Product Description
DSM Somos® ProtoGen™ 18420 is a liquid, ABS-like, photopolymer that produces accurate parts ideal for general purpose applications. ProtoGen resins are the first stereolithography resins to demonstrate different material properties based on machine exposure control. Based on Somos Oxetane™ chemistry, ProtoGen 18420 offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad range of temperatures and humidities, both during and after build.

Applications
This high-temperature resistant, ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. Somos ProtoGen 18420 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 and humidity & temperature resistant parts.

Technical Data: Liquid Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White</td>
</tr>
<tr>
<td>Viscosity</td>
<td>~350 cps @ 30°C</td>
</tr>
<tr>
<td>Density</td>
<td>1.16 g/cm³ @ 25°C</td>
</tr>
</tbody>
</table>

Technical Data: Optical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_c$</td>
<td>6.73 mJ/cm² [critical exposure]</td>
</tr>
<tr>
<td>$D_p$</td>
<td>4.34 mils [slope of cure-depth vs. ln(E) curve]</td>
</tr>
<tr>
<td>$E_{10}$</td>
<td>67.6 mJ/cm² [exposure that gives 0.254 mm (.010 inch) thickness]</td>
</tr>
</tbody>
</table>

ProtoGen™ 18420 is a liquid, ABS-like photopolymer that produces accurate parts ideal for general purpose applications.

Key Product Benefits:
- Humidity & Temperature Tolerant
- High Dimensional Stability
- Fast Processing Speeds
## Technical Data: Mechanical Properties

<table>
<thead>
<tr>
<th>ASTM Method</th>
<th>Property Description</th>
<th>Metric</th>
<th>Imperial</th>
<th>Metric</th>
<th>Imperial</th>
<th>Metric</th>
<th>Imperial</th>
</tr>
</thead>
<tbody>
<tr>
<td>D638M</td>
<td>Tensile Strength</td>
<td>42.2 - 43.8 MPa</td>
<td>6.1 - 6.4 ksi</td>
<td>56.9 - 57.1 MPa</td>
<td>8.2 - 8.3 ksi</td>
<td>66.1 - 68.1 MPa</td>
<td>9.6 - 9.9 ksi</td>
</tr>
<tr>
<td>D638M</td>
<td>Tensile Modulus</td>
<td>2,180 - 2,310 MPa</td>
<td>316 - 336 ksi</td>
<td>2,540-2,620MPa</td>
<td>370 - 380 ksi</td>
<td>2,880 - 2,960 MPa</td>
<td>417 - 430 ksi</td>
</tr>
<tr>
<td>D638M</td>
<td>Elongation at Break</td>
<td>8 - 16%</td>
<td>8 - 16%</td>
<td>8 - 12%</td>
<td>8 - 12%</td>
<td>6 - 9%</td>
<td>5 - 9%</td>
</tr>
<tr>
<td>D638M</td>
<td>Poisson’s Ratio</td>
<td>0.43 - 0.45</td>
<td>0.43 - 0.45</td>
<td>not recorded</td>
<td>not recorded</td>
<td>0.40 - 0.42</td>
<td>0.40 - 0.42</td>
</tr>
<tr>
<td>D790M</td>
<td>Flexural Strength</td>
<td>66.7 - 70.5 MPa</td>
<td>9.7 - 10.2 ksi</td>
<td>83.8 - 86.7 MPa</td>
<td>12.2 - 12.6 ksi</td>
<td>84.9 - 87.7 MPa</td>
<td>12.3 - 12.7 ksi</td>
</tr>
<tr>
<td>D790M</td>
<td>Flexural Modulus</td>
<td>1,990 - 2,130 MPa</td>
<td>289 - 309 ksi</td>
<td>2,400-2,450MPa</td>
<td>350 - 355 ksi</td>
<td>2,280 - 2,340 MPa</td>
<td>331 - 339 ksi</td>
</tr>
<tr>
<td>D2240</td>
<td>Hardness (Shore D)</td>
<td>86 - 88</td>
<td>87 - 88</td>
<td>not recorded</td>
<td>not recorded</td>
<td>86 - 87</td>
<td>86 - 87</td>
</tr>
<tr>
<td>D256A</td>
<td>Izod Impact-Notched</td>
<td>0.20 - 0.22 J/cm</td>
<td>0.37 - 0.41 ft-lb/in</td>
<td>not recorded</td>
<td>not recorded</td>
<td>0.015 J/cm</td>
<td>0.17 - 0.39 ft-lb/in</td>
</tr>
<tr>
<td>D570-98</td>
<td>Water Absorption</td>
<td>0.68%</td>
<td>0.68%</td>
<td>not recorded</td>
<td>not recorded</td>
<td>0.61%</td>
<td>0.61%</td>
</tr>
</tbody>
</table>

## Technical Data: Thermal/Electrical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Metric</th>
<th>Imperial</th>
</tr>
</thead>
<tbody>
<tr>
<td>E831-05</td>
<td>35.3 - 37.1 μm/m- ºC</td>
<td>3.5 - 3.6 ft-lb/in</td>
</tr>
<tr>
<td>E831-05</td>
<td>48.8 - 51.7 μm/m- ºC</td>
<td>11.4 - 13.5 μm/m- ºC</td>
</tr>
<tr>
<td>E831-05</td>
<td>11.4 - 95.5 μm/m- ºC</td>
<td>129.5 - 138.1 μm/m- ºC</td>
</tr>
<tr>
<td>D150-98</td>
<td>3.5 - 3.6</td>
<td>3.4 - 3.5</td>
</tr>
<tr>
<td>D150-98</td>
<td>3.1 - 3.3</td>
<td>3.4 - 3.5</td>
</tr>
<tr>
<td>D149-97a</td>
<td>13.2 - 14.2 kV/mm</td>
<td>53 - 56°C</td>
</tr>
<tr>
<td>E1545-00</td>
<td>135 - 138°C</td>
<td>57 - 59°C</td>
</tr>
<tr>
<td>D648</td>
<td>324 - 359 V/mil</td>
<td>199 - 208°F</td>
</tr>
<tr>
<td>D648</td>
<td>114 - 116°C</td>
<td>172 - 205°F</td>
</tr>
</tbody>
</table>

*The data in this column was collected from internal testing.*