ProtoGen 18120

Unspecified

DSM Somos®

Message:

DSM's Somos® ProtoGen 18120 is a liquid, ABS-like photopolymer that produces accurate parts ideal for general purpose applications. Somos® ProtoGen resins are the first stereolithography resins to demonstrate different material properties based on machine exposure control. Based on Somos® Oxetane™ chemistry, Somos® ProtoGen 18120 offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad range of temperature and humidity, both during and after the build.
Applications
This high-temperature resistant, ABS-like photopolymer is used in solid imaging processes, such as stereolithography, to built three-dimensional parts. Somos® ProtoGen 18120 provides considerable processing latitude and is ideal for the medical, electronic, aerospace and automotive markets that demand accurate RTV patterns, durable concept models, highly accurate and humidity & temperature resistant parts.

General Information	
Features	Durable Good Chemical Resistance High Heat Resistance Humidity Resistant
Uses	Aerospace Applications Automotive Applications Electrical/Electronic Applications General Purpose Medical/Healthcare Applications Modeling Material Mold Making Patterns
Appearance	Translucent
Forms	Liquid
Processing Method	3D Printing, Stereolithography

Physical	Nominal Value	Unit	Test Method
Density	1.16	g/cm³	
Water Absorption			ASTM D570
Equilibrium [1]	0.75	%	
Equilibrium [2]	0.77	%	
Viscosity (30°C)	300	mPa·s	
Poisson's Ratio			ASTM D638
-- [3]	0.43 to 0.45		
-- [4]	0.43		
Critical Exposure	6.73	mJ/cm²	
Penetration Depth	116.1	µm	

Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240
Shore D [5]	87 to 88		
Shore D [6]	84 to 85		
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			ASTM D638
-- [7]	2540 to 2620	MPa	
-- [8]	2910 to 2990	MPa	
-- [9]	2620 to 2740	MPa	
Tensile Strength			ASTM D638
-- [10]	68.8 to 69.2	MPa	
-- [11]	56.9 to 57.1	MPa	
-- [12]	51.7 to 54.9	MPa	
Tensile Elongation			ASTM D638
Break [13]	6.0 to 12	%	
Break [14]	7.0 to 8.0	%	
Break [15]	8.0 to 12	%	
Flexural Modulus			ASTM D790
-- [16]	2360 to 2480	MPa	
-- [17]	2330 to 2490	MPa	
-- [18]	2400 to 2450	MPa	
Flexural Strength			ASTM D790
-- [19]	81.8 to 83.8	MPa	
-- [20]	88.5 to 91.5	MPa	
-- [21]	83.8 to 86.7	MPa	
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact			ASTM D256A
-- [22]	13 to 25	J/m	
-- [23]	14 to 26	J/m	
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed [24]	95.0 to 97.0	°C	
0.45 MPa, Unannealed [25]	55.0 to 58.0	°C	
1.8 MPa, Unannealed [26]	48.0 to 50.0	°C	
1.8 MPa, Unannealed [27]	79.0 to 82.0	°C	
Glass Transition Temperature			ASTM E1545
-- [28]	71.0 to 86.0	°C	
-- [29]	76.0 to 94.0	°C	
CLTE - Flow			ASTM E831
-40 to 0°C [30]	6.5E-5 to 6.8E-5	cm/cm/°C	
-40 to 0°C [31]	6.4E-5 to 7.2E-5	cm/cm/°C	
0 to 50°C [32]	8.5E-5 to 9.5E-5	cm/cm/°C	

0 to 50°C [33]	7.5E-5 to 1.1E-4	cm/cm/°C	
50 to 100°C [34]	9.9E-5 to 1.1E-4	cm/cm/°C	
50 to 100°C [35]	9.4E-5 to 1.2E-4	cm/cm/°C	
100 to 150°C [36]	1.5E-4 to 1.6E-4	cm/cm/°C	
100 to 150°C [37]	1.4E-4 to 1.7E-4	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Dielectric Strength			ASTM D149
-- [38]	15 to 16	kV/mm	
-- [39]	14 to 15	kV/mm	
Dielectric Constant			ASTM D150
60 Hz [40]	3.50 to 3.60		
60 Hz [41]	3.40 to 3.50		
1 kHz [42]	3.30 to 3.40		
1 kHz [43]	3.40 to 3.50		
1 MHz [44]	3.20 to 3.30		
1 MHz [45]	3.10 to 3.20		

NOTE	
1.	UV Postcure & Thermal Postcure
2.	UV Postcure at HOC -2
3.	UV Postcure at HOC -2
4.	UV Postcure & Thermal Postcure
5.	UV Postcure & Thermal Postcure
6.	UV Postcure at HOC -2
7.	UV Postcure at HOC +3
8.	UV Postcure & Thermal Postcure
9.	UV Postcure at HOC -2
10.	UV Postcure & Thermal Postcure
11.	UV Postcure at HOC +3
12.	UV Postcure at HOC -2
13.	UV Postcure at HOC -2
14.	UV Postcure & Thermal Postcure
15.	UV Postcure at HOC +3
16.	UV Postcure at HOC -2
17.	UV Postcure & Thermal Postcure
18.	UV Postcure at HOC +3
19.	UV Postcure at HOC -2
20.	UV Postcure & Thermal Postcure
21.	UV Postcure at HOC +3
22.	UV Postcure & Thermal Postcure
23.	UV Postcure at HOC -2
24.	UV Postcure & Thermal Postcure
25.	UV Postcure at HOC -2

26.	UV Postcure at HOC -2
27.	UV Postcure & Thermal Postcure
28.	UV Postcure at HOC -2
29.	UV Postcure & Thermal Postcure
30.	UV Postcure at HOC -2
31.	UV Postcure & Thermal Postcure
32.	UV Postcure at HOC -2
33.	UV Postcure & Thermal Postcure
34.	UV Postcure & Thermal Postcure
35.	UV Postcure at HOC -2
36.	UV Postcure at HOC -2
37.	UV Postcure & Thermal Postcure
38.	UV Postcure & Thermal Postcure
39.	UV Postcure at HOC -2
40.	UV Postcure & Thermal Postcure
41.	UV Postcure at HOC -2
42.	UV Postcure at HOC -2
43.	UV Postcure & Thermal Postcure
44.	UV Postcure & Thermal Postcure
45.	UV Postcure at HOC -2

Recommended distributors for this material

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