

Product Data

Somos[®] ProtoTherm 12110

Description

DSM's Somos[®] ProtoTherm 12110 is a liquid photopolymer that produces strong, high-temperature tolerant, water-resistant parts. Parts created with Somos[®] ProtoTherm 12110 have a cherry-red appearance which turns to an orange-red color after thermal treatment.

Applications

Somos[®] ProtoTherm 12110 differentiates itself from other high temperature stereolithography materials by increasing in tensile strength and maintaining decent elongation at break after thermal treatment. This makes the material ideal for many applications in the automotive and aerospace markets where strong parts that can resist high temperatures are needed.

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Red
Viscosity	~410 cps @ 30°C
Density	~1.15 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _c	12.2 mJ/cm ²	[critical exposure]
D _p	5.5 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	75.4 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA					
Mechanical Properties		Somos® ProtoTherm 12110 UV Postcure		Somos® ProtoTherm 12110 Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	57.6 MPa	8.4 ksi	65.5 MPa	9.5 ksi
D638M	Elongation at Break	5.0%	5.0%	3.8%	3.8%
D638M	Modulus of Elasticity	3,430 MPa	497.5 ksi	2,950 MPa	427.9 ksi
D790M	Flexural Strength	108 MPa	15.7 ksi	98 MPa	14.2 ksi
D790M	Flexural Modulus	3,350 MPa	485.9 ksi	2,730 MPa	396 ksi
D256A	Izod Impact (Notched)	0.12 J/cm	0.32 ft-lb/in	0.21 J/cm	0.29 ft-lb/in
D2240	Hardness (Shore D)	84.5	84.5	86.4	86.4
D570-98	Water Absorption	0.28%	0.28%	0.25%	0.25%

TECHNICAL DATA					
Thermal/ Electrical Properties		Somos® ProtoTherm 12110 UV Postcure		Somos® ProtoTherm 12110 Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	58.0 µm/m°C	32.2 µin/in°F	53.2 µm/m°C	31.2 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	85.5 µm/m°C	47.5 µin/in°F	64.9 µm/m°C	36.1 µin/in°F
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	124.4 µm/m°C	69.1 µin/in°F	81.2 µm/m°C	45.1 µin/in°F
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	139.1 µm/m°C	77.3 µin/in°F	116.3 µm/m°C	64.6 µin/in°F
D150-98	Dielectric Constant 60 Hz	3.54	3.54	3.41	3.41
D150-98	Dielectric Constant 1 KHz	3.52	3.52	3.37	3.37
D150-98	Dielectric Constant 1 MHz	3.39	3.39	3.12	3.12
D149-97A	Dielectric Strength	16.6 kV/mm	421 V/mil	17.8 kV/mm	461 V/mil
E1545-00	Tg	59.3°C	139°F	135.1°C	232°F
D648	HDT @ 0.46 MPa (66 psi)	52.9°C	127°F	154.9°C	311°F
D648	HDT @ 1.81 MPa (264 psi)	48.0°C	118°F	151.3°C	304°F

DSM Functional Materials Somos® Materials Group

in North America

1122 St. Charles Street
Elgin, Illinois 60120
USA
Phone: +1.847.697.0400

Applied Rapid Technologies

1130 International Pkwy
Fredericksburg, VA 22406
Tel: 540-286-2266
Fax: 540-286-5252
www.artcorp.com

in Europe

Slachthuisweg 30
3150 XN Hoek van Holland
The Netherlands
Phone: +31.174.315.391

Visit us online at www.dsmsomos.com

NOTICE : Somos® is a registered trademark of Royal DSM N.V. Somos® is an unincorporated subsidiary of DSM Desotech Inc. The information presented herein is based on generally accepted analytical and testing practices and is believed to be accurate. However, DSM Desotech expressly disclaims any product warranties which may be implied including warranties or merchantability and/or fitness for a particular purpose DSM Desotech's products are sold subject to DSM Desotech's standard terms and conditions of sale, copies of which are available upon request. Purchasers are responsible for determining the suitability of the product for its intended use and the appropriate manner of utilizing the product in purchaser's production processes and applications so as to insure safety, quality and effectiveness. Purchasers are further responsible for obtaining necessary patent rights to practice any invention in connection with the use of purchased product and any other product or process. DSM Desotech reserves the right to change specifications of their products without notice. © 2012 DSM IP ASSES TS B.V. All rights reserved.