

ProtoTherm 12120

Unspecified

DSM Somos®

Message:

DSM's Somos® ProtoTherm 12120 is a liquid photopolymer that produces strong, high-temperature tolerant, water-resistant parts. Parts created with Somos® ProtoTherm 12120 have a cherry-red appearance which turns to an orange-red color after thermal treatment.

Applications

Somos® ProtoTherm 12120 differentiates itself from other high temperature stereolithography materials by increasing in tensile strength and maintaining decent elongation at break after thermal treatment. This makes the material ideal for many applications in the automotive and aerospace markets where strong parts that can resist high temperatures are needed.

General Information			
Features	High Heat Resistance		
	High Strength		
	High Tensile Strength		
	Humidity Resistant		
	Low to No Water Absorption		
Uses	Aerospace Applications		
	Automotive Applications		
	Prototyping		
Appearance	Red		
Forms	Liquid		
Processing Method	3D Printing, Stereolithography		
Physical	Nominal Value	Unit	Test Method
Density	1.15	g/cm ³	
Water Absorption (Equilibrium)	0.37	%	ASTM D570
Viscosity (30°C)	550	mPa · s	
Critical Exposure	11.8	mJ/cm ²	
Penetration Depth	152.4	µm	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	85		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	3520	MPa	ASTM D638
Tensile Strength	70.2	MPa	ASTM D638
Tensile Elongation (Break)	4.0	%	ASTM D638
Flexural Modulus	3320	MPa	ASTM D790
Flexural Strength	109	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	12	J/m	ASTM D256A
Thermal	Nominal Value	Unit	Test Method

Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed	56.5	°C	
1.8 MPa, Unannealed	51.9	°C	
Glass Transition Temperature	74.0	°C	ASTM E1545
CLTE - Flow			ASTM E831
-40 to 0°C	5.8E-5	cm/cm/°C	
0 to 50°C	8.1E-5	cm/cm/°C	
50 to 100°C	1.1E-4	cm/cm/°C	
100 to 150°C	1.4E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Dielectric Strength	16	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	4.14		
1 kHz	4.04		
1 MHz	3.81		

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