# DSM Somos® ProtoGen™ 18920 Liquid Photopolymer, UV Postcure

**Category :** Polymer , Rapid Prototyping Polymer

**Material Notes:**

Product DescriptionDSM Somos® ProtoGen 18920 is a liquid photopolymer that produces accurate, ABS-like parts ideal for general purpose applications. ProtoGen resins are the first SL resins to demonstrate different material properties based on machine exposure control. Based on Somos Oxetane™ chemistry, ProtoGen 18920 offers superior chemical resistance, a wide processing latitude and excellent tolerance to a broad range of temperatures and humidities, both during and after build.ApplicationsThis high-temperature resistant, ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. Somos ProtoGen 18920 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.Key Product BenefitsHumidity & Temperature TolerantExcellent Dimensional StabilityFast Processing SpeedsInformation Provided by DSM Desotech Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_DSM-Somos-ProtoGen-18920-Liquid-Photopolymer-UV-Postcure.php

| Physical Properties | Metric | English | Comments |
|---|---|---|---|
| Density | 1.16 g/cc<br>@Temperature 25.0 °C | 0.0419 lb/in³<br>@Temperature 77.0 °F | |
| Water Absorption | 0.78 % | 0.78 % | ASTM D570-98 |
| Viscosity | 350 cP<br>@Temperature 30.0 °C | 350 cP<br>@Temperature 86.0 °F | |

| Mechanical Properties | Metric | English | Comments |
|---|---|---|---|
| Hardness, Shore D | 85.6 - 86.4 | 85.6 - 86.4 | ASTM D2240 |
| Tensile Strength, Yield | 46.6 - 47.8 MPa | 6760 - 6930 psi | ASTM D638M |
| Elongation at Break | 13 - 19 % | 13 - 19 % | ASTM D638M |
| Tensile Modulus | 2.103 - 2.317 GPa | 305.0 - 336.1 ksi | ASTM D638M |
| Flexural Strength | 73.0 - 75.0 MPa | 10600 - 10900 psi | ASTM D790M |
| Flexural Modulus | 2.126 - 2.314 GPa | 308.4 - 335.6 ksi | ASTM D790M |
| Izod Impact, Notched | 0.140 - 0.280 J/cm | 0.262 - 0.525 ft-lb/in | ASTM D256A |

| Thermal Properties | Metric | English | Comments |
|---|---|---|---|
| CTE, linear | 69.4 µm/m-°C<br>@Temperature -40.0 - 0.000 °C | 38.6 µin/in-°F<br>@Temperature -40.0 - 32.0 °F | ASTM E831-05 |

| Thermal Properties | Metric | English | Comments |
|---|---|---|---|
| | 74.0 µm/m-°C<br>@Temperature 0.000 - 50.0 °C | 41.1 µin/in-°F<br>@Temperature 32.0 - 122 °F | ASTM E831-05 |
| | 106 µm/m-°C<br>@Temperature 50.0 - 100 °C | 58.9 µin/in-°F<br>@Temperature 122 - 212 °F | ASTM E831-05 |
| | 130.3 µm/m-°C<br>@Temperature 100 - 150 °C | 72.39 µin/in-°F<br>@Temperature 212 - 302 °F | ASTM E831-05 |
| Deflection Temperature at 0.46 MPa (66 psi) | 58.7 °C | 138 °F | ASTM D648-98c |
| Deflection Temperature at 1.8 MPa (264 psi) | 51.0 °C | 124 °F | ASTM D648-98c |
| Glass Transition Temp, Tg | 69.0 °C | 156 °F | ASTM E1545-00 |

| Electrical Properties | Metric | English | Comments |
|---|---|---|---|
| Dielectric Constant | 3.21<br>@Frequency 1.00e+6 Hz | 3.21<br>@Frequency 1.00e+6 Hz | ASTM D150-98 |
| | 3.44<br>@Frequency 1000 Hz | 3.44<br>@Frequency 1000 Hz | ASTM D150-98 |
| | 3.53<br>@Frequency 60.0 Hz | 3.53<br>@Frequency 60.0 Hz | ASTM D150-98 |
| Dielectric Strength | 15.4 - 15.9 kV/mm | 391 - 404 kV/in | ASTM D149-97a |

| Descriptive Properties | Value | Comments |
|---|---|---|
| Appearance | Gray | |
| Dp (mm) | 0.107 | Slope of cure-depth vs. ln(E) curve |
| E10 (mJ/cm2) | 75.7 | Exposure that gives 0.254mm thickness |
| Ec (mJ/cm2) | 7 | Critical exposure |

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