



HexPly® M79

Low temperature curing epoxy matrix

Product Data

Description

HexPly® M79 is a formulated epoxy resin matrix, specially designed for prepreg applications where a cure temperature below 100°C is required.

The matrix is highly tolerant to a wide variety of production techniques and process conditions. It cures well from temperatures as low as 70°C.

Due to its low exothermic properties HexPly® M79 can be used for large industrial components and is suitable for the cure of thin and thick sections under the same cure cycle. The system has evolved from HexPly® M10, Hexcel's long established and widely used prepreg resin for marine structures and wind blades.

HexPly® M79 epoxy matrix is available with a wide range of carbon, glass or aramid fibres reinforcements.

Benefits and Features

- Low temperature cure matrix
- Cures from temperatures as low as 70°C
- Low exothermic system
- Suitable for the cure of thin to very thick sections.
- Well adapted to low pressure processing
- Suitable for a range of pressures (0.3 to 5 bar)
- Excellent outlife
- Translucent resin after cure
- Excellent mechanical properties
- Good processability of the prepreg
- Excellent tack life
- Good surface finish

Resin Matrix Properties

- Density 1.1-1.2g/cm³
- Colour Translucent
- Minimum Viscosity 1.6 Pas @ 94°C (heat up rate 1°C/min)
- Dynamic Thermal Properties
(DSC, ISO 11357-5, -40 to 270°C @10°C/min)

T _{onset}	120°C	[±5°C]
T _{peak}	145°C	[±5°C]
Enthalpy	100 J/g	[±20%]



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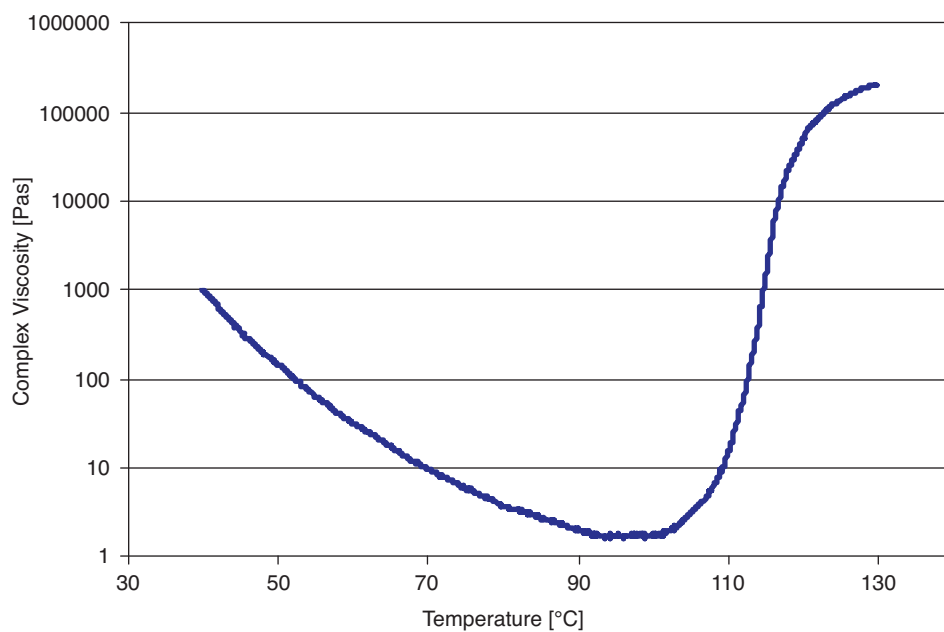
■ Isothermal Cure Properties by DSC

Temperature	Cure Time (95%)*	T _g cured**
70°C	480min	70-80°C
80°C	240min	80-90°C
90°C	130min	90-100°C
100°C	75min	95-105°C
120°C	60min	95-105°C

* time to 95% conversion (ISO 11357-5)

** according to ISO 11357-2 using a 20°C/min ramp rate. T_g cured data are dependent on degree of cure, a conversion rate of at least 95% is required to achieve stated range.

