Description
HexPly® M79 is a hotmelt, thermosetting, low-exothermic epoxy resin matrix, specifically designed for prepreg applications at which short cure cycles below 100°C are required. M79 can be used for manufacture of large industrial components, suitable for cure of thin and thick sections. M79 exhibits a long out-life of 8 weeks at ambient conditions. M79 is supplied as moderate tack resin matrix.

Resin Matrix Properties

Dynamic Thermal Properties by DSC (ISO 11357-5)
(Cure -40 to 270°C @ 10°C/min) (1)
- Uncured Tg: 2 to 10°C
- TOnset: 114 - 125°C
- TPeak: 140 - 150°C
- Enthalpy: 50 - 150 J/g

Isothermal Cure Properties by DSC

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Cure Time (95%) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70°C</td>
<td>≤480min</td>
</tr>
<tr>
<td>75°C</td>
<td>≤360min</td>
</tr>
<tr>
<td>80°C</td>
<td>≤240min</td>
</tr>
<tr>
<td>90°C</td>
<td>≤130min</td>
</tr>
<tr>
<td>100°C</td>
<td>≤75min</td>
</tr>
<tr>
<td>110°C</td>
<td>≤60min</td>
</tr>
<tr>
<td>120°C</td>
<td>≤60min</td>
</tr>
</tbody>
</table>

(1) Data obtained from neat resin upon delivery

(2) Time to 95% conversion (ISO 11357-5), total scan time 600min @70-75°C, 360min @80°C, 300min @90°C, 120min @100-120°C

- Typical cured Tg: 95°C +/-5°C (following a 130min cure @90°C) (3)
- Optimum cured Tg: 105°C +/-5°C (following a 120min cure @110°C) (3)

(3) According to ISO 11357-2 using a 10°C/min ramp rate, -40 to 270°C

- Density (ISO 1183-1): 1.1 - 1.2g/cm³
- Color: Off-White - Yellowish
- Tack: Moderate

Typical Viscosity Profile
(Data obtained from plate-plate rheometry, temperature run in reference to ISO 6721-10; Representative for a selected, single batch.)
Dynamic Complex Viscosity of HexPly® M79 @1°C/min

Shelf-Life
(Store sealed in dry conditions and in the absence of direct sunlight.)

- @ +30°C ≥ 21 days
- @ +23°C ≥ 60 days
- @ +5°C ≥ 6 months
- @ -18°C ≥ 24 months

[4] Shelf-Life refers to the minimum time at the given temperature after which the resin is impaired in its thermal or rheological properties. An increase in uncured Tg above NTP temperature limitation (NIST) defines the end of the shelf-life of the resin matrix.
Typical Curing Conditions

- Recommended heat-up rate: 0.5 – 5°C/min
- Recommended cure cycle: 25-90°C @1°C/min, 300min @90°C
- Pressure gauge: 0.5 – 5 bars

Dependent on the application, alternative cure temperatures than the ones from 70°C – 120°C might be applied but degree of conversion and cured Tg can deviate from stated ranges. The optimum cure cycle, heat-up rate and dwell period is dependent on component size, layup construction, oven capacity and thermal mass of tool.

Precautions for Use

HexPly® M79 is exclusively available in prepreg or semipreg format and a Safety Data Sheet can be provided for this product. The usual precautions when handling uncured synthetic resins and fine fibrous materials should be observed. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

For more information

Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexAM® additive manufacturing
- HexMC® molding compounds
- HiFlow® RTM resins
- HexBond® adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates
- & pultruded profiles

For U.S. 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/contact

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