Description
HexPly® M77CS is a fast curing hotmelt, thermosetting epoxy matrix, specifically designed for prepreg applications at which short cure cycles and clear surfaces are required. M77CS is recommended for curing at 120 – 150°C and is suitable for a range of pressures (5 – 35bar). M77CS can be used for manufacture of industrial components with a clear surface.

Resin Matrix Properties

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

Uncured $T_g$: 1 – 9°C
$T_{Onset}$: 123 – 131°C
$T_{Peak}$: 135 – 143°C
Enthalpy: 340J/g +/-20%

(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>120°C</td>
<td>≤9min</td>
</tr>
<tr>
<td>130°C</td>
<td>≤6min</td>
</tr>
<tr>
<td>140°C</td>
<td>≤3min</td>
</tr>
<tr>
<td>150°C</td>
<td>≤1.5min</td>
</tr>
</tbody>
</table>

(2) time to 95% conversion (ISO 11357-5), total scan time 15min @120 – 140°C, 2min @150°C

- Optimum cured $T_g$: 130°C +/-5°C (following a 15min cure @130°C) (3)

(3) according to ISO 11357-2 using a 10°C/min ramp rate, -40 to 270°C; based on 95% conversion

- Density (ISO 1183-1): 1.15 – 1.25g/cm³
- Color: Translucent/Off white
- 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® M77CS @ 5°C/min
HexPly® M77CS
Fast Curing Epoxy Resin Matrix for Prepregs

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

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

(4) Shelf Life refers to the minimum time at given temperature after which the resin is being impaired in its thermal or rheological properties. An increase in uncured Tg 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: 15min @130°C
• Pressure gauge: 5 – 35bar

Dependent on the application, alternative cure temperatures than the ones from 120 – 150°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® M77CS 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
- HexPly® prepregs
- HexMC® molding compounds
- HexFlow® RTM resins
- Redux® adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products

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/contact/salesoffice

©2017 Hexcel Corporation – All rights reserved. Hexcel Corporation and its subsidiaries (“Hexcel”) believe that the technical data and other information provided herein was materially accurate as of the date this document was issued. Hexcel reserves the right to update, revise or modify such technical data and information at any time. Any performance values provided are considered representative but do not and should not constitute a substitute for your own testing of the suitability of our products for your particular purpose. Hexcel makes no warranty or representation, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, and disclaims any liability arising out of or related to, the use of or reliance upon any of the technical data or information contained in this document.