

Product Data

Somos[®] 9420

Description

DSM's Somos[®] 9420 is a liquid photopolymer that produces robust, functional and accurate parts using stereolithography machines. The material offers superior chemical resistance and a wide processing latitude. With mechanical properties that mimic many engineering plastics, parts created from Somos[®] 9420 exhibit superior fatigue resistance, strong memory retention and high quality up-facing and down-facing surfaces. Somos[®] 9420 also offers a good balance of properties between rigidity and functionality.

Applications

This photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. This material is also useful in creating parts for applications where durability and robustness are critical requirements (e.g., automobile components, electronic housings, medical products, large panels and snap-fit parts).

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Off White
Viscosity	~475 cps @ 30°C
Density	~1.13 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _c	15.0 mJ/cm ²	[critical exposure]
D _p	5.4 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	95 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA					
Mechanical Properties		Somos® 9420 UV Postcure		Polypropylene*	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	17 - 20 MPa	2.5 - 2.9 ksi	31 - 37.2 MPa	4.5 - 5.4 ksi
D638M	Elongation at Yield	25 - 30%	25 - 30%	7 - 13%	7 - 13%
D638M	Poisson's Ratio	0.43	0.43	N/A	N/A
D638M	Modulus of Elasticity	553 - 850 MPa	80 - 120 ksi	1,138 - 1,515 MPa	110 - 230 ksi
D790M	Flexural Strength	24 - 30 MPa	3.5 - 4.4 ksi	41 - 55 MPa	6.0 - 8.0 ksi
D790M	Flexural Modulus	768 - 900 MPa	110 - 130 ksi	1,172 - 1,724 MPa	170 - 250 ksi
D2240	Izod Impact (Notched)	0.44 - 0.48 J/cm	0.82 - 0.90 ft-lb/in	0.21 - 0.75 J/cm	0.4 - 1.4 ft-lb/in
D256A	Hardness (Shore D)	70 - 74	70 - 74	N/A	N/A
D570-98	Water Absorption	0.93%	0.93%	N/A	N/A

TECHNICAL DATA					
Thermal/Electrical Properties		Somos® 9420 UV Postcure		Polypropylene*	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	96.8 µm/m°C	53.8 µin/in°F	50.0 - 146 µm/m°C (no temp range given)	28 - 81 µin/in°F (no temp range given)
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	149.5 µm/m°C	83.0 µin/in°F		
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	178.7 µm/m°C	99.3 µin/in°F		
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	144.0 µm/m°C	80.0 µin/in°F		
D150-98	Dielectric Constant 60 Hz	5.33	5.33	2.9 - 4.0 (no frequency specified)	2.9 - 4.0 (no frequency specified)
D150-98	Dielectric Constant 1 KHz	4.66	4.66		
D150-98	Dielectric Constant 1 MHz	3.94	3.94		
D149-97a	Dielectric Strength	14.1 kV/mm	358 V/mil	14.7 - 30.0 kV/mm	373 - 762 V/mil
E1545-00	Tg	57 - 60°C	135 - 140°F	41°C	106°F
D648	HDT @ 0.46 MPa (66 psi)	47 - 50°C	117 - 122°F	150°C	302°F
D648	HDT @ 1.81 MPa (264 psi)	36 - 38°C	97 - 100°F	61°C	142°F

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