

# DSM Somos® 9420

a DSM Product

## Description

DSM Somos® 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 9420 exhibit superior fatigue resistance, strong memory retention and high quality up-facing and down-facing surfaces. Somos 9420 also offers a good balance of properties between rigidity and functionality.

## Application

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).



DSM Somos® 9420 is a liquid photopolymer that produces robust, functional and accurate parts using stereolithography machines.

## Key Product Benefits:

- Functional parts
- Durable parts
- Extremely accurate

## 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]

(continued)

For technical service, please visit: <http://www.dsmsomos.com>

Rev Date: 10/09

# DSM Somos® 9420

## Technical Data: Mechanical Properties

		Somos® 9420 UV Postcure		Polypropylene*	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	17 – 20 MPa	2,450 – 2,900 psi	31.0 – 37.2 MPa	4.5 – 5.4 ksi
D638M	Elongation at Yield	25 – 30 %	25 – 30 %	7.0 – 13 % (yield)	7 – 13 % (yield)
D638M	Poisson's Ratio	0.43	0.43	not recorded	not recorded
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	not recorded	not recorded
D570-98	Water Absorption	0.93 %	0.93 %	not recorded	not recorded

\*<http://www.matweb.com>

## Technical Data: Thermal/Electrical Properties

		Somos® 9420 UV Postcure		Polypropylene*	
E831-05	C.T.E. -40°C - 0°C (-40°F – 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° C - 50°C (32°F – 122°F)	149.5 µm/m°C	83.0 µin/in°F		
E831-05	C.T.E. 50°C - 100°C (122°F – 212°F)	178.7 µm/m°C	99.3 µin/in°F		
E831-05	C.T.E. 100°C - 150°C (212°F – 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 1KHz	4.66	4.66		
D150-98	Dielectric Constant 1MHz	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

\*<http://www.matweb.com>

Rev Date: 5/08

[www.dsmsomos.com](http://www.dsmsomos.com)



**DSM Somos®**  
1122 St. Charles Street  
Elgin, Illinois 60120 USA  
Tel: +1-847-697-0400  
Fax: +1-847-468-7785

**DSM Desotech bv**  
3150 AB Hoek van Holland  
The Netherlands  
Tel: +31-1743-15391  
Fax: +31-1743-15530

**Applied Rapid Technologies**  
1130 International Pkwy  
Fredericksburg, VA 22406  
Tel: 540-286-2266  
Fax: 540-286-5252  
[www.artcorp.com](http://www.artcorp.com)

NOTICE : DSM 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 warranty 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.