

Product Data:  
**Somos® 7100 Epoxy Photopolymer**

**Humidity-Tolerant, High Heat-Deflection-Temperature Epoxy  
 For Single-line (351 nm) Ar<sup>+</sup> Laser Systems**

**Description**

DSM Somos® 7100 Photopolymer is a humidity-tolerant, high heat-deflection-temperature, low-curl, high-speed liquid that produces rigid, minimal bubble, high accuracy parts. It produces exceptional, undistorted, thin walls and down-facing surfaces and exhibits good processing latitude.

**Application**

Somos® 7100 Photopolymer is used in the solid imaging process to build three-dimensional parts; it 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<sup>3</sup> at 25°C

**Optical Properties at 351 nm**

Initial values for determining working curve for an Ar<sup>+</sup> laser operating at 351 nm.

**E<sub>c</sub>** 10 mJ/cm<sup>2</sup>  
[critical exposure]

**D<sub>p</sub>** 0.142 mm (5.6 mils)  
[slope of cure-depth vs. ln(E) curve]

**E<sub>5</sub>** 24 mJ/cm<sup>2</sup>  
[exposure which produces pane 0.127 mm (5 mils) thick]

**E<sub>10</sub>** 59 mJ/cm<sup>2</sup>  
[exposure which produces pane 0.254 mm (10 mils) thick]

**Physical Properties**

Test	Description	Green Parts		UV Postcure		UV + Thermal Postcure	
D638M	Tensile Strength	50 MPa	7,000 lb/in <sup>2</sup>	59 MPa	8,600 lb/in <sup>2</sup>	66 MPa	9,500 lb/in <sup>2</sup>
	Elongation at Break		1.8 – 7.8 %		5.5 – 7.7%		2.7 – 7.8 %
	Young's Modulus	2,027 MPa	294,000 lb/in <sup>2</sup>	2,282 MPa	331,000 lb/in <sup>2</sup>	2,324 MPa	337,000 lb/in <sup>2</sup>
D790M	Flexural Strength	86 MPa	12,500 lb/in <sup>2</sup>	96 MPa	13,900 lb/in <sup>2</sup>	105 MPa	15,300 lb/in <sup>2</sup>
	Flexural Modulus	2,468 MPa	358,000 lb/in <sup>2</sup>	2,786 MPa	404,000 lb/in <sup>2</sup>	2,910 MPa	422,000 lb/in <sup>2</sup>
D2240	Hardness (Shore D)		84 durometer		86 durometer		86 durometer
D256A	Izod Impact (notched)	26.7 J/m	0.5 ft-lb/in	26.7 J/m	0.5 ft-lb/in	32.0 J/m	0.6 ft-lb/in
D648	Heat Deflection Temperature (HDT)		57 - 61°C		63 – 66°C		93 – 99°C
DMA	Glass Transition Temperature	~0.18 W/m <sup>2</sup> K	~1.5 BTU-in./hr.ft <sup>2</sup> F		~86°C		~87°C
C518	Thermal Conductivity			~0.18 W/m <sup>2</sup> K	~1.5 BTU-in./hr.ft <sup>2</sup> F	~0.19 W/m <sup>2</sup> K	~1.5 BTU-in./hr.-ft <sup>2</sup> -F
D695	Compressive Strength			96 MPa	13,900 lb/in <sup>2</sup>	101 MPa	14,600 lb/in <sup>2</sup>
	Compression Modulus			1,517 MPa	220,000 lb/in <sup>2</sup>	1,538 MPa	223,000 lb/in <sup>2</sup>
D732	Shear Strength			52 MPa	7,500 lb/in <sup>2</sup>	61 MPa	8,900 lb/in <sup>2</sup>
D1044	Abrasion Wear Index		100.000		54.2		36.3
TGA	Ash Content: Wt. Loss % @ 1000°C				99.832		99.863

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

The ProtoFunctional™ Materials Company

**DSM Somos®**



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