

# Somos® BioClear™

## Stereolithography

Improve efficiency with clear, accurate guides and models.

Perform faster, more accurate procedures with customized cutting guides and surgical models made with Somos® BioClear. Not only will this decrease the recovery time for patients, it can also lessen the chances of repeat procedures.

Somos® BioClear fulfills the requirements for non-implantable limited body contact (<24hr) medical and dental applications. Somos® BioClear has passed stringent ISO 10993-5 Cytotoxicity, ISO 10993-10 Irritation & Sensitization and USP Class VI testing, after following the cleaning procedure as described in the Somos® BioClear user guide.

Parts produced from Somos® BioClear are accurate, clear and have ABS-like mechanical properties and a good combination of strength and toughness. The material is resistant to moisture and many common solvents and chemicals.



### Key Benefits

- High accuracy and surface quality
- High moisture resistance
- Exceptional clarity facilitates inspection of feature detail and quality
- Resistant to common solvents

### Ideal Applications

- Anatomical models for surgical planning
- Surgical guides
- Non-implantable/limited contact medical applications
- Functional prototypes with body contact

| Liquid Properties |                                 |                                  |                          |
|-------------------|---------------------------------|----------------------------------|--------------------------|
|                   | UV Postcure                     | 24h Post Autoclave Sterilization | Post Gamma Sterilization |
| Appearance        | Optically clear, near colorless | Optically clear, near colorless  | Green, opaque            |
| Viscosity         | ~260 cps @ 30°C                 |                                  |                          |
| Density           | ~1.12 g/cm³ @ 25°C              |                                  |                          |

| Optical Properties |             |  |
|--------------------|-------------|--|
| $E_c$              | 11.5 mJ/cm² | [critical exposure]                                  |
| $D_p$              | 6.5 mils    | [slope of cure-depth vs. ln (E) curve]               |
| $E_{10}$           | 54 mJ/cm²   | [exposure that gives 0.254 mm (.010 inch) thickness] |

| Mechanical Properties |                           | UV Postcure |               | 24h Post Autoclave Sterilization |               | Post Gamma Sterilization |               |
|-----------------------|---------------------------|-------------|---------------|----------------------------------|---------------|--------------------------|---------------|
| ASTM                  | Property Description      | Metric      | Imperial      | Metric                           | Imperial      | Metric                   | Imperial      |
| D638M                 | Tensile Strength at Break | 50.4 MPa    | 7.3 ksi       |                                  |               |                          |               |
| D638M                 | Elongation at Break       | 15.5%       |               | 9.1%                             |               | 8.6%                     |               |
| D638M                 | Elongation at Yield       | 3%          |               |                                  |               |                          |               |
| D638M                 | Modulus of Elasticity     | 2,770 MPa   | 402 ksi       | 2,039 MPa                        | 296 ksi       | 2,662 MPa                | 386 ksi       |
| D790M                 | Flexural Strength         | 68.7 MPa    | 10 ksi        |                                  |               |                          |               |
| D2240                 | Flexural Modulus          | 2,205 MPa   | 320 ksi       |                                  |               |                          |               |
| D256A                 | Izod Impact (Notched)     | 25 J/cm     | 0.47 ft-lb/in | 50.2 J/m                         | 0.94 ft-lb/in | 51.3 J/m                 | 0.96 ft-lb/in |
| D542                  | Index of Refraction       | 1,514       |               |                                  |               |                          |               |
| D570-98               | Water Absorption          | 0.35%       |               | 0.87%                            |               |                          |               |

| Thermal/Electrical Properties |                                      | UV Postcure                              |  |
|-------------------------------|--------------------------------------|--|--|
| ASTM                          | Property Description                 | Metric                                   | Imperial                                   |
| E831-05                       | C.T.E. 40°C – 0°C (-40°F – 32°F)     | 67 $\mu\text{m}/\text{m}^\circ\text{C}$  | 37 $\mu\text{in}/\text{in}^\circ\text{F}$  |
| E831-05                       | C.T.E. 0°C – 50°C (32°F – 122°F)     | 93 $\mu\text{m}/\text{m}^\circ\text{C}$  | 52 $\mu\text{in}/\text{in}^\circ\text{F}$  |
| E831-05                       | C.T.E. 50°C – 100°C (122°F – 212°F)  | 180 $\mu\text{m}/\text{m}^\circ\text{C}$ | 100 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| E831-05                       | C.T.E. 100°C – 150°C (212°F – 302°F) | 187 $\mu\text{m}/\text{m}^\circ\text{C}$ | 104 $\mu\text{in}/\text{in}^\circ\text{F}$ |
| D150-98                       | Dielectric Constant 60 Hz            | 4  |  |
| D150-98                       | Dielectric Constant 1KHz             | 3.8                                      |  |
| D150-98                       | Dielectric Constant 1MHz             | 3.5                                      |  |
| D149-97a                      | Dielectric Strength                  | 15.9 kV/mm                               | 404 V/mil                                  |
| E1545-00                      | Tg                                   | 43°C                                     | 109°F                                      |
| D648                          | HDT @ 0.46 MPa (66 psi)              | 50°C                                     | 122°F                                      |
| D648                          | HDT @ 1.81 MPa (264 psi)             | 49°C                                     | 120°F                                      |

These values may vary and depend on individual machine processing and post-curing practices.

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