

Product Data

Sales Agent:



RP Support Ltd.

14 Bridgegate Business Park
Gatehouse Way
Aylesbury

Buckinghamshire
HP19 8XN
United Kingdom

Tel: 44 (0)1296 425665
Fax: 44 (0)1296 425665
www.rpsupport.co.uk

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 ³ @ 25° C

Technical Data: Optical Properties

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

(continued)

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

Rev Date: 10/09

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Technical Data: Mechanical Properties

ASTM Method	Property Description	Somos® 9420 UV Postcure		Polypropylene*	
		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

ASTM Method	Property Description	Somos® 9420 UV Postcure		Polypropylene*	
		Metric	Imperial	Metric	Imperial
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



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

DSM Desotech-China

476 Li Bing Road
Zhangjiang Hi-Tech Park,
Pudong New Area
Shanghai 201203, China
Tel: +(86) 21-6141 8064
Fax: +(86) 21-6141 8088

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