

Somos[®] WaterClear[™] Ultra 10122

Stereolithography

An optically clear stereolithography material tailored for colorless, functional parts with excellent temperature resistance.

Somos[®] WaterClear Ultra 10122 is an optically clear stereolithography material that is easy to use and fast to build. This material produces colorless, functional and accurate parts that simulate an acrylic appearance. Parts produced with Somos[®] WaterClear Ultra 10122 exhibit excellent temperature resistance.

Somos[®] WaterClear Ultra 10122 is ideal for applications such as master patterns, concept and functional models. This material also provides refractive values similar to engineered plastics for functional testing in optical light transmission work.



Key Benefits

- Higher optical clarity
- Superior moisture resistance
- Easy to use and finish

Ideal Applications

- Automotive lenses
- Bottles
- Lenses
- Light pipes

LIQUID PROPERTIES		OPTICAL PROPERTIES		
Appearance	Optically clear, colorless	E_c	10 mJ/cm ²	[critical exposure]
Viscosity	~165 cps @ 30°C	D_p	6.5 mils	[slope of cure-depth vs. ln (E) curve]
Density	~1.13 g/cm ³ @ 25°C	E_{10}	47 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]
		D542	1.52	Index of Refraction (cured)

MECHANICAL PROPERTIES		UV POSTCURE	
ASTM	Property Description	Metric	Imperial
D638M	Tensile Strength at Break	56 MPa	8.1 ksi
D638M	Tensile Modulus	2,880 MPa	418 ksi
D638M	Elongation at Break	7.5%	
D638M	Elongation at Yield	4%	
D638M	Poisson's Ratio	0.41	
D790M	Flexural Strength	84 MPa	12.2 ksi
D2240	Flexural Modulus	2,490 MPa	361 ksi
D256A	Izod Impact (Notched)	25 J/m	0.47 ft-lb/in
D2240	Hardness (Shore D)	87	
D570-98	Water Absorption	1.1%	

THERMAL/ELECTRICAL PROPERTIES		UV POSTCURE	
ASTM	Property Description	Metric	Imperial
E831-05	C.T.E. 40°C – 0°C (-40°F – 32°F)	65 $\mu\text{m}/\text{m}^\circ\text{C}$	36 $\mu\text{in}/\text{in}^\circ\text{F}$
E831-05	C.T.E. 0°C – 50°C (32°F – 122°F)	90 $\mu\text{m}/\text{m}^\circ\text{C}$	50 $\mu\text{in}/\text{in}^\circ\text{F}$
E831-05	C.T.E. 50°C – 100°C (122°F – 212°F)	168 $\mu\text{m}/\text{m}^\circ\text{C}$	93 $\mu\text{in}/\text{in}^\circ\text{F}$
E831-05	C.T.E. 100°C – 150°C (212°F – 302°F)	159 $\mu\text{m}/\text{m}^\circ\text{C}$	88 $\mu\text{in}/\text{in}^\circ\text{F}$
D150-98	Dielectric Constant 60 Hz		3.1
D150-98	Dialectric Constant 1KHz		3.5
D150-98	Dielectric Constant 1MHz		3.1
D149-97a	Dielectric Strength	15 kV/mm	381 V/mil
E1545-00	Tg	44°C	111°F
D648	HDT @ 0.46 MPa (66 psi)	47°C	117°F
D648	HDT @ 1.81 MPa (264 psi)	43°C	109°F
D648	Thermal Postcure: HDT @ 0.46 MPa (66 psi)	60°C	140°F
D648	Thermal Postcure: HDT @ 1.81 MPa (264 psi)	50°C	122°F

These values may vary and depend on individual machine processing and post-curing practices.

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