



Product Data Sheet

Somos[®] NanoForm 15120

Description

DSM's Somos[®] NanoForm 15120 is a nanoparticle filled liquid material that produces strong, stiff, high temperature-resistant composite parts on conventional stereolithography machines. Parts created with Somos[®] NanoForm 15120 have an opaque grey appearance.

Applications

Somos[®] NanoForm 15120 is a nanoparticle filled liquid suspension for use on conventional stereolithography machines. It is ideal for applications requiring superior stiffness and a high heat deflection temperature. Current applications include: automotive components, wind tunnel test parts, light reflectors, pump housings, pump impellers, and injection molds.

TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Opaque Grey
Viscosity	~570 cps @ 30°C
Density	~1.33 g/cm ³ @ 25°C

TECHNICAL DATA - OPTICAL PROPERTIES

E _c	16.3 mJ/cm ²	[critical exposure]
D _p	5.2 mils	[slope of cure-depth vs. ln (E) curve]
E ₁₀	112 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA					
Mechanical Properties		Somos® NanoForm 15120 UV Postcure		UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	48 MPa	6.9 ksi	53 MPa	7.7 ksi
D638M	Elongation at Break	2.1%	2.1 - 3.0%	1.2%	1.2 - 1.5%
D638M	Modulus of Elasticity	5,000 MPa	725 ksi	5,900 MPa	856 ksi
D790M	Flexural Strength	98 MPa	14.2 ksi	129 MPa	18.7 ksi
D790M	Flexural Modulus	3,630 MPa	526 ksi	9,960 - 10,200 MPa	645 ksi
D256A	Izod Impact (Notched)	0.15 J/cm	0.28 ft-lb/in	0.16 J/cm	0.30 ft-lb/in
D695-02A	Maximum Compressive Strength	137 MPa	19.9 ksi	234 MPa	34 ksi
D695-02A	Compressive Modulus	4,510 MPa	654 ksi	4,680 MPa	678 ksi
D2240	Hardness (Shore D)	93	92.7	92	92.3
D570-98	Water Absorption	0.32%	0.32%	0.26%	0.26%

TECHNICAL DATA					
Thermal/Electrical Properties		Somos® NanoForm 15120 UV Postcure		UV & Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	48.8 µm/m°C	27 µin/in°F	45.9 µm/m°C	26 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	111.9 µm/m°C	62 µin/in°F	50.9 µm/m°C	28 µin/in°F
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	143.6 µm/m°C	80 µin/in°F	84.0 µm/m°C	47 µin/in°F
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	106.3 µm/m°C	59 µin/in°F	128.6 µm/m°C	71 µin/in°F
D150-98	Dielectric Constant 60 Hz	4.06	4.06	3.71	3.71
D150-98	Dielectric Constant 1 KHz	3.95	3.95	3.69	3.69
D150-98	Dielectric Constant 1 MHz	3.73	3.73	3.49	3.49
D149-97A	Dielectric Strength	16.4 kV/mm	417 V/mil	15.9 kV/mm	404 V/mil
E1545-00	Tg	39°C	102°F	80°C	176°F
D648	HDT @ 0.46 MPa (66 psi)	65.5°C	150°F	269°C	517°F
D648	HDT @ 1.81 MPa (264 psi)	52.9°C	127°F	115°C	240°F

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