WaterClear Ultra 10122

Unspecified

DSM Somos®

Message:

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.

General Information			
Features	Clean/High Purity		
	General Purpose		
	High Clarity		
	High Heat Resistance		
	Low Viscosity		
	Opticals		
Uses	Automotive Applications		
	Bottles		
	Electrical Housing		
	Engineering Parts		
	Lenses		
	Modeling Material		
	Packaging		
	Piping		
	Prototyping		
Appearance	Clear/Transparent		
Processing Method	3D Printing, Stereolithography		
Physical	Nominal Value	Unit	Test Method
Density	1.13	g/cm³	
Water Absorption (Equilibrium)	1.1	%	ASTM D570
Viscosity (30°C)	165	mPa·s	
Poisson's Ratio	0.40 to 0.42		ASTM D638
Critical Exposure	10.0	mJ/cm ²	
Penetration Depth	165.1	μm	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	86 to 87		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method

Tensile Modulus	2860 to 2900	MPa	ASTM D638
Tensile Strength (Break)	55.0 to 56.0	MPa	ASTM D638
Tensile Elongation			ASTM D638
Yield	4.0	%	
Break	6.0 to 9.0	%	
Flexural Modulus	2410 to 2570	MPa	ASTM D790
Flexural Strength	82.0 to 85.0	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	23 to 26	J/m	ASTM D256A
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed ¹	59.0 to 61.0	°C	
0.45 MPa, Unannealed	46.0 to 47.0	°C	
1.8 MPa, Unannealed ²	49.0 to 50.0	°C	
1.8 MPa, Unannealed	42.0 to 43.0	°C	
Glass Transition Temperature	42.0 to 46.0	°C	ASTM E1545
CLTE - Flow			ASTM E831
-40 to 0°C	6.4E-5 to 6.7E-5	cm/cm/°C	
0 to 50°C	8.8E-5 to 9.3E-5	cm/cm/°C	
50 to 100°C	1.6E-4 to 1.7E-4	cm/cm/°C	
100 to 150°C	1.5E-4 to 1.7E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Dielectric Strength	15 to 16	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.00 to 3.20		
1 kHz	3.30 to 3.60		
1 MHz	3.00 to 3.20		
Optical	Nominal Value		Test Method
Refractive Index	1.520		ASTM D542
NOTE			
1.	with Thermal Postcure		
2.	with Thermal Postcure		

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