

Product Data:
Somos® 9100 Epoxy Photopolymer

Robust, Accurate, High-Speed, Functional Epoxy Resin for Stereolithography

Description

DSM Somos® 9100 is a high-speed liquid photopolymer that produces robust, functional and accurate parts using stereolithography machines. It has a wide processing latitude and excellent tolerance to a broad temperature and humidity range during and after build as well as offering superior chemical resistance. Somos® 9100 offers a good balance of properties between rigidity and functionality. This material is especially useful in applications where durability and robustness are critical requirements (e.g., automobile components, electronic housings, medical products, large panels and snap-fit parts).

Application

Somos® 9100 Photopolymer is used in the solid imaging process to build three-dimensional parts. It is for use with a layer thickness of approximately 0.10 mm to 0.25 mm (0.004 inch to 0.010 inch). After part formation via UV laser exposure, rinsing with a solvent such as tripropylene glycol monomethyl ether

(TPM) or propylene carbonate followed by a rinse in 2 - propanol (isopropyl alcohol, IPA) removes the excess resin. Then the part is post-cured by UV fluorescent light.

Physical Properties – Liquid

Appearance Transparent Amber
Viscosity ~560 cps at 30°C
Density ~1.11 g/cm³

Optical Properties at 351 nm

Initial values for determining working curve for an Ar ion laser operating at 351 nm.

E_c 6.8 mJ/cm²
[critical exposure]
D_p 0.13 mm (0.0051 inch)
[slope of cure-depth vs. ln(E) curve]
E₅ 18 mJ/cm²
[exposure that gives 0.127 mm (0.005 inch) thickness]
E₁₀ 48 mJ/cm²
[exposure that gives 0.254 mm (0.010 inch) thickness]

Physical Properties

ASTM Test	Description	Somos® 9100 UV	Polypropylene*
D638M	Tensile Strength at Yield	4.0 - 4.6 Ksi 27.6 - 31.7 MPa	4.5 - 5.4 Ksi 31 - 37.2 MPa
	Elongation at Yield	14 - 17 %	8.0 - 13.0 %
	Young's Modulus	166 - 205 Ksi 1144 - 1413 MPa	165-225 Ksi 1138-1551 MPa
D790M	Flexural Strength	6.6 - 9.0 Ksi 46 - 62 MPa	6.0 - 8.0 Ksi 41 - 55 MPa
	Flexural Modulus	179 - 223 Ksi 1234 - 1537 MPa	170 - 250 Ksi 1172 - 1724 MPa
D2240	Hardness	85 Shore D	N/A
D256A	Izod Impact - notched	0.6 - 0.8 ft-lb/in 32 - 43 J/m	0.4 - 1.4 ft-lb/in 21 - 75 J/m
D648	Deflection Temperature	140 - 149 °F 60 - 65 °C	225 - 250 °F 107 - 121 °C

*Unfilled polypropylene (Reference: Modern Plastics Encyclopedia, 1997)

N/A: Not Available

The ProtoFunctional™ Materials Company

DSM Somos®



Two Penn's Way, Suite 401, New Castle, DE 19720-2407 USA, Tel: 302-328-5435, Fax: 302-328-5693, <http://www.dsmsomos.com>