DMX-SL™ 100

Extremely tough/durable SL resin for stereolithography

DSM Somos®

DSM Somos®
1122 St. Charles Street
Elgin, IL 60120 USA
Tel: 800.223.7191 (in USA)
Tel: 847.697.0400 (outside USA)
Fax: 847.468.7785

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

Description

DSM Somos® DMX-SL 100 is an extremely durable SL resin that produces very accurate parts with high feature detail. Based on a whole new chemistry platform that gives the material high impact resistance similar to thermoplastics, it is a breakthrough in Stereolithography resin technology. Tough, complex parts can be built with a superb surface finish compared with competing technologies.

Application

This product produces parts that are much more resistant to breakage than parts made with standard SL resin, and is ideal for use in functional testing applications as well as low volume manufacturing applications where toughness is required. Market segments include aerospace, automotive, consumer products and electronics firms.

Applications include:

- functional end-use performance prototypes
- snap fit designs
- impellers
- duct work
- connectors and electronic covers
- automotive housings and dashboard assemblies
- packaging applications
- consumer sporting goods

Physical Properties –

Appearance	Natural White
Viscosity	~1500 cps at 30°C
Density	1.17 g/cm^3 at 25°C

Optical Properties at 355 nm

E_c	15.0 mJ/cm^2	*[critical exposure]*
D_p	0.14 mm (~0.0055 inch)	*[slope of cure-depth vs. ln(E) curve]*
E_{10}	92 mJ/cm^2	*[exposure that gives 0.254 mm (.010 inch) thickness]*

a DSM Product

Mechanical Properties (Metric)

ASTM Method	Description	DMX-SL 100
D638M	Tensile Modulus	2,256 - 2,559 MPa
	Tensile Strength at Break	29.7 - 32.1 MPa
	Tensile Strength at Yield	44.1 - 45.5 MPa
	Elongation at Break	12.2 - 28.0 %
	Elongation at Yield	3.3 - 3.7 %
	Poisson's Ratio	0.40 - 0.42
D790M	Flexural Strength	68 MPa
	Flexural Modulus	2,282 - 2,298 MPa
D2240	Hardness (Shore D)	80
D256A	Izod Impact (Notched)	0.61 - 0.71 J/cm
D624	Tear Strength	1.1 SI
D570-98	Water Absorption	0.82 - 0.85 %

N/A: Not Available

Thermal & Electrical Properties (Metric)

ASTM Method	Description	DMX-SL 100
E831-05	C.T.E. -40°C – 0°C	83.8 - 85.2 µm/m-°C
	C.T.E. 0°C – 50°C	124.0 - 134.1 µm/m-°C
	C.T.E. 50°C – 100°C	181.2 - 185.3 µm/m-°C
	C.T.E. 100°C – 150°C	178.4 - 179.9 µm/m-°C
D150-98	Dielectric Constant 60Hz	4.2 - 4.5
	Dielectric Constant 1KHz	3.8 - 4.1
	Dielectric Constant 1MHz	3.6 - 3.8
D149-97a	Dielectric Strength	14.1 - 15.8 kV/mm
E1545-00	Tg	37 °C
D648	HDT@ 0.46 MPa	43.4 - 45.3 °C
	HDT @ 1.82 MPa	40.8 - 41.4 °C

Tg = Glass Transition Temperature
HDT = Deflection Temperature

N/A: Not Available

Mechanical Properties (Imperial)

ASTM Method	Description	DMX-SL 100
D638M	Tensile Modulus	327 - 371 ksi
	Tensile Strength at Break	4.3 - 4.7 ksi
	Tensile Strength at Yield	6.4 - 6.6 MPa
	Elongation at Break	12.2 - 28.0 %
	Elongation at Yield	3.3 - 3.7 %
	Poisson's Ratio	0.40 - 0.42 ksi
D790M	Flexural Strength	9.8 - 9.9 ksi
	Flexural Modulus	331 - 333 ksi
D2240	Hardness (Shore D)	80
D256A	Izod Impact (Notched)	1.15 - 1.32 ft-lb/in
D624	Tear Strength	1.1 SI
D570-98	Water Absorption	0.82 - 0.85 %

N/A: Not Available

Thermal & Electrical Properties (Imperial)

ASTM Method	Description	DMX-SL 100
E831-05	C.T.E. -40°F – 32°F	46.6 - 47.3 µin/in-°F
	C.T.E. 32°F – 122°F	68.9 - 74.5 µin/in-°F
	C.T.E. 122°F – 212°F	100.7 - 102.9 µin/in-°F
	C.T.E. 212°F – 302°F	99.1 - 99.9 µin/in-°F
D150-98	Dielectric Constant 60Hz	4.2 - 4.5
	Dielectric Constant 1KHz	3.8 - 4.1
	Dielectric Constant 1MHz	3.6 - 3.8
D149-97a	Dielectric Strength	357 - 400 V/mil
E1545-00	Tg (TMA)	99 °F
D648	HDT@ 66 psi	110 - 114 °F
	HDT @ 264 psi	105 - 107 °F

Tg = Glass Transition Temperature
HDT = Deflection Temperature

N/A: Not Available