

# Somos<sup>®</sup> 9120 Epoxy Photopolymer

**Robust, Accurate, Functional Epoxy Resin for Stereolithography  
For Solid State (355 nm) Laser Systems**

## Description

DSM Somos<sup>®</sup> 9120 is a liquid photopolymer that produces robust, functional and accurate parts using stereolithography machines. The material offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad temperature and humidity range during and after build. Parts created from Somos<sup>®</sup> 9120 exhibit superior fatigue properties, strong memory retention and high quality up-facing and down-facing surfaces. Somos<sup>®</sup> 9120 also offers a good balance of properties between rigidity and functionality. The resulting part properties are ideal for master patterns in rubber molding applications. This material is also useful in creating parts for applications where durability and robustness are critical requirements (e.g., automobile components, electronic housings, medical products, large panels and snap-fit parts).

## Application

Somos<sup>®</sup> 9120 Photopolymer is used in the solid imaging process to build three-dimensional parts.



## Physical Properties – Liquid

Appearance	Transparent amber
Viscosity	~450 cps at 30°C
Density	~1.13 g/cm <sup>3</sup> at 25°C

## Optical Properties at 355 nm

E <sub>c</sub>	10.9 mJ/cm <sup>2</sup> <small>[critical exposure]</small>
D <sub>P</sub>	0.14 mm (0.0056 inch) <small>[slope of cure-depth vs. ln(E) curve]</small>
E <sub>10</sub>	65 mJ/cm <sup>2</sup> <small>[exposure that gives 0.254 mm (0.010 inch) thickness]</small>



DSM Somos<sup>®</sup>

2 Penn's Way, Suite 401  
New Castle, DE 19720, USA  
Tel: +1 302.326.8100  
Fax: +1 302.326.8121

DSM Desotech by  
3150 AB Hoek van Holland  
The Netherlands  
Tel: +31 1743.15391  
Fax: +31 1743.15530

[www.dsmsomos.com](http://www.dsmsomos.com)

Email:

[Americas@dsmsomos.info](mailto:Americas@dsmsomos.info)  
[Europe@dsmsomos.info](mailto:Europe@dsmsomos.info)  
[Asia@dsmsomos.info](mailto:Asia@dsmsomos.info)

# Physical Properties (Metric)

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

ASTM Test	Description	Somos® 9120 UV	Polypropylene*
D638M	Tensile Strength at Yield	30 - 32 MPa	31 - 37.2 MPa
	Elongation at Yield	15 - 25 %	7 - 13 %
	Young's Modulus	1,227 - 1,462 MPa	1,138 - 1,551 MPa
D790M	Flexural Strength	41 - 46 MPa	41 - 55 MPa
	Flexural Modulus	1,310 - 1,455 MPa	1,172 - 1,724 MPa
D2240	Hardness (Shore D)	80 - 82	N/A
D256A	Izod Impact - notched	48 -53 J/m	21 - 75 J/m
D648	Deflection Temperature	52 - 61 °C	107 -121 °C

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

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® 9120 UV	Polypropylene*
D638M	Tensile Strength at Yield	4,400 - 4,700 psi	4,500 - 5,400 psi
	Elongation at Yield	15 - 25 %	7 - 13 %
	Young's Modulus	178,000 - 212,000 psi	165,000 - 225,000 psi
D790M	Flexural Strength	6,000 - 6,700 psi	6,000 - 8,000 psi
	Flexural Modulus	190,000 - 211,000 psi	170,000 - 250,000 psi
D2240	Hardness (Shore D)	80 - 82	N/A
D256A	Izod Impact - notched	0.9 - 1.0 ft-lb/in	0.4 - 1.4 ft-lb/in
D648	Deflection Temperature	126 - 142 °F	225 - 250 °F

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

N/A: Not Available