



## Product Data Sheet

# Somos<sup>®</sup> 9420

### Description

DSM's Somos<sup>®</sup> 9420 is a liquid photopolymer that produces robust, functional and accurate parts using stereolithography machines. The material offers superior chemical resistance and a wide processing latitude. With mechanical properties that mimic many engineering plastics, parts created from Somos<sup>®</sup> 9420 exhibit superior fatigue resistance, strong memory retention and high quality up-facing and down-facing surfaces. Somos<sup>®</sup> 9420 also offers a good balance of properties between rigidity and functionality.

### Applications

This photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. This material is also useful in creating parts for applications where durability and robustness are critical requirements (e.g., automobile components, electronic housings, medical products, large panels and snap-fit parts).

#### TECHNICAL DATA - LIQUID PROPERTIES

Appearance	Off White
Viscosity	~475 cps @ 30°C
Density	~1.13 g/cm <sup>3</sup> @ 25°C

#### TECHNICAL DATA - OPTICAL PROPERTIES

E <sub>c</sub>	15.0 mJ/cm <sup>2</sup>	[critical exposure]
D <sub>p</sub>	5.4 mils	[slope of cure-depth vs. ln (E) curve]
E <sub>10</sub>	95 mJ/cm <sup>2</sup>	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA					
Mechanical Properties		Somos® 9420 UV Postcure		Polypropylene*	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	17 - 20 MPa	2.5 - 2.9 ksi	31 - 37.2 MPa	4.5 - 5.4 ksi
D638M	Elongation at Yield	25 - 30%	25 - 30%	7 - 13%	7 - 13%
D638M	Poisson's Ratio	0.43	0.43	N/A	N/A
D638M	Modulus of Elasticity	553 - 850 MPa	80 - 120 ksi	1,138 - 1,515 MPa	110 - 230 ksi
D790M	Flexural Strength	24 - 30 MPa	3.5 - 4.4 ksi	41 - 55 MPa	6.0 - 8.0 ksi
D790M	Flexural Modulus	768 - 900 MPa	110 - 130 ksi	1,172 - 1,724 MPa	170 - 250 ksi
D2240	Izod Impact (Notched)	0.44 - 0.48 J/cm	0.82 - 0.90 ft-lb/in	0.21 - 0.75 J/cm	0.4 - 1.4 ft-lb/in
D256A	Hardness (Shore D)	70 - 74	70 - 74	N/A	N/A
D570-98	Water Absorption	0.93%	0.93%	N/A	N/A

TECHNICAL DATA					
Thermal/Electrical Properties		Somos® 9420 UV Postcure		Polypropylene*	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	96.8 µm/m°C	53.8 µin/in°F	50.0 - 146 µm/m°C (no temp range given)	28 - 81 µin/in°F (no temp range given)
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	149.5 µm/m°C	83.0 µin/in°F		
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	178.7 µm/m°C	99.3 µin/in°F		
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	144.0 µm/m°C	80.0 µin/in°F		
D150-98	Dielectric Constant 60 Hz	5.33	5.33	2.9 - 4.0 (no frequency specified)	2.9 - 4.0 (no frequency specified)
D150-98	Dielectric Constant 1 KHz	4.66	4.66		
D150-98	Dielectric Constant 1 MHz	3.94	3.94		
D149-97a	Dielectric Strength	14.1 kV/mm	358 V/mil	14.7 - 30.0 kV/mm	373 - 762 V/mil
E1545-00	Tg	57 - 60°C	135 - 140°F	41°C	106°F
D648	HDT @ 0.46 MPa (66 psi)	47 - 50°C	117 - 122°F	150°C	302°F
D648	HDT @ 1.81 MPa (264 psi)	36 - 38°C	97 - 100°F	61°C	142°F

## DSM Functional Materials Somos® Materials Group

### in North America

1122 St. Charles Street  
Elgin, Illinois 60120  
USA  
Phone: +1.847.697.0400

### in Europe

Slachthuisweg 30  
3150 XN Hoek van Holland  
The Netherlands  
Phone: +31.174.315.391

### in China

476 Li Bing Road  
Zhangjiang Hi-Tech Park  
Pudong New Area  
Shanghai 201203, China  
Phone: +86.21.6141.8064

Visit us online at [www.dsm.com/somos](http://www.dsm.com/somos)

NOTICE: Somos® is a registered trademark of Royal DSM N.V. Somos® is an unincorporated subsidiary of DSM Desotech Inc. The information presented herein is based on generally accepted analytical and testing practices and is believed to be accurate. However, DSM Desotech expressly disclaims any product warranties which may be implied including warranties of merchantability and/or fitness for a particular purpose. DSM Desotech's products are sold subject to DSM Desotech's standard terms and conditions of sale, copies of which are available upon request. Purchasers are responsible for determining the suitability of the product for its intended use and the appropriate manner of utilizing the product in purchaser's production processes and applications so as to insure safety, quality and effectiveness. Purchasers are further responsible for obtaining necessary patent rights to practice any invention in connection with the use of purchased product and any other product or process. DSM Desotech reserves the right to change specifications of their products without notice.  
© 2012 DSM IP ASSESTS B.V. All rights reserved.