

Somos® 7120 Epoxy Photopolymer

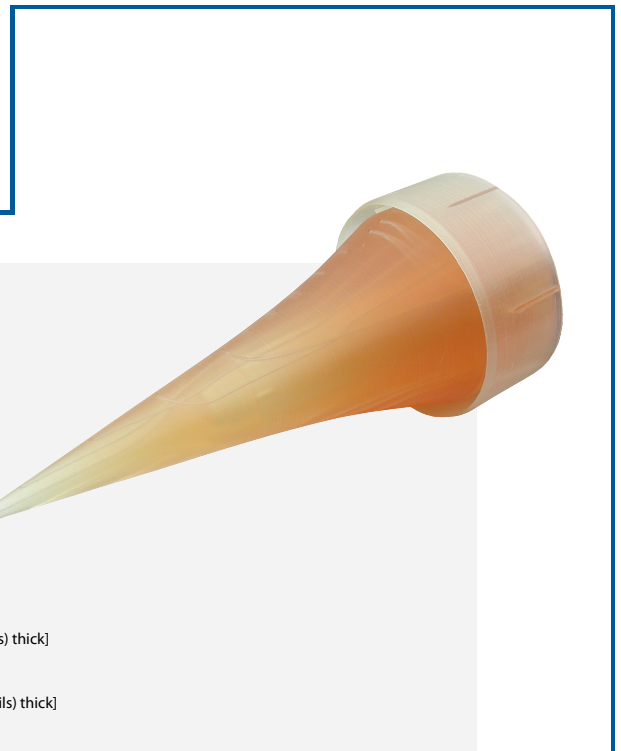
Humidity-Tolerant, High Heat-Deflection-Temperature Epoxy
For Solid State (355 nm) Laser Systems

Description

DSM Somos® 7120 Photopolymer is a humidity-tolerant, high heat deflection temperature, low-curl, high-speed liquid that produces rigid, high accuracy parts. It produces exceptional undistorted thin walls and down-facing surfaces and exhibits good processing latitude.

Application

Somos® 7120 Photopolymer is used in the solid imaging process to build three-dimensional parts.



Physical Properties – Liquid

Appearance	Transparent amber
Viscosity	~700 cps at 30°C
Density	~1.13 g/cm ³ at 25°C

Optical Properties at 355 nm

E_c	8 mJ/cm ² [critical exposure]
D_p	0.123 mm (5.5 mils) [slope of cure-depth vs. ln(E) curve]
E_5	23 mJ/cm ² [exposure which produces pane 0.127 mm (5 mils) thick]
E_{10}	64 mJ/cm ² [exposure which produces pane 0.254 mm (10 mils) thick]

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Physical Properties (Metric)

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

ASTM Test	Description	Green Parts	UV Postcure	UV + Thermal Postcure
D638M	Tensile Strength	44 MPa	58 MPa	63 MPa
	Elongation at Break	1.3 - 7.5 %	2.1 - 6.9 %	2.3 - 4.1 %
	Young's Modulus	2,222 MPa	2,477 MPa	2,588 MPa
D790M	Flexural Strength	89 MPa	108 MPa	113 MPa
	Flexural Modulus	2,570 MPa	2,967 MPa	2,877 MPa
D2240	Hardness (Shore D)	88	88	88
D256A	Izod Impact (notched)	252 J/m	27 J/m	32 J/m
D648	Heat Deflection Temperature (HDT)	Up to 65°C	Up to 70°C	Up to 97°C

Physical Properties (Imperial)

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

ASTM Test	Description	Green Parts	UV Postcure	UV + Thermal Postcure
D638M	Tensile Strength	6,400 psi	8,400 psi	9,100 lb/in ²
	Elongation at Break	1.3 - 7.5 %	2.1 - 6.9 %	2.3 - 4.1 %
	Young's Modulus	322,000 psi	359,000 psi	375,000 lb/in ²
D790M	Flexural Strength	12,900 psi	15,700 psi	16,400 lb/in ²
	Flexural Modulus	372,000 psi	430,000 psi	417,000 lb/in ²
D2240	Hardness (Shore D)	88	88	88
D256A	Izod Impact (notched)	0.46 ft-lb/in	0.50 ft-lb/in	0.6 ft-lb/in
D648	Heat Deflection Temperature (HDT)	Up to 149°F	Up to 158°F	Up to 207°F