

SPUR+* 1012 Prepolymer



MARKETING BULLETIN

SILANES - ADHESIVES & SEALANTS ADDITIVES

A moisture curable, ultra-low modulus hybrid prepolymer designed primarily for blending with standard SPUR prepolymer grades to produce construction sealants with low modulus and high elongation while maintaining good elastic recovery.

Product Description

SPUR+ 1012 prepolymer is a silylated prepolymer that does not rely on an isocyanate curing reactions. Additionally, it is formulated without the use of phthalate-based plasticizers, and in sealant formulations, using it as the base resin or in combination with SPUR+ 1015 prepolymer, extremely low modulus values can be attained. This moisture curable resin is an excellent candidate to consider in formulating construction sealants requiring rapid cure, good water resistance, high flexibility and adhesion to most construction substrate materials such as concrete, marble and glass.

SPUR+ 1012 prepolymer can help enable the formulation of non-staining, paintable sealants.

Key Features and Typical Benefits

- Elimination of curing defects that can accompany isocyanate cure systems
- End product ease of use, particularly with one component systems
- Good elasticity and durability
- Minimal surface tack after cure when properly formulated
- Paintable
- Non-staining of porous substrates
- Excellent adhesion to many construction material surfaces
- Excellent weatherability, water and UV resistance upon formulation
- High elastic recovery
- Co-Binder for 25LM class sealants (ISO 11600)

Typical Physical Properties

Physical Form	Clear, viscous liquid
Viscosity, 25 °C, cPs	No viscosity data in SDS

Typical Resin Mechanical Properties After Cure

100% Modulus, MPa	0.22
Elongation, %	283
Hardness, Shore A	12

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

Example of SPUR+ 1015 Prepolymer Based Very Low Modulus Sealant Formulation Modified with SPUR+ 1012 Prepolymer

	Wt
SPUR+ 1015 prepolymer	11.5
SPUR+ 1012 prepolymer	11.5
Silquest A-171*	0.34
Ground calcium carbonate	55
Plasticizer	18.35
Fumed silica	1.15
TiO ₂	1.08
Hindered amine light stabilizer	0.23
UV absorber	0.23
Silquest* A-1110 silane	0.57
Niax* catalyst LC-5604	0.06
TOTAL	100.0
Skin formation [min.]	60

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 limitations, concerning the efficacy or safety of any product manufactured using such formulations.

Mechanical Properties after 2 weeks 23 °C / 50% RH	
Tensile Strength at Break (MPa)	1.25 (181 psi)
Elongation at Break (%)	578
Modulus at 100% MPa	0.4 (58 psi)
Hardness Shore A	17
Elastic Recovery Dog Bone [%]	93%

Note: Test results. Actual results may vary.

The mechanical properties were measured according to ISO 37 for tensile strength and elongation, ISO 8339 for modulus, ISO 868 for hardness and ASTM D 624 B for tear strength.

Example of an Ultra-Low Modulus Sealant Formulated with SPUR+ 1012 Prepolymer

Components	Wt
SPUR+ 1012 Prepolymer	19
Silquest A-171* Silane	0.3
Ground and Precipitated Calcium Carbonates	53.1
Plasticizer	24.3
Fumed Silica	1.2
TiO2	1.2
Silquest* A-Link* 600 Silane	0.57
Niax* catalyst LC-5604	0.06



Mechanical Properties -H Shape Concrete	7 day cure
Tensile Stress (MPa)	0.32
Elongation (%)	391
Modulus at 100% (MPa)	0.16
Hardness Shore A	10
Elastic Recovery (%)	88%



Note: Test results. Actual results may vary.

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The mechanical properties were measured after curing the sealant for 1 week at 23 °C/50% relative humidity and then tested according to ISO 37 for tensile strength and elongation, ISO 8339 for modulus, ISO 868 for hardness and ASTM D 624 B for tear strength.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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