

Somos® 8120 Epoxy Photopolymer

Flexible, Accurate, High-Speed, High-Impact-Strength Epoxy Resin for Stereolithography
For Solid State (355 nm) Laser Systems

Description

DSM Somos® 8120 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® 8120 Photopolymer is used in the solid imaging process to build three-dimensional parts.

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Physical Properties – Liquid

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

Optical Properties at 355 nm

E _c	6.75 mJ/cm ² [critical exposure]
D _p	6.20 mils [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	35 mJ/cm ² [exposure that gives 0.254 mm (.010 inch) thickness]

Physical Properties (Metric)

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

ASTM Test	Description	Somos® 8120 UV	Polyethylene*
D638M	Tensile Strength	26 MPa	13 -28 MPa
	Elongation at Break	27 %	100 - 965 %
	Young's Modulus	276 - 703 MPa	262 - 517 MPa
D790M	Flexural Strength	26 MPa	N/A**
	Flexural Modulus	690 MPa	276 - 724 MPa
D2240	Hardness (Shore D)	76	44 - 50
D256A	Izod Impact - Notched	59 J/m	53 J/m - No break
D648	Deflection Temperature	54°C	55 - 56°C
D1004	Graves Tear	205 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® 8120 UV	Polyethylene*
D638M	Tensile Strength	3,800 psi	1,900 - 4,100 psi
	Elongation at Break	27 %	100 - 965 %
	Young's Modulus	40,000 - 102,000 psi	38,000 - 76,000 psi
D790M	Flexural Strength	3,800 psi	N/A**
	Flexural Modulus	100,000 psi	4,000 - 10,500 psi
D2240	Hardness (Shore D)	76	44 - 50
D256A	Izod Impact - Notched	1.1 ft-lb/in	0.99 ft-lb/in - No break
D648	Deflection Temperature	129°F	131 - 132°F
D1004	Graves Tear	46 lbf	N/A**

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

**N/A: Not Available