

SPUR+* 3030 Prepolymer



MARKETING BULLETIN

SILANES - ADHESIVES & SEALANTS ADDITIVES

SPUR+ 3030 prepolymer is an excellent candidate to consider for formulating non-isocyanate, moisture curable roof coatings and waterproof membranes. It was developed to enable the formulation of roof coating with a wide application window and excellent fully cured properties including tear, UV and water resistance.

Key Features and Typical Benefits

- Low viscosity can enable broad formulation latitude
- Proprietary pre-polymer design yields a balance of physical and mechanical properties desirable in a roof coating formulation
- Greater hydrophobicity than conventional hybrid polymers
- Improved heat resistance

Typical Physical Properties

Property	Value
Appearance	Colorless, clear to slightly opaque
Active Content	100%
Specific Gravity at 25 °C	0.9554 g/cm ³
Viscosity at 25 °C	~2500 cP

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

Typical Mechanical Properties After Cure

Property	Value
Tensile Strength at Break (psi)	600
Elongation at Break (%)	180
Modulus at 100% Extension (psi)	220
Hardness Shore A	42

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

The prepolymer was cured via the addition of 1% Fomrez† UL-28 & 0.5% DEMDD in a humidity chamber at 23 °C and 50% relative humidity for ten days, and then tested according to ASTM D412 for tensile properties and ASTM C661 for hardness.

Typical Formulation in Roof Coatng

Examples of Roof Coating Formulations

	Formulation 1	Formulation 2	Formulation 3
SPUR+ 3030 prepolymer	44.86	49.25	36.04
Tinuvin [†] 765	0.76		
Tinuvin 213	0.76		
Tinuvin 384-2		0.99	
Eversorb [†] 81			1.65
Jayflex [†] DIDP	7.64		
Acclaim [†] 8200			5.15
Silquest* A-137 silane	7.45		8.01
Carbital [†] C110S	34.5	45.31	
Omyacarb [†] 3 FL			44.28
DuPont Ti-Pure [†] R 960	2.86		
Tronox [†] C828	1.97	4.12	
Silquest A-1100* silane		0.47	
Silquest A-1120 silane	0.46		0.25
Silquest A-2120 silane	0.46		0.25
Silquest A-Link* 15 silane	1.58		
Silquest A-171* silane		0.2	
Fomrez [†] UL-59	0.25	0.23	0.25
Total	100	100	100
Viscosity of the formulation at 25 °C (cP)	~2000	~7,000	~ 5,000

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[†]Tinuvin is a trademark of BASF SE

[†]Eversorb is a trademark of Everlight Chemical Industrial Corporation

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Physical Properties of the Roof Coatings Formulations

	Formulation 1	Formulation 2	Formulation 3
Tensile Strength at BK (psi)	392	380	544
Elongation at BK (%)	330	266	136
Hardness Shore A	46	55	60
Tear Resistance (lbs/in)	57	58	45

Note: Test data. Actual results may vary.

Weatherability Test of Roof Coating Formulations

The formulated roof coatings were cured in a humidity chamber at 23 °C and 50% relative humidity for seven days, and then tested according to ASTM D412, C661, and D426 for tear resistance.

Roof coating formulation 1 was selected for more extensive testing of weatherability, as it displayed a desirable balance of elongation, hardness and tear resistance and possessed the lowest viscosity.

Weatherability Test Results of Roof Coating Formulation 1

	Tensile Strength at BK (psi)	Elongation (%)	Hardness Shore A
Heat Resistance Test at 80 °C			
Initial	392	330	46
After 1 week	348	242	45
After 3 weeks	319	220	45
QUV-A at 50 °C (ASTM G 53)			
Initial	392	330	46
After 1 week	348	246	43
After 3 weeks	363	275	40
Cold Temperature (-20 to -25 °C)			

The test samples are flexible after storage at -20 °C to -25 °C for four hours.

Note: Test data. Actual results may vary.

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