



Somos® ProtoTherm 12120

A fast-building stereolithography material specifically designed to deliver high temperature resistance with exceptional surface finishing

Product Description

Somos® ProtoTherm 12120 stereolithography material is the perfect solution for applications requiring resistance to heat and humidity.

Somos® ProtoTherm 12120 excels at producing highly detailed, extremely accurate parts. The material is dimensionally stable when exposed to heat and humidity making it a good candidate for high temperature fluid flow analysis, functional prototypes, and limited run, non-critical end-use parts such as wiring harnesses and support connectors in electronic devices.

Key Benefits

- Extremely Precise Accuracy for Small Details
- Resistant to Heat up to 250°F (121°C)
- Stable in High Humidity Environments

Ideal Applications

- High-Temperature Fluid Flow Analysis
- Functional Prototypes Requiring Heat and Humidity Resistance
- High-Detail Parts
- Low Volume Connectors and Harnesses for Electronics

Somos® ProtoTherm 12120 Technical Data

| Liquid Properties | | Optical Properties | | |
|-------------------|--------------------------------|--------------------|-------------------------|--|
| Appearance | Red | E _c | 11.8 mJ/cm ² | [critical exposure] |
| Viscosity | ~550 cps @ 30°C | D _p | 6.0 mils | [slope of cure-depth vs. ln (E) curve] |
| Density | ~1.15 g/cm ³ @ 25°C | E ₁₀ | 63 mJ/cm ² | [exposure that gives 0.254 mm (.010 inch) thickness] |

| Mechanical Properties | | UV Postcure | | Thermal Postcure | |
|-----------------------|---------------------------|-------------|---------------|------------------|---------------|
| ASTM Method | Property Description | Metric | Imperial | Metric | Imperial |
| D638M | Tensile Strength at Break | 70.2 MPa | 10.2 ksi | 77.0 MPa | 11.2 ksi |
| D638M | Elongation at Break | 4.0% | | 4.5% | |
| D638M | Tensile Modulus | 3,520 MPa | 511 ksi | 3,250 MPa | 471 ksi |
| D790M | Flexural Strength | 109 MPa | 15.8 ksi | 103 MPa | 15 ksi |
| D2240 | Flexural Modulus | 3,320 MPa | 482 ksi | 3,060 MPa | 444 ksi |
| D256A | Izod Impact (Notched) | 12 J/m | 0.22 ft-lb/in | 17 J/m | 0.32 ft-lb/in |
| D2240 | Hardness (Shore D) | 85 | | 87 | |
| D570-98 | Water Absorption | 0.37% | | 0.24% | |

| Thermal/Electrical Properties | | UV Postcure | | Thermal Postcure | |
|-------------------------------|----------------------------------|--------------|-------------|------------------|-------------|
| ASTM Method | Property Description | Metric | Imperial | Metric | Imperial |
| E831-05 | C.T.E. -40 - 0°C (-40 - 32°F) | 58.1 µm/m°C | 32 µin/in°F | 56.7 µm/m°C | 32 µin/in°F |
| E831-05 | C.T.E. 0 - 50°C (32 - 122°F) | 80.7 µm/m°C | 45 µin/in°F | 66.3 µm/m°C | 37 µin/in°F |
| E831-05 | C.T.E. 50 - 100°C (122 - 212°F) | 111.4 µm/m°C | 62 µin/in°F | 92.7 µm/m°C | 52 µin/in°F |
| E831-05 | C.T.E. 100 - 150°C (212 - 302°F) | 136.1 µm/m°C | 76 µin/in°F | 158.7 µm/m°C | 88 µin/in°F |
| D150-98 | Dielectric Constant 60 Hz | 4.14 | | 3.89 | |
| D150-98 | Dielectric Constant 1 KHz | 4.04 | | 3.84 | |
| D150-98 | Dielectric Constant 1 MHz | 3.81 | | 3.53 | |
| D149-97A | Dielectric Strength | 15.5 kV/mm | 393 V/mil | 16.4 kV/mm | 417 V/mil |
| E1545-00 | T _g | 74°C | 165°F | 111°C | 232°F |
| D648 | HDT @ 0.46 MPa (66 psi) | 56.5°C | 134°F | 126.2°C | 259°F |
| D648 | HDT @ 1.81 MPa (264 psi) | 51.9°C | 125°F | 110.7°C | 231°F |

These values may vary and depend on individual machine processing and post-curing practices.

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