Product Data:

Somos® 7110 Epoxy Photopolymer

Humidity-Tolerant, High Heat-Deflection-Temperature, Accurate Epoxy For He-Cd (325 nm) Laser Systems

Description

DSM Somos® 7110 Photopolymer is a humidity-tolerant, high heat-deflection-temperature, low-curl, high-speed liquid that produces rigid, highly accurate parts. It produces exceptional, undistorted thin walls and down-facing surfaces and exhibits good processing latitude.

Application

Somos® 7110 Photopolymer is used in the solid imaging process to build three-dimensional parts and is intended to be used with a layer thickness of approximately 0.152 mm (0.006 inch). After part formation via UV light exposure, the excess resin is removed by rinsing with a solvent such as propylene carbonate or tripropylene glycol monomethylether (TPM), followed by a rinse in isopropyl alcohol (IPA or isopropanol). The part is post-cured by UV fluorescent light and, optionally, by heat.

Build Parameters

See the DSM Somos® Resin Specific Build Parameters for detailed information.

Physical Properties – Liquid

Appearance Transparent Amber
Viscosity ~700 cps at 30˚C
Density ~1.13 g/cm^3 at 25˚C

Optical Properties at 325 nm

Initial values for determining working curve for a He-Cd laser operating at 325 nm.

E_c 8.2 mJ/cm^2
[critical exposure]

D_p 0.140 mm (5.5 mils)
[slope of cure-depth vs. ln(E) curve]

E_5 20 mJ/cm^2
[exposure which produces pane 0.127 mm (5 mils) thick]

E_{10} 51 mJ/cm^2
[exposure which produces pane 0.254 mm (10 mils) thick]

Physical Properties

Test	Description	Green Parts		UV Postcure		UV + Thermal Postcure	
D638M	Tensile Strength	44 MPa	6,400 lb/in^2	56 MPa	8,100 lb/in^2	69 MPa	10,000 lb/in^2
	Elongation at Break		4.7 – 7.4 %		5.4 – 7.1 %		4.2 – 4.9 %
	Young's Modulus	1,758 MPa	255,000 lb/in^2	2,117 MPa	307,000 lb/in^2	2,413 MPa	350,000 lb/in^2
D790M	Flexural Strength	59 MPa	8,600 lb/in^2	85 MPa	12,300 lb/in^2	110 MPa	15,900 lb/in^2
	Flexural Modulus	1,710 MPa	248,000 lb/in^2	2,434 MPa	353,000 lb/in^2	2,668 MPa	387,000 lb/in^2
D2240	Hardness (Shore D)		81 durometer		82 durometer		85 durometer
D256A	Izod Impact (notched)	26.2 J/m	0.49 ft-lb/in	27.8 J/m	0.52 ft-lb/in	34.2 J/m	0.64 ft-lb/in
D648	Heat Deflection Temperature		45 – 54˚C		59 - 72˚C		77 - 89˚C

The numbers reported above are only approximate values. The actual values may vary with build conditions.

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