer Hardness	A 33 (A 31)
Tensile Strength at Break ASTM D 412	1.43 MPa (207.4 psi)
Modulus at 100% ASTM D 412	0.473 MPa (68.6 psi)
Elongation at Break ASTM D 412	≥ 900%
Tear Resistance, Die C ASTM D 624	43.6 lbf/in
Paintability	No – Water based latex No – Oil based enamel
Joint Movement Capability ASTM C719	Internal testing in progress

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Reference: NB# 61356-A

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