



# HexPly<sup>®</sup> M77

Fast Curing Epoxy Resin Matrix for Prepregs



Product Data Sheet

## Description

HexPly<sup>®</sup> M77 is a fast curing hotmelt, thermosetting epoxy resin matrix, specifically designed for prepreg applications at which short cure cycles are required. M77 is recommended for curing at 120 – 150°C and is suitable for a range of pressures (5 – 35bar). M77 can be used for manufacture of large industrial components, suitable for cure of thin and thick sections.

## Resin Matrix Properties

### Dynamic Thermal Properties by DSC (ISO 11357-5)

(cure -40 to 270°C @10°C/min) <sup>(1)</sup>

Uncured T<sub>g</sub>: 5 – 15°C

T<sub>Onset</sub>: 118 – 132°C

T<sub>Peak</sub>: 132 – 142°C

Enthalpy: 340J/g +/-20%

*(1) Data obtained from neat resin upon delivery*

### Isothermal Cure Properties by DSC

Temperature                      Cure Time (95%) <sup>(2)</sup>

120°C                                ≤9min

130°C                                ≤6min

140°C                                ≤3min

150°C                                ≤1.5min

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

- Optimum cured T<sub>g</sub>: 130°C +/-5°C (following a 15min cure @130°C) <sup>(3)</sup>
- Typical cured T<sub>g</sub>: 130°C +/-5°C (following a 2min cure @150°C) <sup>(3)</sup>

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

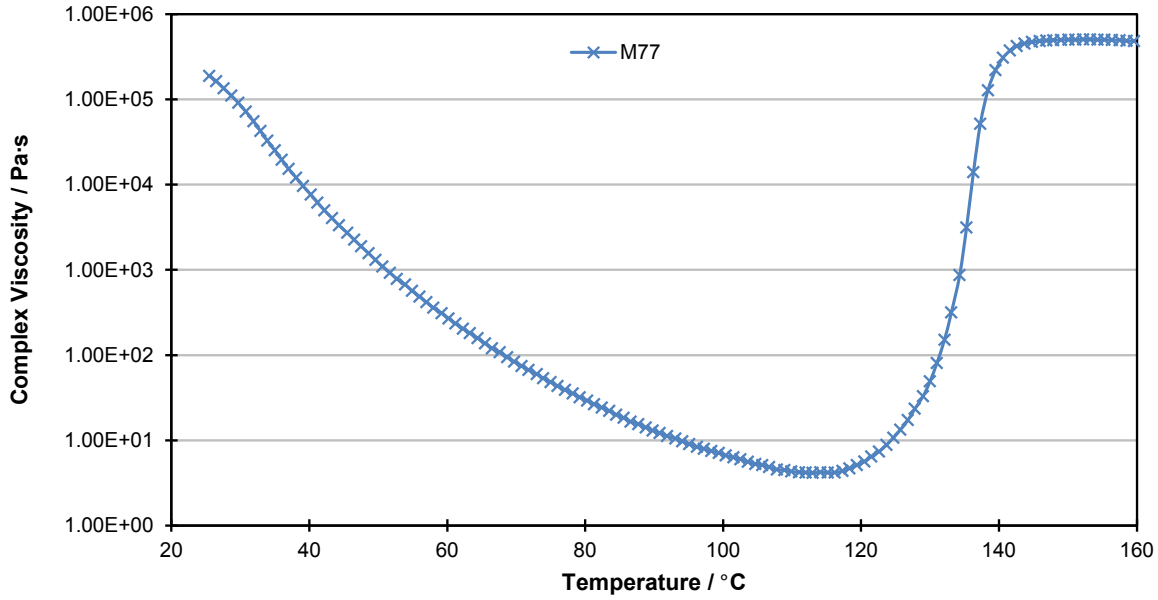
- Density (ISO 1183-1):                      1.15 – 1.25g/cm<sup>3</sup>
- Color:    Off white - Yellowish
- Tack:    Moderate



### 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<sup>®</sup> M77 @ 5°C/min





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## Shelf Life <sup>(4)</sup>

(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  $T_g$  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: 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  $T_g$  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.



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## Precautions for Use

HexPly<sup>®</sup> M77 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<sup>®</sup> carbon fibers
- HexForce<sup>®</sup> reinforcements
- HexPly<sup>®</sup> prepregs
- HexMC<sup>®</sup> molding compounds
- HexFlow<sup>®</sup> RTM resins
- Redux<sup>®</sup> adhesives
- HexTool<sup>®</sup> tooling materials
- HexWeb<sup>®</sup> honeycombs
- Acousti-Cap<sup>®</sup> 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>

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