Product Data

Somos® 14120

Description

DSM's Somos® 14120 is a low-viscosity liquid photopolymer that produces strong, tough and water-resistant parts. Parts created with Somos® 14120 have a white, opaque appearance similar to production plastics.

Applications

This ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. Somos® 14120 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 electronics markets and include functional prototypes, water-resistant applications, appearance models with minimal finishing, durable concept models, high humidity environment applications and RTV patterns.

TECHNICAL DATA - LIQUID PROPERTIES	
Appearance	Opaque White
Viscosity	~240 cps @ 30°C
Density	~1.10 g/cm^3 @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES		
E_C	13.0 mJ/cm^2	[critical exposure]
D_P	6.25 mils	[slope of cure-depth vs. ln (E) curve]
E_{10}	64 mJ/cm^2	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA							
Mechanical Properties		**Somos® 14120** UV Postcure		**ABS** (Transparent)		**Polybutylene Terephthalate**	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	45.7 MPa	6.6 ksi	45.7 MPa	6.6 ksi	55 MPa	7.9 ksi
D638M	Elongation at Break	8%	8%	42%	42%	20%	20%
D638M	Elongation at Yield	3%	3%	N/A	N/A	3.5 - 9%	3.5 - 9%
D638M	Modulus of Elasticity	2,460 MPa	357 ksi	2,000 MPa	290 ksi	2,700 MPa	392 ksi
D638M	Poisson's Ratio	0.23	0.23	N/A	N/A	N/A	N/A
D790M	Flexural Strength	68.9 MPa	9.2 ksi	73.5 MPa	10.6 ksi	80 MPa	11.6 ksi
D2240	Flexural Modulus	2,250 MPa	310 ksi	2,300 MPa	344 ksi	2,500 MPa	363 ksi
D256A	Izod Impact (Notched)	23.5 J/m	0.44 ft-lb/in	160 J/m	1.5 - 2.0 ft-lb/in	120 J/m	0.56 ft-lb/in
D2240	Hardness (Shore D)	81	81	N/A	N/A	98 - 120 (Rockwell R)	98 - 120 (Rockwell R)
D1004-09	Graves Tear	123,000 N/m	700 ft-lb/in	N/A	N/A	N/A	N/A
D570-98	Water Absorption	0.24%	0.24%	0.20 - 0.45%	0.20 - 0.45%	0.16%	0.16%

TECHNICAL DATA							
Thermal/Electrical Properties		**Somos® 14120** 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)	67 µm/m°C	37 µin/in°F	60 - 130 µm/m°C (no temp range given)	33 - 72 µin/in°F (no temp range given)	50 - 145 µm/m°C (no temp range given)	28 - 81 µin/in°F (no temp range given)
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	93 µm/m°C	52 µin/in°F				
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	156 µm/m°C	87 µin/in°F				
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	180 µm/m°C	100 µin/in°F				
D150-98	Dielectric Constant 60 Hz	3.9	3.9	3.7	3.7	2.9 - 4.0 (no frequency specified)	2.9 - 4.0 (no frequency specified)
D150-98	Dielectric Constant 1 KHz	3.8	3.8	N/A	N/A		
D150-98	Dielectric Constant 1 MHz	3.5	3.5	3.7	3.7		
D149-97a	Dielectric Strength	14.6 kV/mm	370 V/mil	13.8 - 19.7 kV/mm	350 - 500 V/mil	14.7 - 30.0 kV/mm	373 - 762 V/mil
E1545-00	Tg	44°C	111°F	N/A	N/A	41°C	106°F
D648	HDT @ 0.46 MPa (66 psi)	53°C	127°F	94 - 207°C	201 - 405°F	150°C	302°F
D648	HDT @ 1.81 MPa (264 psi)	48°C	118°F	86.4 - 194°C	187 - 381°F	61°C	142°F

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