

DSM Somos® 9420 Epoxy Resin for Stereolithography

Category : Polymer , Rapid Prototyping Polymer , Thermoset , Epoxy

Material Notes:

Description DSM 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 properties, 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. 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). **Application** Somos® 9420 Photopolymer is used in the solid imaging process to build three-dimensional parts. **Information Provided by DSM Desotech Inc.**

Order this product through the following link:

http://www.lookpolymers.com/polymer_DSM-Somos-9420-Epoxy-Resin-for-Stereolithography.php

Physical Properties	Metric	English	Comments
Density	1.13 g/cc	0.0408 lb/in ³	
	@Temperature 25.0 °C	@Temperature 77.0 °F	
Water Absorption	0.93 %	0.93 %	ASTM D570-98
Viscosity	475 cP	475 cP	
	@Temperature 30.0 °C	@Temperature 86.0 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	70 - 74	70 - 74	ASTM D2240
Tensile Strength, Yield	17.0 - 20.0 MPa	2470 - 2900 psi	ASTM D638M
Elongation at Break	25 - 30 %	25 - 30 %	ASTM D638M
Modulus of Elasticity	0.553 - 0.850 GPa	80.2 - 123 ksi	ASTM D638M
Flexural Strength	24.0 - 30.0 MPa	3480 - 4350 psi	ASTM D790M
Flexural Modulus	0.768 - 0.900 GPa	111 - 131 ksi	ASTM D790M
Poissons Ratio	0.43	0.43	ASTM D638M
Izod Impact, Notched	0.440 - 0.480 J/cm	0.824 - 0.899 ft-lb/in	ASTM D256A

Thermal Properties	Metric	English	Comments
CTE, linear	96.8 µm/m-°C	53.8 µin/in-°F	ASTM E831-00
	@Temperature -40.0 - 0.000 °C	@Temperature -40.0 - 32.0 °F	

Thermal Properties	Metric $^{\circ}\text{m}^{-1}\text{C}^{-1}$	English $^{\circ}\text{in}^{-1}\text{F}^{-1}$	Comments
	@Temperature 100 - 150 °C	@Temperature 212 - 302 °F	ASTM E831-00
	149.5 $\mu\text{m}/\text{m}^{\circ}\text{C}$	83.06 $\mu\text{in}/\text{in}^{\circ}\text{F}$	
	@Temperature 0.000 - 50.0 °C	@Temperature 32.0 - 122 °F	ASTM E831-00
	178.7 $\mu\text{m}/\text{m}^{\circ}\text{C}$	99.28 $\mu\text{in}/\text{in}^{\circ}\text{F}$	
	@Temperature 50.0 - 100 °C	@Temperature 122 - 212 °F	ASTM E831-00
Deflection Temperature at 0.46 MPa (66 psi)	47.0 - 50.0 °C	117 - 122 °F	ASTM D648-98c
Deflection Temperature at 1.8 MPa (264 psi)	36.0 - 38.0 °C	96.8 - 100 °F	ASTM D648-98c
Glass Transition Temp, Tg	57.0 - 60.0 °C	135 - 140 °F	ASTM E1545-00

Electrical Properties	Metric	English	Comments
	3.94	3.94	
Dielectric Constant	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	ASTM D150-98
	4.66	4.66	
	@Frequency 1000 Hz	@Frequency 1000 Hz	ASTM D150-98
	5.33	5.33	
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	ASTM D150-98
Dielectric Strength	14.1 kV/mm	358 kV/in	ASTM D149-97a

Descriptive Properties	Value	Comments
Appearance	White	
Dp (mm)	0.14	Slope of cure-depth vs. ln(E) curve
E10 (mJ/cm ²)	95	Exposure that gives 0.254mm thickness
Ec (mJ/cm ²)	15	Critical exposure

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