Polycarbonate is best known for its impact resistance but has additional properties like: Optical transparency, excellent creep resistance, wide temperature range, high dimensional stability, good electrical characteristics and self-extinguishing behavior. Polycarbonate's good heat resistance offers a high melt temperature (it does require higher processing temperatures).

Polycarbonate is a tough, dimensionally stable, transparent thermoplastic that has many applications which demand high performance properties. This versatile thermoplastic maintains its properties over a wide range of temperatures, from -40°F to 280°F. It has the highest impact resistance of any Thermoplastic, transparent up to 2” in special grades, outstanding dimensional and thermal stability, exceptional machinability, stain resistant and non-toxic while having low water absorption.

Machine Grade is relatively stress free to permit the most demanding machining. It is also available in glass-filled. This polycarbonate grade is perfect for high performance uses in tough applications over a broad temperature range.

Window Grade is optically clear, providing total luminous transmittance and a very low haze factor. The high impact strength makes it resistant to repeated blows, shattering and spalling. Glass Filled Grade Glass-reinforced polycarbonate is primarily selected as a replacement for die-cast aluminum and zinc, when these metals are being used and an upgrade is desired. The coefficient of thermal expansion is reduced by nearly 75%, thus equaling that of some metals. While glass-reinforced has less impact strength than standard grades, it is still tougher and more impact resistant than most other plastics and die cast aluminum.

Benefits
Impact resistance
Durability
Machinability
Formability
Transparent
Easily cleaned
Scratches easily removed
Temperature range
UV stable
High dielectric strength

Applications
Medical components
Lenses
Equipment housings
Electronics
Defense
Automotive
Lighting fixtures
Vehicle windows
Structural parts
Nameplates and bezels

SHAPES AVAILABLE

SEE NEXT PAGE FOR ADDITIONAL INFORMATION

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers’ complete material property datasheets.

All values at 73°F (23°C) unless otherwise noted.
TYPICAL PROPERTIES of POLYCARBONATE

<table>
<thead>
<tr>
<th>ASTM or UL test</th>
<th>Property</th>
<th>Unfilled</th>
<th>30% Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>PHYSICAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D792</td>
<td>Density (lb/in³) (g/cm³)</td>
<td>0.043</td>
<td>0.052</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2</td>
<td>1.43</td>
</tr>
<tr>
<td>D570</td>
<td>Water Absorption, 24 hrs (%)</td>
<td>0.12</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td><strong>MECHANICAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D638</td>
<td>Tensile Strength (psi)</td>
<td>9,500</td>
<td>19,000</td>
</tr>
<tr>
<td>D638</td>
<td>Tensile Modulus (psi)</td>
<td>320,000</td>
<td></td>
</tr>
<tr>
<td>D638</td>
<td>Tensile Elongation at Break (%)</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>D790</td>
<td>Flexural Strength (psi)</td>
<td>15,000</td>
<td>23,000</td>
</tr>
<tr>
<td>D790</td>
<td>Flexural Modulus (psi)</td>
<td>375,000</td>
<td>1,100,000</td>
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<tr>
<td>D695</td>
<td>Compressive Strength (psi)</td>
<td>12,000</td>
<td>18,000</td>
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<tr>
<td>D695</td>
<td>Compressive Modulus (psi)</td>
<td>240,000</td>
<td>500,000</td>
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<tr>
<td>D785</td>
<td>Hardness, Rockwell (M70 / R118)</td>
<td></td>
<td>M92</td>
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<tr>
<td>D256</td>
<td>IZOD Notched Impact (ft-lb/in)</td>
<td>13</td>
<td>2</td>
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<td></td>
<td><strong>THERMAL</strong></td>
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<tr>
<td>D696</td>
<td>Coefficient of Linear Thermal Expansion (x 10⁻⁵ in./in./°F)</td>
<td>3.9</td>
<td>1.2</td>
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<tr>
<td>D648</td>
<td>Heat Deflection Temp (°F / °C) at 264 psi</td>
<td>270 / 132</td>
<td>295 / 146</td>
</tr>
<tr>
<td>D3418</td>
<td>Glass Transition Temp (°F / °C)</td>
<td>293 / 145</td>
<td>300 / 149</td>
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<tr>
<td></td>
<td>Max Operating Temp (°F / °C)</td>
<td>250 / 121</td>
<td>270 / 132</td>
</tr>
<tr>
<td>C177</td>
<td>Thermal Conductivity (BTU-in/ft²-hr-°F) (x 10⁻⁴ cal/cm-sec-°C)</td>
<td>1.3</td>
<td>1.3</td>
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<tr>
<td></td>
<td></td>
<td>6.9</td>
<td>6.9</td>
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<tr>
<td>UL94</td>
<td>Flammability Rating @ less than .45&quot; (11.5mm) thickness</td>
<td>H-B</td>
<td>H-B</td>
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<tr>
<td></td>
<td>@ .45&quot; (11.5mm) thickness and above</td>
<td>V-0</td>
<td>V-0</td>
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<tr>
<td></td>
<td><strong>ELECTRICAL</strong></td>
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<tr>
<td>D149</td>
<td>Dielectric Strength (V/mil) short time, 1/8&quot; thick</td>
<td>390</td>
<td>470</td>
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<tr>
<td>D150</td>
<td>Dielectric Constant at 60 Hz</td>
<td>3.17</td>
<td>3.35</td>
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<tr>
<td>D150</td>
<td>Dissipation Factor at 60 Hz</td>
<td>0.0009</td>
<td>0.0011</td>
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<tr>
<td>D257</td>
<td>Volume Resistivity (ohm-cm) at 50% RH</td>
<td>10¹⁶</td>
<td>10¹⁶</td>
</tr>
</tbody>
</table>

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