■ Dynamic Viscosity (Heat up rate 1°C/min)





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Prepreg Types

Fibre Designation	LBB1200+ CV	300H8	600T2	200T2	UD150	UD600+2P
Type	E-Glas	E-Glas	12K high strength carbon	3K high strength carbon	12K high strength carbon	50K high strength carbon
Style	Triax, NCF	Satin 8H	Twill 2x2	Twill 2x2	UD	UD
Weight [g/m ²]	1231	300	600	200	150	600
Nominal Cure Ply Thickness [mm]	1,255	0.23	0.62	0.2	0.13	0.55
M79 Resin Content by Weight	43	42	42	42	38	34

Cured Prepreg Mechanical Properties

Properties	Test Method	LBB1200+CV	300H8	600T2	200T2	UD150	UD600+2P
0° Tensile Strength [MPa] Modulus [GPa]	EN ISO 527	600 25	500 28	830 56	955 60	2280 117	2120 137
0° Compression Strength [MPa] Modulus [GPa]	EN ISO 14126	520 27	- -	570 54	750 57	1270 128	1400 123
0° Flexural Strength [MPa] Modulus [GPa]	EN ISO 14125	- -	650 25	790 50	840 46	1810 120	- -
0° Interlaminar Shear Strength [MPa]	EN ISO 14130	40	60	56	63	68	75

Results for multiaxial prepregs normalized to 50% fibre volume.
 Results for unidirectional prepregs normalized to 60% fibre volume.
 Data based on limited batches of production material.



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Processing

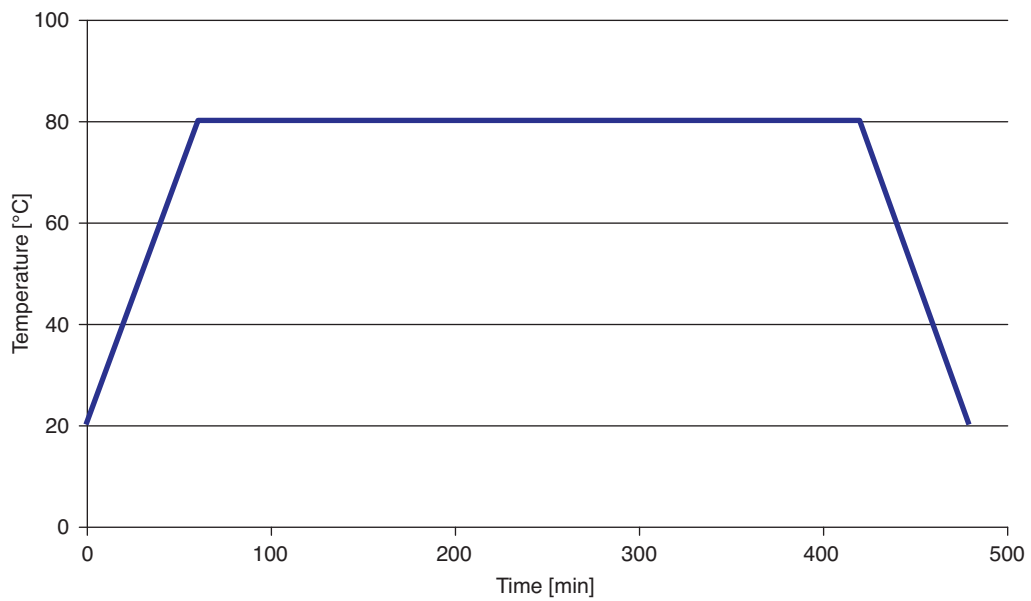
- Cure Cycle @ 70°C *480 min or
@ 80°C *360 min or
@ 90°C *240 min
- Recommended Heat up rate 0.5 – 5°C/min
- Pressure Gauge 0.5 – 5 bar

The optimum cure cycle, heat up rate and dwell period depend on part size, laminate construction, oven capacity and thermal mass of tool.

*Time to 95% conversion

Typical Cure Cycle

- Recommend heat-up rate: 1°C/min
- Recommended cure temperature 80°C 360min
- Pressure gauge: 0.9 bar [Vacuum bag cure]





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Storage Stability

■ Out-life

@ + 23°C 6 weeks

@ + 5°C 6 months

@ - 18°C 18 months

Precautions For Use

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.



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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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For More Information

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

- Carbon Fiber
- Reinforcement Fabrics
- Carbon, glass, aramid and hybrid prepregs
- RTM Materials
- HexTOOL® composite tooling material
- Structural Film Adhesives
- Honeycomb Cores
- Engineered Core

For US quotes, orders and product information call toll-free 1-800-688-7734

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