PRODUCT DATA SHEET

DESCRIPTION
Toray PMC CFRT® (XT-Orthotics) are reinforced thermoplastic composite laminates. They blend the benefits of a thermoplastic polymer matrix with uni-directional glass fibers for enhanced performance. The XT-style laminate is offered in 6 rigidity grades for ultimate design control.

FEATURES
› Uni-directional glass
› Lightest weight, thin, multiple layers
› Easy to mold and finish
› High performance, yet economical
› Available in different prints and patterns

PRODUCT TYPE AND COMPOSITION
Glass Fiber: 45%–55%
Polyproylene: 35%–45%
Polyester: 5%
Acrylic: 5%
(Note: Percentages are by volume and are nominal values)

MATERIAL PROPERTIES
Specific Gravity
1.40 ± 0.15 (calculated based upon material volume)

SHELF LIFE
Stable indefinitely at 25°C (77°F)
TL-2100 must be kept dry, please refer to processing information.

Typical Applications
› Footwear

Materials must be dried prior to heating and thermoforming. Please refer to the TPMC Processing Instructions.
## TYPICAL LAMINATE PROPERTIES: THICKNESS VS. RIGIDITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Ease-Flex*</th>
<th>Semi-Flex**</th>
<th>Semi-Rigid***</th>
<th>Medium-Rigid****</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (mm)</td>
<td>1.5–1.75 (mm)</td>
<td>1.6–1.8 (mm)</td>
<td>1.85–2.0 (mm)</td>
<td>2.1–2.4 (mm)</td>
</tr>
<tr>
<td>Weight (200 cm²) (g)</td>
<td>~ 40 (200 cm²) (g)</td>
<td>~ 45 (200 cm²) (g)</td>
<td>~ 50 (200 cm²) (g)</td>
<td>~ 60 (200 cm²) (g)</td>
</tr>
<tr>
<td>Rigidity</td>
<td>85 N-cm*</td>
<td>265 N-cm*</td>
<td>600 N-cm*</td>
<td>724 N-cm*</td>
</tr>
<tr>
<td>Flexural Modulus</td>
<td>3.0 GPa*</td>
<td>9.0 GPa*</td>
<td>6.7 GPa*</td>
<td>7.3 GPa*</td>
</tr>
<tr>
<td>Form 204°C/Min.</td>
<td>3.0</td>
<td>3.5</td>
<td>4.0</td>
<td>4.5</td>
</tr>
</tbody>
</table>

- *Based upon 1.6 mm thickness
- **Based upon 1.7 mm thickness
- ***Based upon 1.95 mm thickness
- ****Based upon 2.2 mm thickness

<table>
<thead>
<tr>
<th>Property</th>
<th>Rigid*</th>
<th>Ultra-Rigid**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (mm)</td>
<td>2.4–2.65 mm</td>
<td>2.85–3.2 mm</td>
</tr>
<tr>
<td>Weight (200 cm²) (g)</td>
<td>~ 70 (200 cm²) (g)</td>
<td>~ 80 (200 cm²) (g)</td>
</tr>
<tr>
<td>Rigidity</td>
<td>920 C-nm*</td>
<td>1350 C-nm*</td>
</tr>
<tr>
<td>Flexural Modulus</td>
<td>5.3 GPa*</td>
<td>5.3 GPa*</td>
</tr>
</tbody>
</table>

- *Based upon 2.6 mm thickness
- **Based upon 3.0 mm thickness