



# HexPly® M52

120°C/250°F curing epoxy

## Product Data

### Description

HexPly® M52 is a modified epoxy matrix with good mechanical and temperature performance, specifically designed for rapid press curing.

HexPly® M52 is ideal for small to high volume industrial applications where short cure cycles and a high quality cosmetic finish are required.

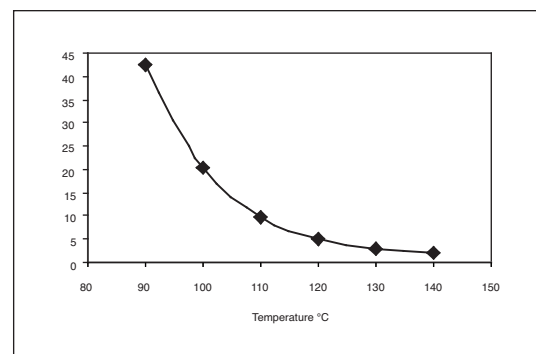
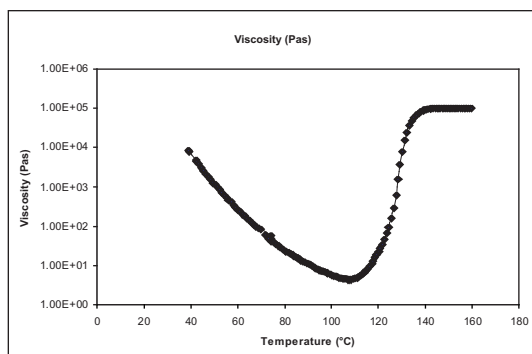
HexPly® M52 is a very versatile product and typical applications include sporting goods, bicycles, prosthetics, small automotive parts & body panels, motorsport & motor bike parts, loud speakers and other general industrial applications.

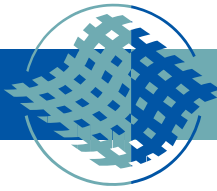
HexPly® M52 is available with UD & fabric reinforcements.

### Benefits and Features

- Fast curing 20 mins @ 120°C
- Versatile process – autoclave, vacuum bag, but specifically suitable for press
- Excellent surface finish
- Versatile cure system (100°C to 140°C)
- Easy to demould at hot temperatures
- Medium flow
- Low tack
- Maximum service temperature 70°C

### Resin Matrix Properties





# HexPly® M52

## Prepreg Curing Conditions

HexPly M52 can be cured at temperatures from 100°C to 140°C using a variety of curing processes including press and autoclave.

A typical press cure cycle for a monolithic laminate is 20 minutes at 120°C.

Cure Temperature (°C)	Cure Time (minutes)
100	90
140	10

Performance testing should accompany alternative cure cycles to ensure suitability for the particular application.

Heat-up rates are dependent on component thickness, eg, slow heat-up rates should be used for thicker components and large tools. Accurate temperature measurements of the component should be made during the cure cycles by using thermocouples.

## Cured Prepreg Properties

### Physical Properties

	Units	M52/48%/200T2/CHS-3K	M52/38%/UD300/CHS	M52/42%/390T2/G-68x5
Fibre		HS Carbon	HS Carbon	E Glass
Weave/UD	g/m <sup>2</sup>	Twill 2x2	UD	Twill 2x2
Fibre Mass		200	300	390
Nominal Prepreg Mass	g/m <sup>2</sup>	385	484	672
Nominal Cured Ply Thickness	mm	0.266	0.322	0.388
Nominal Fibre Volume	%	42.2	52.4	39.3
Resin Density	g/m <sup>3</sup>	1.2	1.2	1.2
Fibre Density	g/m <sup>3</sup>	1.78	1.78	2.56
Nominal Laminate Density	g/m <sup>3</sup>	1.44	1.50	1.73

### Mechanical Properties

Test	Units	Method	M52/48%/200T2/CHS-3K	M52/38%/UD300/CHS	M52/42%/390T2/G-68x5
ILSS	MPa	EN2563	67	81	56
Tensile Strength	MPa	EN2561	871	2086	526
Tensile Modulus	GPa	EN2561	69	142	23
Compression Strength	MPa	EN2850B	790	1413	-
Compression Modulus	GPa	EN2850B	60	114	-
Flexural Strength	MPa	EN2562	1126	1888	610
Flexural Modulus	GPa	EN2562	59	124	18
Glass Transition Temperature	°C	DMA Onset	85-90	85-90	85-90

Results after a 5 bar press cure, at 120°C for 30 minutes.

Fabric samples tested in the warp direction.

Data normalised to Vf = 55% for carbon fabric, 50% for glass fabric and 60% for UD carbon, except for ILSS.

## **Storage and Handling**

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- Shelf Life<sup>1</sup>: 12 months at -18°C (0°F) (from date of manufacture)
- Out Life<sup>2</sup>: 24 days at RT (23°C/73°F)

<sup>1</sup>Shelf Life: the maximum storage life for HexPly® prepreg, when stored continuously, in a closed moisture-proof bag, at -18°C/0°F. To accurately establish the exact expiry date, consult the box label.

<sup>2</sup>Out Life: the maximum accumulated time allowed at room temperature between removal from the freezer and cure.

Prepreg should be stored as received in a cool dry place or in a refrigerator. After removal from refrigerator storage, prepreg should be allowed to reach room temperature before opening the polyethylene bag, thus preventing condensation. (A full reel in its packing can take up to 48 hours).

## **Precautions for Use**

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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.

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

- Carbon Fibre
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- Carbon, glass, aramid and hybrid prepregs
- HexTOOL® composite tooling material
- Structural Film Adhesives
- Honeycomb Sandwich Panels
- Engineered Core
- Reinforcement Fabrics

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