

DSM Somos® WaterClear® 10110 Epoxy Resin for Stereolithography (discontinued **)

Category : Polymer , Rapid Prototyping Polymer , Thermoset , Epoxy

Material Notes:

Description DSM Somos® 10110 is a high-speed liquid photopolymer that produces strong, rigid, and durable parts with optical clarity using stereolithography machines. This material is especially useful in applications requiring optical clarity such as fluid flow analysis, stress analysis and light pipes. Other applications include those that require a strong and durable product without the brittleness normally associated with a rigid stereolithography resin. **Application** Somos® 10110 Photopolymer is used in the solid imaging process to build three-dimensional parts. Somos® 10110 requires a minimal post-cure by UV fluorescent light. Prolonged exposure to UV light will create a yellow tinge to the parts. **Information Provided by DSM Desotech Inc.**

Order this product through the following link:

http://www.lookpolymers.com/polymer_DSM-Somos-WaterClear-10110-Epoxy-Resin-for-Stereolithography-nbspdiscontinued-.php

Physical Properties	Metric	English	Comments
Density	1.12 g/cc	0.0405 lb/in³	
	@Temperature 25.0 °C	@Temperature 77.0 °F	
Water Absorption	0.98 %	0.98 %	ASTM D570-98
Viscosity	130 cP	130 cP	
	@Temperature 30.0 °C	@Temperature 86.0 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	83	83	ASTM D2240
Tensile Strength, Yield	43.4 MPa	6290 psi	ASTM D638M
Elongation at Break	37 %	37 %	ASTM D638M
Elongation at Yield	4.2 %	4.2 %	ASTM D638M
Modulus of Elasticity	2.04 GPa	296 ksi	ASTM D638M
Flexural Strength	57.7 MPa	8370 psi	ASTM D790M
Flexural Modulus	1.72 GPa	249 ksi	ASTM D790M
Poissons Ratio	0.36	0.36	ASTM D638M
Shear Modulus	0.750 GPa	109 ksi	Calculated
Izod Impact, Notched	0.450 J/cm	0.843 ft-lb/in	ASTM D256A

Thermal Properties	Metric	English	Comments
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Thermal Properties	Metric	English	Comments
CTE, linear	75.9 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	42.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM E831-00
	@Temperature -40.0 - 0.000 $^\circ\text{C}$	@Temperature -40.0 - 32.0 $^\circ\text{F}$	
	109.2 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	60.67 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM E831-00
	@Temperature 0.000 - 50.0 $^\circ\text{C}$	@Temperature 32.0 - 122 $^\circ\text{F}$	
	161 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	89.4 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM E831-00
	@Temperature 50.0 - 100 $^\circ\text{C}$	@Temperature 122 - 212 $^\circ\text{F}$	
	183 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	102 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM E831-00
	@Temperature 100 - 150 $^\circ\text{C}$	@Temperature 212 - 302 $^\circ\text{F}$	
Deflection Temperature at 0.46 MPa (66 psi)	51.2 $^\circ\text{C}$	124 $^\circ\text{F}$	ASTM D648-98c
Deflection Temperature at 1.8 MPa (264 psi)	44.9 $^\circ\text{C}$	113 $^\circ\text{F}$	ASTM D648-98c
Glass Transition Temp, Tg	41.0 $^\circ\text{C}$	106 $^\circ\text{F}$	ASTM E1545-00

Optical Properties	Metric	English	Comments
Refractive Index	1.51	1.51	ASTM D542-00
Transmission, Visible	90 %	90 %	clear; thickness not quantified

Electrical Properties	Metric	English	Comments
Dielectric Constant	3.5	3.5	ASTM D150-98
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.8	3.8	ASTM D150-98
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	3.9	3.9	ASTM D150-98
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
Dielectric Strength	15.3 kV/mm	389 kV/in	ASTM D149-97a

Descriptive Properties	Value	Comments
Appearance	Optically Clear	
Dp (mm)	0.146	Slope of cure-depth vs. ln(E) curve
E10 (mJ/cm ²)	51	Exposure that gives 0.254mm thickness

Descriptive Properties	Value	Comments
Ec (mJ/cm2)	8	Critical exposure

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