Product Data Sheet

Somos® WaterShed XC 11122

Description

DSM's Somos® WaterShed XC 11122 is a low viscosity liquid photopolymer that produces strong, tough, water-resistant, ABS-like parts. Most importantly, parts created with Somos® WaterShed XC 11122 are nearly colorless, and look more like true, clear engineered plastic.

In addition, Somos® WaterShed XC 11122 has been formulated with the Somos® Oxetane Advantage™— an advanced chemistry platform that produces parts with outstanding water resistance and high dimensional stability.

Applications

This ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. Somos® WaterShed XC 11122 offers many properties that mimic traditional engineering plastics, including ABS and PBT. This makes the material ideal for many applications in the automotive, medical and consumer electronic markets and include lenses, packaging, water flow analysis, RTV patterns, durable concept models, wind tunnel testing and investment casting patterns.

TECHNICAL DATA - LIQUID PROPERTIES	
Appearance	Optically clear, near colorless
Viscosity	~260 cps @ 30°C
Density	~1.12 g/cm^3 @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES		
E_C	11.5 mJ/cm^2	[critical exposure]
D_P	6.50 mils	[slope of cure-depth vs. ln (E) curve]
E_{10}	54 mJ/cm^2	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA							
Mechanical Properties		**Somos® WaterShed XC 11122** UV Postcure		**ABS*** (Transparent)		**Polybutylene* Terephthalate**	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength at Break	47.1 - 53.6 MPa	6.8 - 7.8 ksi	45.7 MPa	6.8 ksi	55 MPa	8.0 ksi
D638M	Elongation at Break	11 - 20%	11 - 20%	41.6%	41.6%	20%	20%
D638M	Elongation at Yield	3%	3%	N/A	N/A	3.5 - 9%	3.5 - 9%
D638M	Modulus of Elasticity	2,650 - 2,880 MPa	384 - 420 ksi	2,000 MPa	290 ksi	2,700 MPa	391 ksi
D790M	Flexural Strength	63.1 - 74.2 MPa	9.2 - 10.8 ksi	73.5 MPa	11 ksi	80 MPa	11.6 ksi
D790M	Flexural Modulus	2,040 - 2,370 MPa	296 - 344 ksi	2,300 MPa	334 ksi	2,500 MPa	363 ksi
D256A	Izod Impact (Notched)	0.2 - 0.3 J/m	0.4 - 0.6 ft-lb/in	1.6 J/m	1.5 - 2.0 ft-lb/in	1.2 J/m	0.56 ft-lb/in
D542	Index of Refraction	1.512 - 1.515	1.512 - 1.515	1.52	1.52	N/A	N/A
D1004-09	Graves Tear	150,288 N/m	833 - 858 ft-lb/in	N/A	N/A	N/A	N/A
D570-98	Water Absorption	0.35%	0.35%	0.20 - 0.45%	0.20 - 0.45%	0.16%	0.16%

TECHNICAL DATA							
Thermal/Electrical Properties		**Somos® WaterShed XC 11122** UV Postcure		**ABS*** (Transparent)		**Polybutylene* Terephthalate**	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	66 - 67 µm/m°C	37 µin/in°F	60 - 130 µm/m°C	33 - 72 µin/in°F	50 - 145 µm/m°C	28 - 81 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	90 - 96 µm/m°C	50 - 53 µin/in°F				
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	170 - 189 µm/m°C	94 - 105 µin/in°F				
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	185 - 189 µm/m°C	103 - 105 µin/in°F				
D150-98	Dielectric Constant 60 Hz	3.9 - 4.1	3.9 - 4.1	3.7	3.7	2.9 - 4.0	2.9 - 4.0
D150-98	Dielectric Constant 1 KHz	3.7 - 3.9	3.7 - 3.9	N/A	N/A	2.9 - 4.0	2.9 - 4.0
D150-98	Dielectric Constant 1 MHz	3.4 - 3.5	3.4 - 3.5	3.7	3.7	2.9 - 4.0	2.9 - 4.0
D149-97A	Dielectric Strength	15.4 - 16.3 kV/mm	390 - 413 V/mil	13.8 - 19.7 kV/mm	350 - 500 V/mil	14.7 - 30 kV/mm	373 - 762 V/mil
E1545-00	Tg	39 - 46°C	102 - 109°F	N/A	N/A	41°C	106°F
D648	HDT @ 0.46 MPa (66 psi)	45.9 - 54.5°C	115 - 130°F	94 - 207°C	201 - 405°F	150°C	302°F
D648	HDT @ 1.81 MPa (264 psi)	49.0 - 49.7°C	120°F	86 - 194°C	187 - 381°F	61°C	142°F

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