

CoatOSil* FLX Coating Modifier



MARKETING BULLETIN

SILANES - COATINGS ADDITIVES

Polysiloxane Resin Modifier for silane/polysiloxane containing coatings, including hybrids.

Key Features and Typical Benefits

- Improves coating flexibility
- Improves gloss retention under harsh weathering conditions
- Improves corrosion performance in neutral salt spray testing
- Compatible with many organic resin systems and pigments
- Low viscosity, reactive diluent in coating formulation

Typical Physical Properties of CoatOSil FLX Coating Modifier

Property	Value
Density (gm/cm ³) at 25 °C	1.06
Viscosity at 25 °C (mPas)	~105
Refractive Index at 25 °C	~1.4680
Surface Tension at 25 °C (dyne/cm)	~23.0

Solvent Solubility at 25 °C (50%wt/wt concentrations)	Value
Aromatic Solvents: Toluene, Xylene, Aromatic 100	Soluble
Cyclic Aliphatic Solvent: Cyclohexane	Soluble
Alcohols: Methanol, Ethanol, 1-Propanol, 1-Pentanol	Soluble
Ketones: Acetone, MEK, MIBK, m-pyrol	Soluble
Acetates: Ethyl Acetate, n-Butyl Acetate, t-Butyl Acetate, PM Acetate	Soluble
Others: Water Ethylene Glycol	Not Soluble

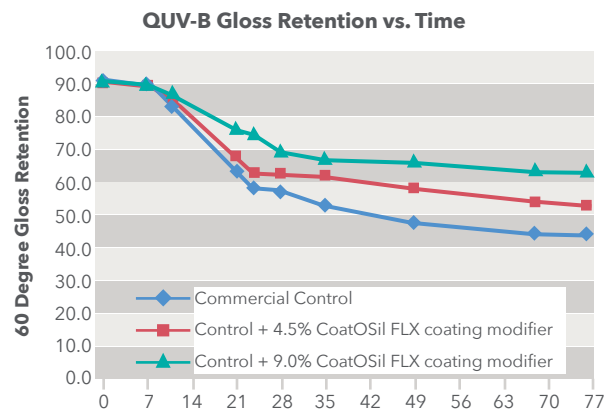
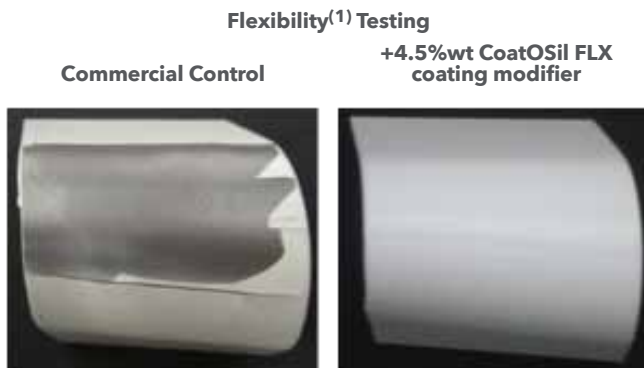
Typical properties are average data and are not to be used as or to develop specifications.

General Considerations for Use

- CoatOSil FLX coating modifier can be used as a “drop-in” replacement resin either in the grind paste or in the let down portion of a coating formulation.
- Typical recommended dosage levels are between 0.1% wt to 10% wt in existing formulations on a total formulation basis.

Example 1: Commercial Epoxy/PolySiloxane Coating with added CoatOSil FLX coating modifier in “PART A”.

Test	Control	+4.5%wt CoatOSil FLX coating modifier	+9.0%wt CoatOSil FLX coating modifier
Flexibility ⁽¹⁾	Failed	Pass	Pass
Gloss after Weathering ⁽²⁾	~45	~55	~65
NSST Corrosion Testing ⁽³⁾	Failed - 2 weeks	n/a	Passed - 12 weeks +



Neutral Salt Spray Corrosion Testing⁽³⁾



Primer / Control Topcoat failed after 2 weeks in NSST

No failure after 12 weeks

(1) - Panels conditioned 1 week ambient cure, ~60 hrs @ 80 °C. 1 3/8” conical madre panel bend midpoint.
 (2) - QUV-B weathering conducted under 24 hour continuous UV-B illumination for 11 weeks.
 (3) - Neutral salt spray testing using ZnRich/Epoxy/Amine Primer applied at ~7.5 mils, topcoat applied at ~5.5 mils. Conditioned 1 week ambient cure prior to corrosion testing.

Example 2: Silylated Acrylic-Polyol /Isocyanate Cure using 7.0%wt CoatOSil FLX coating modifier on “Part A” resin solids vs. Commercial Refinish Clearcoat

Test	Silylated Acrylic	Silyated Acrylic + 7.0%wt CoatOSil FLX coating modifier	Commercial Refinish Clearcoat
Flexibility ⁽¹⁾	Failed	Pass	Pass
Surface Hardness ⁽⁴⁾	102	137	71
Acid Etch Testing ⁽⁵⁾	50 °C	55 °C	40 °C

In Example #2, CoatOSil FLX coating modifier increased both coating flexibility and surface hardness simultaneously.

(1) - Panels conditioned 1 week ambient cure, ~60 hrs @ 80 °C. 13/8” conical madrel panel bend midpoint.

(4) - Konig pendulum hardness measured oscillations at 12° starting angle. Measurement taken after 14 days ambient cure.

(5) - 10%wt H₂SO₄ aqueous solution. Panels placed in oven for 20 minutes, then inspected for etching. Reported temperature passed etch test with no etch marking.

Note: Test results. Actual results may vary.

Patent Status

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