

Product Data

Somos[®] ProtoCast 19122

Description

DSM's Somos[®] ProtoCast 19122 is a breakthrough for the investment casting industry. It is an antimony-free liquid photopolymer specifically formulated for producing investment casting patterns.

Applications

Ideal for use in foundry applications, Somos[®] ProtoCast 19122 is totally antimony-free, which eliminates the risk of contamination in specialty alloys. Antimony is traditionally present in the photoinitiators that activate the stereolithography chemistry. No other metals are present in this unique photopolymer chemistry.

The absence of antimony also allows stereolithography patterns to burn out more completely, resulting in significantly lower residual ash than is produced by burning out conventional stereolithography patterns. Studies have shown that the residual ash of Somos[®] ProtoCast 19122 is less than 0.015% after burnout at 1500°F for two hours.

TECHNICAL DATA - LIQUID PROPERTIES

| | |
|------------|--------------------------------|
| Appearance | Clear Peach |
| Viscosity | ~100 cps @ 30°C |
| Density | ~1.13 g/cm ³ @ 25°C |

TECHNICAL DATA - OPTICAL PROPERTIES

| | | |
|-----------------|-------------------------|--|
| E _c | 11.5 mJ/cm ² | [critical exposure] |
| D _p | 5.20 mils | [slope of cure-depth vs. ln (E) curve] |
| E ₁₀ | 85 mJ/cm ² | [exposure that gives 0.254 mm (.010 inch) thickness] |

| TECHNICAL DATA | | | |
|-----------------------|---------------------------|---------------------------------------|----------------------|
| Mechanical Properties | | Somos® ProtoCast 19122 UV Postcure | |
| ASTM Method | Property Description | Metric | Imperial |
| D638M | Tensile Modulus | 2,013 - 2,187 MPa | 292.0 - 317.2 ksi |
| D638M | Tensile Strength at Break | 44.5 - 45.3 MPa | 6.5 - 6.6 ksi |
| D638M | Elongation at Break | 6% | 6% |
| D790M | Flexural Strength | 73 - 76 MPa | 10.6 - 11.0 ksi |
| D2240 | Flexural Modulus | 2,135 - 2,265 MPa | 309.7 - 328.5 ksi |
| D2240 | Hardness (Shore D) | 84 - 86 | 84 - 86 |
| D256A | Izod Impact (Notched) | 0.17 - 0.29 J/cm | 0.32 - 0.54 ft-lb/in |
| D570-98 | Water Absorption | 0.70% | 0.70% |

| TECHNICAL DATA | | | |
|-------------------------------|----------------------------------|--|--|
| Thermal/Electrical Properties | | Somos® ProtoCast 19122 UV Postcure | |
| ASTM Method | Property Description | Metric | Imperial |
| E831-05 | C.T.E. -40 - 0°C (-40 - 32°F) | 74.1 $\mu\text{m}/\text{m}^\circ\text{C}$ | 41.2 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| E831-05 | C.T.E. 0 - 50°C (32 - 122°F) | 96.3 $\mu\text{m}/\text{m}^\circ\text{C}$ | 53.5 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| E831-05 | C.T.E. 50 - 100°C (122 - 212°F) | 141.8 $\mu\text{m}/\text{m}^\circ\text{C}$ | 78.8 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| E831-05 | C.T.E. 100 - 150°C (212 - 302°F) | 182.0 $\mu\text{m}/\text{m}^\circ\text{C}$ | 101.1 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| D150-98 | Dielectric Constant 60 Hz | 3.16 | 3.16 |
| D150-98 | Dielectric Constant 1 KHz | 3.12 | 3.12 |
| D150-98 | Dielectric Constant 1 MHz | 2.94 | 2.94 |
| D149-97A | Dielectric Strength | 14.53 - 15.24 kV/mm | 369 - 387 V/mil |
| E1545-00 | Tg | 49°C | 120°F |
| D648 | HDT @ 0.46 MPa (66 psi) | 59°C | 138°F |
| D648 | HDT @ 1.81 MPa (264 psi) | 50°C | 122°F |

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