

DSM Somos® ProtoGen™ O-XT 18120 Epoxy Resin for Stereolithography, UV Postcure at HOC -2

Category : Polymer , Rapid Prototyping Polymer , Thermoset , Epoxy

Material Notes:

Description DSM Somos® ProtoGen O-XT 18120 is a liquid photopolymer that produces accurate parts ideal for general purpose applications. ProtoGen resins are the first SL resins to demonstrate different material properties based on machine exposure control. Based on Somos oxetane chemistry, ProtoGen O-XT 18120 offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad range of temperatures and humidities, both during and after build. Application This high-temperature, ABS-like photopolymer is used in the solid imaging process to build three-dimensional parts. Somos® ProtoGen O-XT 18120 provides considerable processing latitude and is ideal for the medical, electronic, aerospace and automotive markets that demand: Accurate RTV patterns Durable concept models Highly accurate parts Humidity and temperature tolerant parts Information Provided by DSM Desotech Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_DSM-Somos-ProtoGen-O-XT-18120-Epoxy-Resin-for-Stereolithography-UV-Postcure-at-HOC-2.php

| Physical Properties | Metric | English | Comments |
|---------------------|----------------------|---------------------------|--------------|
| Density | 1.16 g/cc | 0.0419 lb/in ³ | |
| | @Temperature 25.0 °C | @Temperature 77.0 °F | |
| Water Absorption | 0.77 % | 0.77 % | ASTM D570-98 |
| Viscosity | 300 cP | 300 cP | |
| | @Temperature 30.0 °C | @Temperature 86.0 °F | |

| Mechanical Properties | Metric | English | Comments |
|-------------------------|--------------------|------------------------|------------|
| Hardness, Shore D | 84 - 85 | 84 - 85 | ASTM D2240 |
| Tensile Strength, Yield | 51.7 - 54.9 MPa | 7500 - 7960 psi | ASTM D638M |
| Elongation at Break | 6.0 - 12 % | 6.0 - 12 % | ASTM D638M |
| Tensile Modulus | 2.62 - 2.74 GPa | 380 - 397 ksi | ASTM D638M |
| Flexural Strength | 81.8 - 83.8 MPa | 11900 - 12200 psi | ASTM D790M |
| Flexural Modulus | 2.36 - 2.48 GPa | 342 - 360 ksi | ASTM D790M |
| Poissons Ratio | 0.43 - 0.45 | 0.43 - 0.45 | ASTM D638M |
| Izod Impact, Notched | 0.140 - 0.260 J/cm | 0.262 - 0.487 ft-lb/in | ASTM D256A |

| Thermal Properties | Metric | English | Comments |
|--------------------|---------------------|-----------------------|----------|
| | 65.1 - 68.1 µm/m-°C | 36.2 - 37.8 µin/in-°F | |

| CTE linear Thermal Properties | Metric @ Temperature -40.0 - 0.000 °C | English @ Temperature -40.0 - 32.0 °F | ASTM E831-00 Comments |
|--|---|---|--------------------------|
| | 84.7 - 95.3 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 47.1 - 52.9 $\mu\text{in}/\text{in}\cdot\text{°F}$ | ASTM E831-00 |
| | @Temperature 0.000 - 50.0 °C | @Temperature 32.0 - 122 °F | |
| | 93.8 - 116.9 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 52.1 - 64.94 $\mu\text{in}/\text{in}\cdot\text{°F}$ | ASTM E831-00 |
| | @Temperature 50.0 - 100 °C | @Temperature 122 - 212 °F | |
| | 147 - 155.4 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 81.7 - 86.33 $\mu\text{in}/\text{in}\cdot\text{°F}$ | ASTM E831-00 |
| | @Temperature 100 - 150 °C | @Temperature 212 - 302 °F | |
| Deflection Temperature at 0.46 MPa (66 psi) | 55.0 - 58.0 °C | 131 - 136 °F | ASTM D648-98c |
| Deflection Temperature at 1.8 MPa (264 psi) | 48.0 - 50.0 °C | 118 - 122 °F | ASTM D648-98c |
| Glass Transition Temp, Tg | 71.0 - 86.0 °C | 160 - 187 °F | ASTM E1545-00 |

| Electrical Properties | Metric | English | Comments |
|-----------------------|--------------------------|--------------------------|---------------|
| Dielectric Constant | 3.1 - 3.2 | 3.1 - 3.2 | ASTM D150-98 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 3.3 - 3.4 | 3.3 - 3.4 | ASTM D150-98 |
| | @Frequency 1000 Hz | @Frequency 1000 Hz | |
| Dielectric Strength | 3.4 - 3.5 | 3.4 - 3.5 | ASTM D150-98 |
| | @Frequency 60.0 Hz | @Frequency 60.0 Hz | |
| | 14.4 - 15.3 kV/mm | 366 - 389 kV/in | ASTM D149-97a |

| Descriptive Properties | Value | Comments |
|---------------------------|-------------|---------------------------------------|
| Appearance | Translucent | |
| Dp (mm) | 0.12 | Slope of cure-depth vs. ln(E) curve |
| E10 (mJ/cm ²) | 57 | Exposure that gives 0.254mm thickness |
| Ec (mJ/cm ²) | 6.38 | Critical exposure |

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