

ProtoGen 18920

Unspecified

DSM Somos®

Message:

DSM's Somos® ProtoGen 18920 is a liquid photopolymer that produces accurate, ABS-like 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 18920 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 build three-dimensional parts. Somos® ProtoGen 18920 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 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	Grey		
Forms	Liquid		
Processing Method	3D Printing, Stereolithography		
Physical	Nominal Value	Unit	Test Method
Density	1.16	g/cm³	
Water Absorption			ASTM D570
Equilibrium ¹	0.74	%	
Equilibrium ²	0.38	%	
Equilibrium ³	0.78	%	
Viscosity (30°C)	350	mPa · s	
Critical Exposure	7.00	mJ/cm²	
Penetration Depth	106.7	µm	
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240

Shore D ⁴	86 to 87		
Shore D ⁵	86 to 88		
Shore D ⁶	85 to 86		
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			ASTM D638
-- ⁷	2580 to 2620	MPa	
-- ⁸	2540 to 2920	MPa	
-- ⁹	2100 to 2320	MPa	
Tensile Strength			ASTM D638
-- ¹⁰	69.2 to 69.6	MPa	
-- ¹¹	56.1 to 56.9	MPa	
-- ¹²	46.6 to 47.8	MPa	
Tensile Elongation			ASTM D638
Break ¹³	13 to 19	%	
Break ¹⁴	4.0 to 9.0	%	
Break ¹⁵	5.0 to 12	%	
Flexural Modulus			ASTM D790
-- ¹⁶	2130 to 2310	MPa	
-- ¹⁷	2500 to 2700	MPa	
-- ¹⁸	2440 to 2520	MPa	
Flexural Strength			ASTM D790
-- ¹⁹	73.0 to 75.0	MPa	
-- ²⁰	92.1 to 98.1	MPa	
-- ²¹	85.0 to 87.0	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256A
-- ²²	22 to 26	J/m	
-- ²³	20 to 24	J/m	
-- ²⁴	14 to 28	J/m	
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed ²⁵	96.5	°C	
0.45 MPa, Unannealed ²⁶	58.7	°C	
1.8 MPa, Unannealed ²⁷	51.0	°C	
1.8 MPa, Unannealed ²⁸	78.6	°C	
Glass Transition Temperature			ASTM E1545
-- ²⁹	68.9	°C	
-- ³⁰	97.5	°C	
CLTE - Flow			
-40 to 0°C ³¹	6.5E-5	cm/cm/°C	ASTM E831
-40 to 0°C ³²	6.9E-5	cm/cm/°C	ASTM E831
0 to 50°C ³³	7.4E-5	cm/cm/°C	ASTM E831

50 to 100°C ³⁴	7.9E-5	cm/cm/°C	ASTM E831
50 to 100°C ³⁵	1.1E-4	cm/cm/°C	ASTM E831
100 to 150°C ³⁶	1.3E-4	cm/cm/°C	ASTM E831
100 to 150°C ³⁷	1.4E-4	cm/cm/°C	ASTM E831
Electrical	Nominal Value	Unit	Test Method
Dielectric Strength			ASTM D149
-- ³⁸	14 to 15	kV/mm	
-- ³⁹	15 to 16	kV/mm	
Dielectric Constant			ASTM D150
60 Hz ⁴⁰	3.28		
60 Hz ⁴¹	3.53		
1 kHz ⁴²	3.44		
1 kHz ⁴³	3.23		
1 MHz ⁴⁴	3.04		
1 MHz ⁴⁵	3.21		
NOTE			
1.	UV Postcure at HOC +3		
2.	UV Postcure & Thermal Postcure		
3.	UV Postcure at HOC -2		
4.	UV Postcure at HOC +3		
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 at HOC +3		
23.	UV Postcure & Thermal Postcure		
24.	UV Postcure at HOC -2		
25.	UV Postcure & Thermal Postcure		
26.	UV Postcure at HOC -2		

27.	UV Postcure at HOC -2
28.	UV Postcure & Thermal Postcure
29.	UV Postcure at HOC -2
30.	UV Postcure & Thermal Postcure
31.	UV Postcure & Thermal Postcure
32.	UV Postcure at HOC -2
33.	UV Postcure at HOC -2
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

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Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

