

Product Data

Somos[®] ProtoGen 18920

Description

DSM's Somos[®] ProtoGen 18920 is a liquid photopolymer that produces accurate, ABS-like 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 18920 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 build three-dimensional parts. Somos[®] ProtoGen 18920 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 humidity & temperature resistant parts.

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Grey
Viscosity	~350 cps @ 30°C
Density	~1.16 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _C	7.0 mJ/cm ²	[critical exposure]
D _P	4.20 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	76 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA							
Mechanical Properties		Somos® ProtoGen 18920 UV Postcure at HOC -2		Somos® ProtoGen 18920 UV Postcure at HOC +3		Somos® ProtoGen 18920 UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	46.6 - 47.8 MPa	6.8 - 6.9 ksi	56.1 - 56.9 MPa	8.1 - 8.3 ksi	69.2 - 69.6 MPa	10.0 - 10.1 ksi
D638M	Tensile Modulus	2,103 - 2,317 MPa	305.0 - 336.0 ksi	2,577 - 2,623 MPa	373.7 - 380.4 ksi	2,544 - 2,916 MPa	369.0 - 423.0 ksi
D638M	Elongation at Break	13 - 19%	13 - 19%	5 - 12%	5 - 12%	4 - 9%	4 - 9%
D790M	Flexural Strength	73.0 - 75.0 MPa	10.6 - 10.9 ksi	85.0 - 87.0 MPa	12.3 - 12.6 ksi	92.1 - 98.1 MPa	13.4 - 14.2 ksi
D790M	Flexural Modulus	2,126 - 2,314 MPa	308.3 - 335.6 ksi	2,442 - 2,518 MPa	354.2 - 365.2 ksi	2,504 - 2,696 MPa	363.1 - 391.0 ksi
D2240	Hardness (Shore D)	85 - 86	85 - 86	86 - 87	86 - 87	86 - 88	86 - 88
D256A	Izod Impact (Notched)	0.18 - 0.28 J/m	0.26 - 0.52 ft-lb/in	0.22 - 0.26 J/m	0.41 - 0.49 ft-lb/in	0.20 - 0.24 J/m	0.37 - 0.45 ft-lb/in
D570-98	Water Absorption	0.78%	0.78%	0.74%	0.74%	0.38%	0.38%

TECHNICAL DATA					
Thermal/Electrical Properties		Somos® ProtoGen 18920 UV Postcure at HOC -2		Somos® ProtoGen 18920 UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	69.4 µm/m°C	38.6 µin/in°F	64.7 µm/m°C	35.9 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	74.0 µm/m°C	41.1 µin/in°F	74.2 µm/m°C	41.2 µin/in°F
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	106.0 µm/m°C	58.9 µin/in°F	79.2 µm/m°C	44.0 µin/in°F
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	130.3 µm/m°C	72.4 µin/in°F	138.8 µm/m°C	77.1 µin/in°F
D150-98	Dielectric Constant 60 Hz	3.53	3.53	3.28	3.28
D150-98	Dielectric Constant 1 KHz	3.44	3.44	3.23	3.23
D150-98	Dielectric Constant 1 MHz	3.21	3.21	3.04	3.04
D149-97A	Dielectric Strength	15.4 - 15.9 kV/mm	391 - 403 V/mil	14.3 - 15.2 kV/mm	364 - 386 V/mil
E1545-00	Tg	6.90°C	156°F	97.5°C	208°F
D648	HDT @ 0.46 MPa (66 psi)	58.7°C	137°F	96.5°C	205°F
D648	HDT @ 1.81 MPa (264 psi)	51.0°C	123°F	78.6°C	175°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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