

# DSM Somos® 9120

a DSM Product

## Description

DSM Somos® 9120 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 9120 exhibit superior fatigue properties, strong memory retention and high quality up-facing and down-facing surfaces. Somos 9120 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).

## Technical Data: Liquid Properties

|            |                                |
|------------|--------------------------------|
| Appearance | Off White                      |
| Viscosity  | ~450 cps @ 30° C               |
| Density    | 1.13 g/cm <sup>3</sup> @ 25° C |

## Technical Data: Optical Properties

|                 |                         |  |
|-----------------|-------------------------|--|
| E <sub>c</sub>  | 10.9 mJ/cm <sup>2</sup> | [critical exposure]                                  |
| D <sub>p</sub>  | 5.60 mils               | [slope of cure-depth vs. ln(E) curve]                |
| E <sub>10</sub> | 65 mJ/cm <sup>2</sup>   | [exposure that gives 0.254 mm (.010 inch) thickness] |



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## Key Product Benefits:

- Functional parts
- Durable parts
- Extremely accurate

(continued)

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

Rev Date: 10/09

# Somos<sup>®</sup> 9120

## Technical Data: Mechanical Properties

| Technical Data:<br>Mechanical Properties |                        | Somos <sup>®</sup> 9120<br>UV Postcure | Polypropylene*    |
|--|------------------------|--|-------------------|
| ASTM Method                              | Property Description   | Metric                                 | Metric            |
| D638M                                    | Tensile Strength       | 30 – 32 MPa                            | 31 – 37.2 MPa     |
| D638M                                    | Elongation at Yield    | 15 – 25%                               | 7 – 13 %          |
| D638M                                    | Young's Modulus        | 1,227 – 1,462 MPa                      | 1,138 – 1,551 MPa |
| D790M                                    | Flexural Strength      | 44 – 46 MPa                            | 41 – 55 MPa       |
| D790M                                    | Flexural Modulus       | 1,310 – 1455 MPa                       | 1,172 – 1,724 MPa |
| D2240                                    | Hardness (Shore D)     | 80 – 82                                | N/A               |
| D256A                                    | Izod Impact (notched)  | 48 – 53 J/m                            | 21 – 75 J/m       |
| D570-98                                  | Deflection Temperature | 52 – 61 °C                             | 107 – 121°C       |

\*Unfilled polypropylene (Reference: Modern Plastics Encyclopedia, 1997)

## Technical Data: Mechanical Properties

| Technical Data:<br>Mechanical Properties |                        | Somos <sup>®</sup> 9120<br>UV Postcure | Polypropylene*        |
|--|------------------------|--|-----------------------|
| ASTM Method                              | Property Description   | Imperial                               | Imperial              |
| D638M                                    | Tensile Strength       | 4.4 – 4.7 ksi                          | 4.5 – 5.4 ksi         |
| D638M                                    | Elongation at Yield    | 15 - 21 %                              | 7 – 13%               |
| D638M                                    | Young's Modulus        | 178 – 212 ksi                          | 165 – 225 ksi         |
| D790M                                    | Flexural Strength      | 6.0 – 6.7 ksi                          | 6.0 – 8.0 ksi         |
| D790M                                    | Flexural Modulus       | 190 – 210 ksi                          | 170,000 – 250,000 psi |
| D2240                                    | Hardness (Shore D)     | 80 – 82                                | N/A                   |
| D256A                                    | Izod Impact (notched)  | 0.9 – 1.0 ft-lb/in                     | 0.4 – 1.4 ft-lb/in    |
| D570-98                                  | Deflection Temperature | 126 – 142°F                            | 225 – 250 °F          |

\*Unfilled polypropylene (Reference: Modern Plastics Encyclopedia, 1997)

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



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