Somos® 8110 Epoxy Photopolymer

Flexible, Accurate, High-Speed, High-Impact-Strength Epoxy Resin for Stereolithography
For He-Cd (325 nm) Laser Systems

Description

DSM Somos® 8110 is a high-speed liquid photopolymer that produces flexible, high-impact-strength, accurate parts using stereolithography machines. It has a wide processing latitude and excellent tolerance to a wide temperature and humidity range during and after build. This material is especially useful in functional applications where flexibility and impact-strength are critical requirements (e.g., plastic bottles, packaging, automobile panels, electronic enclosures, medical products, and snap-fit parts).

Application

Somos® 8110 Photopolymer is used in the solid imaging process to build three-dimensional parts.

Physical Properties – Liquid

Appearance	Transparent amber
Viscosity	~600 cps at 30°C
Density	~1.11 g/cm^3 at 25°C

Optical Properties at 325 nm

E_c	6.0 mJ/cm^2 *[critical exposure]*
D_p	0.135 mm (0.0053 inch) *[slope of cure-depth vs. ln(E) curve]*
E_5	15 mJ/cm^2 *[exposure that gives 0.127 mm (.005 inch) thickness]*
E_{10}	40 mJ/cm^2 *[exposure that gives 0.254 mm (.010 inch) thickness]*

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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	Somos® 8110 UV	Polyethylene*
D638M	Tensile Strength	18 MPa	13 -28 MPa
	Elongation at Break	27 %	100 - 965 %
	Young's Modulus	317 MPa	262 - 517 MPa
D790M	Flexural Strength	11 MPa	N/A**
	Flexural Modulus	310 MPa	276 - 724 MPa
D2240	Hardness (Shore D)	77	44 - 50
D256A	Izod Impact - Notched	87 J/m	53 J/m - No break
D648	Deflection Temperature	54°C	55 - 56°C
D1004	Graves Tear	196 Newton	N/A**

**Low and medium density polyethylene linear copolymer (Reference: Modern Plastics Encyclopedia, 1998).*

***N/A: Not Available*

Physical Properties (Imperial)

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

ASTM Test	Description	Somos® 8110 UV	Polyethylene*
D638M	Tensile Strength	2,600 psi	1,900 - 4,100 psi
	Elongation at Break	27 %	100 - 965 %
	Young's Modulus	46,000 psi	38,000 - 76,000 psi
D790M	Flexural Strength	1,600 psi	N/A**
	Flexural Modulus	45,000 psi	4,000 - 10,500 psi
D2240	Hardness (Shore D)	77	44 - 50
D256A	Izod Impact - Notched	1.6 ft-lb/in	0.99 ft-lb/in - No break
D648	Deflection Temperature	129°F	131 - 132°F
D1004	Graves Tear	44 lbf	N/A**

**Low and medium density polyethylene linear copolymer (Reference: Modern Plastics Encyclopedia, 1998).*

***N/A: Not Available*