Somos® 7100 Epoxy Photopolymer

Humidity-Tolerant, High Heat-Deflection-Temperature Epoxy
For Single-line (351 nm) Ar^+ 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.

Physical Properties – Liquid

Appearance	Transparent amber
Viscosity	~700 cps at 30°C
Density	~1.13 g/cm^3 at 25°C

Optical Properties at 351 nm

E_c	10 mJ/cm^2 *[critical exposure]*
D_p	0.142 mm (5.6 mils) *[slope of cure-depth vs. ln(E) curve]*
E_5	24 mJ/cm^2 *[exposure which produces pane 0.127 mm (5 mils) thick]*
E_{10}	59 mJ/cm^2 *[exposure which produces pane 0.254 mm (10 mils) thick]*

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

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

www.dsmsomos.com

Email:
Americas@dsmsomos.info
Europe@dsmsomos.info
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	Green Parts	UV Postcure	UV + Thermal Postcure
D638M	Tensile Strength	50 MPa	59 MPa	66 MPa
	Elongation at Break	1.8 - 7.8 %	5.5 - 7.7 %	2.7 - 7.8 %
	Young's Modulus	2,027 MPa	2,282 MPa	2,324 MPa
D790M	Flexural Strength	86 MPa	96 MPa	105 MPa
	Flexural Modulus	2,468 MPa	2,786 MPa	2,910 MPa
D2240	Hardness (Shore D)	84	86	86
D256A	Izod Impact (notched)	26.7 J/m	26.7 J/m	32.0 J/m
D648	Heat Deflection Temperature (HDT)	57 - 61°C	63 - 66 °C	93 - 99 °C
DMA	Glass Transition Temperature		~86 °C	~87 °C
C518	Thermal Conductivity	~0.18 W/m°K	~0.18 W/m°K	~0.19 W/m°K
D695	Compressive Strength		96 MPa	101 MPa
	Compressive Modulus		1,517 MPa	1,538 MPa
D732	Shear Strength		52 MPa	61 MPa
D1044	Abrasion Wear Index		54.2	36.3
TGA	Ash Content: Wt. Loss % @ 1000 °C	100.000	99.832	99,863

Physical Properties (Imperial)

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

ASTM Test	Description	Green Parts	UV Postcure	UV + Thermal Postcure
D638M	Tensile Strength	7,000 psi	8,600 psi	9,500 psi
	Elongation at Break	1.8 - 7.8 %	5.5 - 7.7 %	2.7 - 7.8 %
	Young's Modulus	294,000 psi	331,000 psi	337,000 psi
D790M	Flexural Strength	12,500 psi	13,900 psi	15,300 psi
	Flexural Modulus	358,000 psi	404,000 psi	422,000 psi
D2240	Hardness (Shore D)	84	86	86
D256A	Izod Impact (notched)	0.5 ft-lb/in	0.5 ft-lb/in	0.6 ft-lb/in
D648	Heat Deflection Temperature (HDT)	135 - 142°F	145 - 151 °F	93 - 99 °F
DMA	Glass Transition Temperature		~187 °F	~189 °F
C518	Thermal Conductivity	-1.5 BTU-in./hr.ft^2-°F	-1.5 BTU-in./hr.ft^2-°F	-1.5 BTU-in./hr.ft^2-°F
D695	Compressive Strength		13,900 psi	14,600 psi
	Compressive Modulus		220,000 psi	223,000 psi
D732	Shear Strength		7,500 psi	8,900 psi
D1044	Abrasion Wear Index		54.2	36.3
TGA	Ash Content: Wt. Loss % @ 1000° C	100.000	99.832	99.863