

Product Data

Somos[®] ProtoGen 18120

Description

DSM's Somos[®] ProtoGen 18120 is a liquid, ABS-like photopolymer that produces accurate parts ideal for general purpose applications. Somos[®] ProtoGen resins are the first stereolithography resins to demonstrate different material properties based on machine exposure control. Based on Somos[®] Oxetane™ chemistry, Somos[®] ProtoGen 18120 offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad range of temperature and humidity, both during and after the build.

Applications

This high-temperature resistant, ABS-like photopolymer is used in solid imaging processes, such as stereolithography, to built three-dimensional parts. Somos[®] ProtoGen 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 and humidity & temperature resistant parts.

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Translucent
Viscosity	~300 cps @ 30°C
Density	~1.16 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _c	6.73 mJ/cm ²	[critical exposure]
D _p	4.57 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	57.0 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA							
Mechanical Properties		Somos® ProtoGen 18120 UV Postcure at HOC -2		Somos® ProtoGen 18120 UV Postcure at HOC +3		Somos® ProtoGen 18120 UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	51.7 - 54.9 MPa	7.5 - 8.0 ksi	56.9 - 57.1 MPa	8.2 - 8.3 ksi	68.8 - 69.2 MPa	9.9 - 10.0 ksi
D638M	Tensile Modulus	2,620 - 2,740 MPa	381 - 397 ksi	2,540 - 2,620 MPa	370 - 380 ksi	2,910 - 2,990 MPa	422 - 433 ksi
D638M	Elongation at Break	6 - 12%	6 - 12%	8 - 12%	8 - 12%	7 - 8%	7 - 8%
D638M	Poisson's Ratio	0.43 - 0.45	0.43 - 0.45	N/A	N/A	0.43	0.43
D790M	Flexural Strength	81.8 - 83.8 MPa	11.9 - 12.2 ksi	83.8 - 86.7 MPa	12.2 - 12.6 ksi	88.5 - 91.5 MPa	13.2 ksi
D790M	Flexural Modulus	2,360 - 2,480 MPa	343 - 359 ksi	2,400 - 2,450 MPa	350 - 355 ksi	2,330 - 2,490 MPa	361 ksi
D2240	Hardness (Shore D)	84 - 85	85 - 87	N/A	N/A	87 - 88	87 - 88
D256A	Izod Impact (Notched)	0.14 - 0.26 J/m	0.26 - 0.49 ft-lb/in	N/A	N/A	0.13 - 0.25 J/m	0.24 - 0.47 ft-lb/in
D570-98	Water Absorption	0.77%	0.77%	N/A	N/A	0.75%	0.75%

TECHNICAL DATA					
Thermal/Electrical Properties		Somos® ProtoGen 18120 UV Postcure at HOC -2		Somos® ProtoGen 18120 UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	65.1 - 68.1 µm/m°C	36.2 - 37.8 µin/in°F	63.7 - 71.8 µm/m°C	35.4 - 39.9 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	84.7 - 95.3 µm/m°C	47.1 - 52.9 µin/in°F	75.0 - 107.5 µm/m°C	41.7 - 59.7 µin/in°F
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	93.8 - 116.9 µm/m°C	52.1 - 64.9 µin/in°F	99.4 - 111.0 µm/m°C	55.2 - 61.7 µin/in°F
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	147.0 - 155.4 µm/m°C	81.7 - 86.3 µin/in°F	143.4 - 173.3 µm/m°C	79.7 - 96.3 µin/in°F
D150-98	Dielectric Constant 60 Hz	3.4 - 3.5	3.4 - 3.5	3.5 - 3.6	3.5 - 3.6
D150-98	Dielectric Constant 1 KHz	3.3 - 3.4	3.3 - 3.4	3.4 - 3.5	3.4 - 3.5
D150-98	Dielectric Constant 1 MHz	3.1 - 3.2	3.1 - 3.2	3.2 - 3.3	3.2 - 3.3
D149-97A	Dielectric Strength	14.4 - 15.3 kV/mm	365 - 387 V/mil	15.2 - 15.7 kV/mm	386 - 398 V/mil
E1545-00	Tg	71 - 86°C	160 - 187°F	76 - 94°C	169 - 201°F
D648	HDT @ 0.46 MPa (66 psi)	55 - 58°C	132 - 136°F	95 - 97°C	203 - 207°F
D648	HDT @ 1.81 MPa (264 psi)	48 - 50°C	118 - 123°F	79 - 82°C	175 - 180°F

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About RPS

RPS has been in operation over ten years and our engineers collectively have decades of experience working with stereolithography and laser sintering equipment. With proven experience in 3D printing, engineering, electronics, computer-aided engineering and more, we understand the technology and can offer advice on how it can suit your specific application.

We manufacture the **NEO800** stereolithography system, designed, developed and built by RPS engineers. We are also an HP Channel Partner of HP's Multi-Jet Fusion technology and offer a range of materials and software through our partnership with market-leading suppliers ALM, DSM Somos® and Materialise.

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