Description
HexPly® M79/M79-LT 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/M79-LT can be used for manufacture of large industrial components, suitable for cure of thin and thick sections. M79/M79-LT exhibits a long out-life of 8 weeks at ambient conditions. M79 is supplied as moderate tack and M79-LT as low tack resin matrix.

Resin Matrix Properties

Dynamic Thermal Properties by DSC (ISO 11357-5)
(cure -40 to 270°C @10°C/min) (1)

Uncured T_g: 2 – 10°C (M79)
6 – 14°C (M79-LT)

Tonset: 114 – 125°C
TPeak: 140 – 150°C
Enthalpy: 50 – 150J/g

(1) Data obtained from neat resin upon delivery

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>

(2) time to 95% conversion (ISO 11357-5), total scan time 120min

• Typical cured T_g: 95°C +/-5°C (following a 130min cure @90°C) (3)
• Optimum cured T_g: 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 (ISO1183-1): 1.1 – 1.2g/cm³
• Color: Off white - Yellowish
• Tack: Moderate/Low
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 / M79-LT @ 2°C/min
HexPly® M79 / M79-LT
Low Temperature Curing Epoxy Resin Matrix for Prepregs

Shelf Life \(^{(4)}\)
(Stored sealed, in dry conditions and in absence of direct sunlight)

- @ +30°C: 3 weeks
- @ +23°C: 8 weeks
- @ +5°C: 6 months
- @ -18°C: 18 months

\(^{(4)}\) Shelf Life refers to the maximum time at given temperature after which the resin is being impaired in its thermal or rheological properties from the date of manufacture. An increase in uncured T\(_g\) above NTP temperature limitation (NIST) defines the end of 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 – 5bar

Dependent on the application, alternative cure temperatures than the ones from 70°C – 120°C might be applied but degree of conversion and cured T\(_g\) 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/M79-LT 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
- HexMC®-i molding compounds
- HexFlow® RTM resins
- HexBond™ adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles
- HexAM® additive manufacturing

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:

https://www.hexcel.com/contact

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