**Description**

HexPly® M79 is a formulated epoxy resin matrix, specially designed for prepreg applications where a cure temperature below 100°C is required.

The matrix is highly tolerant to a wide variety of production techniques and process conditions. It cures well from temperatures as low as 70°C.

Due to its low exothermic properties HexPly® M79 can be used for large industrial components and is suitable for the cure of thin to very thick sections under the same cure cycle. The system has evolved from HexPly® M10, Hexcel's long established and widely used prepreg resin for marine structures and wind blades.

HexPly® M79 epoxy matrix is available with a wide range of carbon, glass or aramid fibres reinforcements.

**Benefits and Features**

- Low temperature cure matrix
- Cures from temperatures as low as 70°C
- Low exothermic system
- Suitable for the cure of thin to very thick sections.
- Well adapted to low pressure processing
- Suitable for a range of pressures (0.3 to 5 bar)
- Excellent outlife
- Translucent resin after cure
- Excellent mechanical properties
- Good processability of the prepreg
- Excellent tack life
- Good surface finish

**Resin Matrix Properties**

- **Density**: 1.1-1.2g/cm³
- **Colour**: Translucent
- **Minimum Viscosity**: 1.6 Pas @ 94°C (heat up rate 1°C/min)
- **Dynamic Thermal Properties**
  (DSC, ISO 11357-5, -40 to 270°C @10°C/min)
  - Tonset: 120°C [±5°C]
  - Tpeak: 145°C [±5°C]
  - Enthalpy: 100 J/g [±20%]
**Isothermal Cure Properties by DSC**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Cure Time (95%)*</th>
<th>Tg cured**</th>
</tr>
</thead>
<tbody>
<tr>
<td>70°C</td>
<td>480min</td>
<td>70-80°C</td>
</tr>
<tr>
<td>80°C</td>
<td>240min</td>
<td>80-90°C</td>
</tr>
<tr>
<td>90°C</td>
<td>130min</td>
<td>90-100°C</td>
</tr>
<tr>
<td>100°C</td>
<td>75min</td>
<td>95-105°C</td>
</tr>
<tr>
<td>120°C</td>
<td>60min</td>
<td>95-105°C</td>
</tr>
</tbody>
</table>

* time to 95% conversion (ISO 11357-5)

** according to ISO 11357-2 using a 20°C/min ramp rate. Tg cured data are dependent on degree of cure, a conversion rate of at least 95% is required to achieve stated range.

**Dynamic Viscosity (Heat up rate 1°C/min)**
### Prepreg Types

<table>
<thead>
<tr>
<th>Fibre Designation</th>
<th>LBB1200+ CV</th>
<th>300H8</th>
<th>600T2</th>
<th>200T2</th>
<th>UD150</th>
<th>UD600+2P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>E-Glas</td>
<td>E-Glas</td>
<td>12K high strength carbon</td>
<td>3K high strength carbon</td>
<td>12K high strength carbon</td>
<td>50K high strength carbon</td>
</tr>
<tr>
<td><strong>Style</strong></td>
<td>Triax, NCF</td>
<td>Satin 8H</td>
<td>Twill 2x2</td>
<td>Twill 2x2</td>
<td>UD</td>
<td>UD</td>
</tr>
<tr>
<td><strong>Weight [g/m²]</strong></td>
<td>1231</td>
<td>300</td>
<td>600</td>
<td>200</td>
<td>150</td>
<td>600</td>
</tr>
<tr>
<td><strong>Nominal Cure Ply Thickness [mm]</strong></td>
<td>1.255</td>
<td>0.23</td>
<td>0.62</td>
<td>0.2</td>
<td>0.13</td>
<td>0.55</td>
</tr>
<tr>
<td><strong>M79 Resin Content by Weight</strong></td>
<td>43</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>38</td>
<td>34</td>
</tr>
</tbody>
</table>

