PRODUCT DESCRIPTION

TenCate AmberTool® HX42 is an epoxy resin system that can be pre-impregnated into high performance fibers such as carbon, glass and aramid. It is an exceptional and very well proven system that exhibits a high end-use temperature and extended outlife. After a suitable post-cure an end-use temperature of 190°C (374°F) is achieved.

TENCADE AMBERTOOL® HX42 PREPREG BENEFITS/FEATURES

- Low initial cure temperature
- High end-use temperature
- Excellent drape for complex shapes
- Low prepreg volatile content
- Low coefficient of thermal expansion
- Excellent resistance to phenolic resins
- 5 days tack life at 18°C (64°F)
- 12 months storage life at -18°C (0°F)

TYPICAL NEAT RESIN PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.23 g/cm³ (76.7lbs/ft³) at 23°C (73.4°F)</td>
</tr>
<tr>
<td>Tg (DMTA) after 190°C (374°F) post-cure</td>
<td>Onset: 200°C (392°F); Peak tan δ: 220°C (428°F)</td>
</tr>
<tr>
<td>Typical C.T.E. for a carbon tool</td>
<td>3.0 (1.65) x10⁻⁶/°C (ºF)*</td>
</tr>
</tbody>
</table>

* C.T.E. is dependent on construction and processing. Figures quoted are based on standard 1-8-1 quasi-isotropic tooling laminates.

VISCOSITY PROFILE

![Viscosity Profile Graph]

- Tg = 99°C
- Tgel = 2 hrs 17 mins
- tƞ min = 2.77 Pa.s
- tƞ min = 86°C
- tƞ min = 1 hr 53 mins
TenCate AmberTool® HX42 Tooling prepreg

### INITIAL MINIMUM CURE TIMES

<table>
<thead>
<tr>
<th>Temperature °C (°F)</th>
<th>Time (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (122)</td>
<td>18</td>
</tr>
<tr>
<td>55 (131)</td>
<td>11</td>
</tr>
<tr>
<td>60 (140)</td>
<td>8</td>
</tr>
<tr>
<td>65 (149)</td>
<td>5</td>
</tr>
<tr>
<td>75 (167)</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Caution:** TenCate AmberTool HX42 prepreg contains a reactive resin system and care must be taken to avoid exothermic heating during the initial cure.

### POST-CURE

**Post-cure schedule A:**

- **Ramp** 1°C (1.8°F) / min to 60°C (140°F) Dwell for 2 hours
- **Ramp** 1°C (1.8°F) / min to 90°C (194°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 120°C (248°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 150°C (302°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 170°C (338°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 190°C (374°F) Dwell for 6 hours

**Cool to 50°C (122°F) at 2.5°C / min (4.5°F / min)**

---

**REINFORCEMENTS AVAILABLE**

<table>
<thead>
<tr>
<th>Fibre Type</th>
<th>Weight (gsm)</th>
<th>Weave style</th>
<th>Moulded thickness (mm)</th>
<th>Standard resin content w/o</th>
</tr>
</thead>
<tbody>
<tr>
<td>High strength carbon 3k</td>
<td>205</td>
<td>2x2 twill</td>
<td>0.23</td>
<td>46 (surface ply)</td>
</tr>
<tr>
<td>High strength carbon 12k</td>
<td>650</td>
<td>2x2 twill</td>
<td>0.59</td>
<td>35</td>
</tr>
<tr>
<td>E glass (EC6 yarn)</td>
<td>300</td>
<td>8 harness satin</td>
<td>0.26</td>
<td>38 (surface ply)</td>
</tr>
<tr>
<td>E glass (EC9 yarn)</td>
<td>850</td>
<td>8 harness satin</td>
<td>0.60</td>
<td>28</td>
</tr>
<tr>
<td>E glass (1200 tex WR)</td>
<td>870</td>
<td>2x2 twill</td>
<td>0.60</td>
<td>28</td>
</tr>
</tbody>
</table>

Other fabrics and resin weights available on request.

---

**INITIAL MINIMUM CURE TIMES**

**Post-cure schedule A:**

- **Ramp** 1°C (1.8°F) / min to 60°C (140°F) Dwell for 2 hours
- **Ramp** 1°C (1.8°F) / min to 90°C (194°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 120°C (248°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 150°C (302°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 170°C (338°F) Dwell for 1 hours
- **Ramp** 1°C (1.8°F) / min to 190°C (374°F) Dwell for 6 hours

**Cool to 50°C (122°F) at 2.5°C / min (4.5°F / min)**
TenCate AmberTool® HX42 Tooling prepreg

HANDLING SAFETY

Observe established precautions for handling epoxy resins and fibrous materials. Ensure adequate ventilation, wear gloves and protective clothing. For further information refer to our Material Safety Data Sheet available from TenCate Advanced Composites, Langley Mill.

PROCESSING

Processing parameters and instructions are provided in the TenCate AmberTool material processing information guide from TenCate Advanced Composites or at www.tencate.com/tooling