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/cm²	[critical exposure]
D_P	5.4 mils	[slope of cure-depth vs. ln (E) curve]
E_{10}	95 mJ/cm²	[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

DSM Functional Materials
Somos® Materials Group

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

in Europe
Slachthuisweg 30
3150 XN Hoek van Holland
The Netherlands
Phone: +31.174.315.391

in 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

RPS
Industrial 3D Printing Systems

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.

+44 (0) 1296 425665 | support@rps.ltd | www.rps.ltd

14 Bridgegate Business Park | Gatehouse Way | Aylesbury | Buckinghamshire | HP19 8XN | UK