

Product Data

Somos[®] WaterClear Ultra 10122

Description

DSM's Somos[®] WaterClear Ultra 10122 is a next generation optically clear resin with ABS-like properties and good temperature resistance. It produces colorless, functional, accurate parts that simulate an acrylic appearance. Based on the Oxetane Advantage™, the parts also have improved water-resistance over the original Somos[®] WaterClear 10120 resin. Somos[®] WaterClear Ultra is a fast, low viscosity, general-purpose resin.

Applications

This high-temperature resistant, ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. Somos[®] WaterClear Ultra is ideal for applications requiring optical clarity, such as automotive lenses, bottles, fluid flow analysis, packaging prototypes, light pipes and more. Somos[®] WaterClear Ultra can also be used for concept, functional models and master patterns.

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Optically clear, colorless
Viscosity	~165 cps @ 30°C
Density	~1.13 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _c	10.0 mJ/cm ²	[critical exposure]
D _p	6.50 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	47 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA					
Mechanical Properties		Somos [®] WaterClear Ultra 10122 UV Postcure		Acrylic	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength at Break	55 - 56 MPa	7.9 - 8.1 ksi	47 - 79 MPa	6.8 - 11.5 ksi
D638M	Tensile Modulus	2,860 - 2,900 MPa	414 - 421 ksi	2,200 - 3,800 MPa	319 - 551 ksi
D638M	Elongation at Break	6 - 9%	6 - 9%	1 - 30%	1 - 30%
D638M	Elongation at Yield	4%	4%	4%	4%
D638M	Poisson's Ratio	0.40 - 0.42	0.40 - 0.42	0.37 - 0.45	0.37 - 0.45
D790M	Flexural Strength	82 - 85 MPa	11.8 - 12.4 ksi	88 - 138 MPa	12.8 - 20.0 ksi
D790M	Flexural Modulus	2,410 - 2,570 MPa	349 - 373 ksi	3,000 - 3,500 MPa	435 - 508 ksi
D256A	Izod Impact (Notched)	0.24 - 0.26 J/m	0.44 - 0.48 ft-lb/in	0.15 J/m	0.3 ft-lb/in
D542	Index of Refraction	1.52	1.52	1.50	1.50
D2240	Hardness (Shore D)	86 - 87	86 - 87	63 - 97	63 - 97
D570-98	Water Absorption	1.1%	1.1%	0.3 - 2.0%	0.3 - 2.0%

TECHNICAL DATA					
Thermal/ Electrical Properties		Somos [®] WaterClear Ultra 10122 UV Postcure		Acrylic	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	63.6 - 66.8 µm/m°C	35.3 - 37.1 µin/in°F	N/A	N/A
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	87.8 - 93.0 µm/m°C	48.8 - 51.7 µin/in°F		
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	164.3 - 171.9 µm/m°C	91.3 - 95.5 µin/in°F		
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	149.9 - 167.1 µm/m°C	83.3 - 92.9 µin/in°F		
D150-98	Dielectric Constant 60 Hz	3.0 - 3.2	3.0 - 3.2	4.0	4.0
D150-98	Dielectric Constant 1 KHz	3.3 - 3.6	3.3 - 3.6	3.5	3.5
D150-98	Dielectric Constant 1 MHz	3.0 - 3.2	3.0 - 3.2	3.0	3.0
D149-97A	Dielectric Strength	14.5 - 15.5 kV/mm	367 - 393 V/mil	18 - 60 kV/mm	456 - 1,520 V/mil
E1545-00	Tg	42 - 46°C	108 - 115°F	100 - 105°C	212 - 221°F
D648	HDT @ 0.46 MPa (66 psi)	46 - 47°C	115 - 116°F	80 - 103°C	176 - 217°F
D648	HDT @ 1.81 MPa (264 psi)	42 - 43°C	108 - 110°F	80 - 103°C	176 - 217°F
D648	Thermal Postcure: HDT @ 0.46 MPa (66 psi)	59 - 61°C	139 - 142°F	N/A	N/A
D648	Thermal Postcure: HDT @ 1.81 MPa (264 psi)	49 - 50°C	120 - 122°F	N/A	N/A

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.