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/cm²	[critical exposure]
Viscosity	~550 cps @ 30°C	D_P	6.0 mils	[slope of cure-depth vs. In (E) curve]
Density	~1.15 g/cm³ @ 25°C	E_{10}	63 mJ/cm²	[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	Tg	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.

DSM Functional Materials
Somos® Material Group

North America
1122 St. Charles Street
Elgin, Illinois 60120
USA
Phone: +1.847.697.0400

Europe
Slachthuisweg 30
3151 XN Hoek van Holland
The Netherlands
Phone: +31.174.315.391

China
476 Li Bing Road
Zhangjiang Hi-Tech Park
Pudong New Area
Shanghai 201203, China
Phone: +86.21.6141.8064

Visit us online at www.dsm.com/somos

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