

Somos® PerFORM

Unspecified

DSM Somos®

Message:

Somos® PerFORM produces strong, stiff, high-temperature resistant composite parts on standard 355 nm stereolithography machines. This material's lower viscosity makes processing parts faster. It exhibits superior sidewall quality, along with excellent detail resolution compared to other composite stereolithography materials.

Applications

Somos® PerFORM is an easy to process material with excellent detail resolution. It is the ideal material for creating strong, stiff parts with excellent high heat resistance, including wind tunnel models for aerospace and automotive applications, as well as rapid tooling for injection molding.

General Information			
Features	Good Surface Finish		
	High Heat Resistance		
	High Strength		
	Ultra High Stiffness		
Uses	Aerospace Applications		
	Automotive Applications		
	Engineering Parts		
	Modeling Material		
	Molds/Dies/Tools		
	Prototyping		
Appearance	Off-White		
Processing Method	3D Printing, Stereolithography		
Physical	Nominal Value	Unit	Test Method
Density	1.61	g/cm ³	
Water Absorption			ASTM D570
Equilibrium ¹	0.10	%	
Equilibrium ²	0.20	%	
Viscosity (30°C)	1.00	Pa · s	
Poisson's Ratio			ASTM D638
-- ³	0.32		
-- ⁴	0.33		
Critical Exposure	7.80	mJ/cm ²	
Penetration Depth	109.2	µm	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240
Shore D ⁵	93		
Shore D ⁶	94		
Mechanical	Nominal Value	Unit	Test Method

Tensile Modulus			ASTM D638
-- ⁷	9800	MPa	
-- ⁸	10500	MPa	
Tensile Strength			ASTM D638
-- ⁹	80.0	MPa	
-- ¹⁰	68.0	MPa	
Tensile Elongation			ASTM D638
Break ¹¹	1.2	%	
Break ¹²	1.1	%	
Flexural Modulus			ASTM D790
-- ¹³	9030	MPa	
-- ¹⁴	10000	MPa	
Flexural Strength			ASTM D790
-- ¹⁵	146	MPa	
-- ¹⁶	120	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
-- ¹⁷	20	J/m	
-- ¹⁸	17	J/m	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed ¹⁹	82.0	°C	
1.8 MPa, Unannealed ²⁰	119	°C	
Glass Transition Temperature			ASTM E1545
-- ²¹	72.0	°C	
-- ²²	81.0	°C	
CLTE - Flow			ASTM E831
-40 to 0°C ²³	2.6E-5	cm/cm/°C	
-40 to 0°C ²⁴	3.0E-5	cm/cm/°C	
0 to 50°C ²⁵	3.4E-5	cm/cm/°C	
0 to 50°C ²⁶	4.9E-5	cm/cm/°C	
50 to 100°C ²⁷	6.0E-5	cm/cm/°C	
50 to 100°C ²⁸	7.9E-5	cm/cm/°C	
100 to 150°C ²⁹	8.1E-5	cm/cm/°C	
100 to 150°C ³⁰	9.5E-5	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Dielectric Strength			ASTM D149
-- ³¹	25	kV/mm	
-- ³²	26	kV/mm	
Dielectric Constant			
60 Hz ³³	4.00		ASTM D150
1 kHz ³⁴	3.80		ASTM D150

1 kHz ³⁵	3.90	ASTM D150
1 MHz ³⁶	3.70	ASTM D150
1 MHz ³⁷	3.60	ASTM D150

NOTE		
1.	UV Postcure & Thermal Postcure	
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