

OPTIX DA - Digital Acrylic Properties

| Physical                          | Test method     | Units   | OPTIX DA |
|-----------------------------------|-----------------|---------|----------|
| Specific Gravity/Relative Density | ASTM D-792      |         | 1.19     |
| Optical Refractive Index          | ASTM D-542      |         | 1.49     |
| Light Transmission -Total         | ASTM D-1003     | %       | 92       |
| Light Transmission - Haze         | ASTM D-1003     | %       | 2        |
| Sound Transmission                | ASTM E90 / E413 | db      | 27       |
| Water Absorption                  | ASTM D-570      | % By wt | 0.4      |
| Shrinkage                         | ASTM D-4802     | %       | <5       |

| Chemical   | Test method                       | Units | OPTIX DA |
|--|-----------------------------------|-------|----------|
| Resistance to Stress - Critical<br>Crazing Stress to: Isopropyl<br>Alcohol | ARTC Modification of<br>MIL-P6997 | psi   | 900      |
| Resistance to Stress - Critical<br>Crazing Stress to: Lacquer<br>Thinner   | ARTC Modification of<br>MIL-P6997 | psi   | 500      |
| Resistance to Stress - Critical<br>Crazing Stress to: Toluene              | ARTC Modification of<br>MIL-P6997 | psi   | 1,300    |
| Resistance to Stress - Critical<br>Crazing Stress to: Solvesso 100         | ARTC Modification of<br>MIL-P6997 | psi   | 1,600    |

| Mechanical   | Test method | Units                 | OPTIX DA |
|--|-------------|-----------------------|----------|
| Tensile Strength                                     | ASTM D-638  | psi                   | 11,030   |
| Tensile Elongation – Max.                            | ASTM D-638  | %                     | 5.8      |
| Tensile Modulus of Elasticity                        | --          | psi                   | 490,000  |
| Flexural Strength                                    | ASTM D-790  | psi                   | 17,000   |
| Flexural Modulus of Elasticity                       | ASTM D-790  | psi                   | 490,000  |
| Izod Impact Strength – Molded<br>Notch               | ASTM D-256  | ft-lb/in Notch        | 0.4      |
| Izod Impact Strength – Milled<br>Notch               | ASTM D-256  | ft-lb/in Notch        | 0.28     |
| Tensile Impact Strength                              | ASTM D-1822 | ft-lb/in <sup>2</sup> | 20       |
| Abrasion Resistance - Change in<br>Haze - 0 cycles   | ASTM D-1044 | Haze, %               | 0        |
| Abrasion Resistance - Change in<br>Haze - 10 cycles  | ASTM D-1044 | Haze, %               | 11.2     |
| Abrasion Resistance - Change in<br>Haze - 50 cycles  | ASTM D-1044 | Haze, %               | 24       |
| Abrasion Resistance - Change in<br>Haze - 200 cycles | ASTM D-1044 | Haze, %               | 24.9     |
| Rockwell Hardness                                    | ASTM D-785  |                       | M-95     |

| Thermal  | Test method | Units                           | OPTIX DA |
|--|-------------|---------------------------------|----------|
| Maximum Recommended Continuous Service Temperature |             | °F                              | 170-190  |
| Softening Temperature                              |             | °F                              | 210-220  |
| Melting Temperature                                |             | °F                              | 300-315  |
| Deflection Temperature @ 264 psi (1.8 MPa)         | ASTM D-648  | °F                              | 203      |
| Deflection Temperature @ 66 psi (0.45 MPa)         | ASTM D-648  | °F                              | 207      |
| Coefficient of Thermal Expansion                   | ASTM D-696  | in/(in-°F ) x 10 <sup>-5</sup>  | 3.0      |
| Thermal Conductivity                               | ASTM C-177  | BTU-ft/(hr-ft <sup>2</sup> -°F) | 0.075    |
| Flammability (Burning Rate)                        | ASTM D-635  | In/minute                       | 1.019    |
| Flammability                                       | UL 94       |                                 | HB       |
| Smoke Density Rating                               | ASTM D-2843 | %                               | 3.4      |
| Self-Ignition Temperature                          | ASTM D-1929 | °F                              | 833      |
| Flame Spread Index                                 | ASTM E-84   |                                 | 115      |
| Smoke Developed Index                              | ASTM E-84   |                                 | 550      |



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