

SPUR⁺ Y-15987 Prepolymer



MARKETING BULLETIN

SILANES - ADHESIVES & SEALANTS ADDITIVES

SPUR⁺ Y-15987 prepolymer is an excellent candidate to consider as a binder for high strength adhesives requiring adhesion to a variety of substrates. The low viscosity of SPUR⁺ Y-15987 prepolymer has shown it to be easy to formulate and use for the manufacture of adhesives. Many applications have benefited from the excellent heat resistance of SPUR⁺ Y-15987 prepolymer in circumstances where thermal stability is required.

Key Features and Typical Benefits

- High strength with good elongation
- Thermal stability
- Low viscosity
- 100% reactive

Typical Physical Properties

| Property | Value |
|---------------------------|-------------------------------|
| Appearance | Clear to slightly hazy liquid |
| Color (Co) | Light yellow |
| Specific Gravity at 25 °C | 1.014 |
| Viscosity at 25 °C, cP | ~10,000 |

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

Typical Physical Properties and Heat Resistance of SPUR⁺ Y-15987 Prepolymer

In a standard polymer test, the SPUR⁺ Y-15987 prepolymer was cured by 1% of Fomrez[†] UL-28 tin catalyst and 0.5% of Niax^{*} silicone L-501 at 23 °C and 50% relative humidity for 10 days. To test heat resistance, the cured SPUR⁺ Y-15987 prepolymer sheet was placed in an oven at 120 °C for 3 days. The properties of the SPUR⁺ Y-15987 prepolymer before and after the heat aging are compared in the table below.

| Property of SPUR ⁺ Y-15987 prepolymer | Initial Value | Under 120 °C for 3 days |
|--|---------------|-------------------------|
| Tensile Strength | 5.25 MPa | 7.58 MPa |
| Modulus at 100%E | 4.43 MPa | 3.79 MPa |
| Elongation at Break | 113% | 201% |
| Hardness | 47 Shore A | 50 Shore A |

Note: Test data. Actual results may vary.

SPUR⁺ Y-15987 prepolymer can be added to a SPUR⁺ 1015LM prepolymer-based sealant formulation to improve heat resistance. In the example below, SPUR⁺ Y-15987 prepolymer was added to a SPUR⁺ 1015LM prepolymer-based sealant; the cured product then survived heat aging at 120 °C for 8 days. The example sealant formulation and test results are shown in the tables below.

Example Formulation

| Ingredients | (g) |
|--------------------------------------|---------------|
| SPUR ⁺ 1015LM prepolymer | 66.70 |
| SPUR ⁺ Y-15987 prepolymer | 33.30 |
| CaCO ₃ | 111.11 |
| TS 720 (fumed silica) | 4.17 |
| R-960 (TiO ₂ , colorant) | 1.39 |
| Silquest A-171* silane | 1.94 |
| Silquest* A-1120 silane | 1.94 |
| DIDP (plasticizer) | 55.56 |
| Tinuvin [†] 213 | 0.83 |
| Tinuvin 662 LD | 0.83 |
| Fomrez [†] SUL-4 | 0.28 |
| Total | 278.06 |

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

Test Results

| Property | Initial Value | Under 120 °C for 8 days |
|---------------------|---------------|-------------------------|
| Tensile Strength | 2.5 MPa | 2.2 MPa |
| Modulus at 100%E | 0.94 MPa | 0.86 MPa |
| Elongation at Break | 327% | 258% |
| Hardness | 36 Shore A | 30 Shore A |

Note: Test data. Actual results may vary.

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