

DATA SHEET

Lexan 8010 Film

DESCRIPTION

Lexan® 8010 Film polycarbonate film offers excellent clarity in all thicknesses, high heat resistance, and superior dimensional stability for graphic art applications. Derived from one of the world's toughest polymers, Lexan 8010 Film also provides a high gloss surface finish while meeting additional requirements for added UV stability. Additional enhancements allow improved gauge control (see reverse for details).

Typical Property Values ¹

| Property | ASTM Test Method | Units (USCS) | Value | ISO Test Method | Units (SI) | Value |
|---|-----------------------|-------------------------------|---------|-----------------|--------------------------|---------|
| Mechanical | | | | | | |
| Tensile Strength | | | | | | |
| @ Yield | ASTM D882 | psi | 8500 | ISO 527 | MPa | 62 |
| Ultimate | ASTM D882 | psi | 9000 | ISO 527 | MPa | 65 |
| Tensile Modulus | ASTM D882 | psi | 300000 | ISO 527 | MPa | 2506 |
| Tensile Elongation at Break | ASTM D882 | % | 100-150 | ISO 527 | % | 100-154 |
| Gardner Impact Strength at 0.03 in. (0.75 mm) | ASTM D3029 | ft-lb | 23 | ISO 6603-1 | J | 31 |
| Tear Strength | | | | | | |
| Initiation | ASTM D1004 | lb/mil | 1.4-1.8 | | kN/m | 245 |
| Propogation | ASTM D1922 | g/mil | 30-55 | | kN/m | 10-20 |
| Puncture Resistance (Dynatup) | ASTM D3763 | ft-lb | 9 | | J | 12 |
| Fold Endurance (MIT) | | | | | | |
| 0.010 inch (0.25 mm) | ASTM D2176-69 | double folds | 130 | | | 130 |
| 0.020 inch (0.50 mm) | ASTM D2176-69 | double folds | 35 | | | 35 |
| Thermal | | | | | | |
| Coefficient of Thermal Conductivity | ASTM D5470 | Btu/hr/ft ² /°F/in | 1.35 | | W/m ² K | 0.2 |
| Coefficient of Thermal Expansion | ASTM E831 | (x 10 ⁻⁵ /°F) | 3.2 | ISO 11359 | (x 10 ⁻⁵ /°C) | 5.8 |
| Specific Heat @ 40 °F (4 °C) | ASTM E1269 | Btu/lb/°F | 0.3 | | KJ/Kg-°C | 1.25 |
| Glass Transition Temperature | ASTM D3417/D3418 | °F | 307 | ISO 11357 | °C | 153 |
| Vicat Softening Temperature, B | ASTM 1525-00 Modified | °F | 323 | | °C | 160 |
| Heat Deflection Temp. by TMA at 1.8 MPa | | °F | 290 | ISO 75 Modified | °C | 145 |
| Shrinkage at 302 °F (150 °C) | ASTM D1204 | % | 1.40% | | % | 1.40% |
| Brittleness Temperature | ASTM D746 | °F | -211 | | °C | -135 |

Manufacturing Specifications

| Nominal Gauge Ranges | Min./Max Limit of Nominal |
|-------------------------------|---------------------------|
| 0.007" (0.175 mm) | ± 10% |
| 0.010-0.015" (0.250-0.375 mm) | ± 5% |
| 0.020-0.030" (0.500-0.750 mm) | ± 3% |

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|--|---------------------------|----------------------|----------|-----------------|-------------------|----------|
| Physical | | | | | | |
| Density | ASTM D792 | slug/ft ³ | 2.3 | ISO 1183 | kg/m ³ | 1200 |
| Water Absorption, 24 hrs. | ASTM D570 | % change | 0.35 | ISO 62 | % change | 0.35 |
| Surface Roughness (RMS) | ASME B46-1 | - | NA | | | |
| Surface Energy | ASTM D5946-01 | - | 34 | | | |
| Surface Tension | Dyne Pens | Dyne | 38-40 | | | |
| Pencil Hardness | ASTM D3363 | - | b-hb | | | |
| Taber Abrasion | ASTM D1044 | delta Haze | 28 | | | |
| Bayer Abrasion | Colts Labs test | Ratio | 0.38 | | | |
| Steel Wool Abrasion | Colts Labs test | Haze Gain | 15.44 | | | |
| Steel Wool Abrasion | Colts Labs test | Ratio | 0.08 | | | |
| Optical | | | | | | |
| Refractive Index @ 77 °F (25 °C) | ASTM D542A | - | 1.6 | | | |
| Light Transmission | ASTM D1003 | % | 91 | | | |
| Yellowness Index | ASTM D1925 | % | 0.7 | | | |
| Haze | ASTM D1003 | % | 0.4 | | | |
| Gloss over Flat Black min/max @ 60° | ASTM D523-60 | - | 170 | ISO 2813 | - | 170 |
| UV %Transmission at 380 nm | UV/Visual Spectroscopy | % | 29 | | | |
| Electrical | | | | | | |
| Dielectric Strength in oil, short time @ 72 °F (23 °C), 10 mils (0.25 mm) | ASTM D149-97a Method A | kV/mil | 1.81 | IEC 60243 | kV/mm | 71 |
| Dielectric Constant @ 60 Hz | ASTM D150 | - | 2.32 | IEC 60250 | - | 2.32 |
| @ 1,000,000 Hz | ASTM D150 | - | 2.3 | IEC 60250 | - | 2.3 |
| Dissipation Factor @ 60 Hz | ASTM D150 | - | 0.001 | IEC 60250 | - | 0.001 |
| @ 1,000,000 Hz | ASTM D150 | - | 0.006 | IEC 60250 | - | 0.006 |
| Volume Resistivity | ASTM D257 | Ω-cm | 8.65E+16 | IEC 60093 | Ω-cm | 8.65E+16 |
| Surface Resistivity | ASTM D257 | Ω/square | 5.24E+15 | IEC 60093 | Ω/square | 5.24E+15 |
| Arc Resistance, Tungsten Electrodes | ASTM D495 | s | 70 | | | |