### Cured Prepreg Mechanical Properties

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>LBB1200+CV</th>
<th>300H8</th>
<th>600T2</th>
<th>200T2</th>
<th>UD150</th>
<th>UD600+2P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0° Tensile</strong></td>
<td>EN ISO 527</td>
<td>600 25</td>
<td>500</td>
<td>630</td>
<td>955</td>
<td>60</td>
<td>117 137</td>
</tr>
<tr>
<td><strong>Modulus [GPa]</strong></td>
<td></td>
<td>508 120</td>
<td>56</td>
<td>56</td>
<td>60</td>
<td>60</td>
<td>117 137</td>
</tr>
<tr>
<td><strong>0° Compression</strong></td>
<td>EN ISO 14126</td>
<td>520 27</td>
<td>-</td>
<td>570</td>
<td>750</td>
<td>57</td>
<td>128 123</td>
</tr>
<tr>
<td><strong>Strength [MPa]</strong></td>
<td></td>
<td>520 27</td>
<td>-</td>
<td>570</td>
<td>750</td>
<td>57</td>
<td>128 123</td>
</tr>
<tr>
<td><strong>Modulus [GPa]</strong></td>
<td></td>
<td>- 655 120</td>
<td>-</td>
<td>570</td>
<td>750</td>
<td>57</td>
<td>- 123</td>
</tr>
<tr>
<td><strong>0° Flexural</strong></td>
<td>EN ISO 14125</td>
<td>- 650 25</td>
<td>50</td>
<td>790</td>
<td>840</td>
<td>46</td>
<td>1810 120</td>
</tr>
<tr>
<td><strong>Strength [MPa]</strong></td>
<td></td>
<td>- 650 25</td>
<td>50</td>
<td>790</td>
<td>840</td>
<td>46</td>
<td>- 123</td>
</tr>
<tr>
<td><strong>Modulus [GPa]</strong></td>
<td></td>
<td>- 650 25</td>
<td>50</td>
<td>790</td>
<td>840</td>
<td>46</td>
<td>- 123</td>
</tr>
<tr>
<td><strong>0° Interlaminar</strong></td>
<td>EN ISO 14130</td>
<td>40 60</td>
<td>56</td>
<td>63</td>
<td>68</td>
<td>68</td>
<td>75</td>
</tr>
<tr>
<td><strong>Shear Strength [MPa]</strong></td>
<td></td>
<td>40 60</td>
<td>56</td>
<td>63</td>
<td>68</td>
<td>68</td>
<td>75</td>
</tr>
</tbody>
</table>

Results for multiaxial prepregs normalized to 50% fibre volume.
Results for unidirectional prepregs normalized to 60% fibre volume.
Data based on limited batches of production material.
**Processing**

- **Cure Cycle**
  - @ 70°C *480 min or
  - @ 80°C *360 min or
  - @ 90°C *240 min

- **Recommended Heat up rate** 0.5 – 5°C/min

- **Pressure Gauge** 0.5 – 5 bar

The optimum cure cycle, heat up rate and dwell period depend on part size, laminate construction, oven capacity and thermal mass of tool.

*Time to 95% conversion

**Typical Cure Cycle**

- **Recommend heat-up rate:** 1°C/min

- **Recommended cure temperature** 80°C 360min

- **Pressure gauge:** 0.9 bar [Vacuum bag cure]
HexPly® M79

Storage Stability

- Out-life

  @ + 23°C 6 weeks
  @ + 5°C 6 months
  @ - 18°C 18 months

Precautions For Use

The usual precautions when handling uncured synthetic resins and fine fibrous materials should be observed, and a Safety Data Sheet is available for this product. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.
Important
All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale which include limitations on liability and other important terms.

For More Information
Hexcel is a leading worldwide supplier of composite materials to aerospace and other demanding industries. Our comprehensive product range includes:

- Carbon Fiber
- Reinforcement Fabrics
- Carbon, glass, aramid and hybrid prepregs
- RTM Materials
- HexTOOL® composite tooling material
- Structural Film Adhesives
- Honeycomb Cores
- Engineered Core

For US quotes, orders and product information call toll-free 1-800-688-7734
For other worldwide sales office telephone numbers and a full address list please go to:
http://www.hexcel.com/OurCompany/sales-offices