HexMC® Moulding Concept

Carbon Epoxy HexMC® / C / 2000 / R1A

Product Data

Description

HexMC® is a high performance carbon moulding composite, specifically designed for compression moulding. The epoxy matrix and high carbon fibre volume content enable components to be moulded for a wide range of applications.

Overall features

- Competitive alternative to lightweight metal alloys (Al, Mg, Ti).
- Designed for compression moulding.
- Rapid processing cycles.
- Complex shapes.
- Moulded-in inserts.
- No material waste.
- Internal release agent for multiple demoulding.

Presentation

HexMC® / C / 2000 / R1A

- R1A — Resin ID
- 2000 — Areal weight
- C — Carbon

Form : Roll	Areal weight : 2000 g/m^2
Roll width : 460mm	Material density : 1.55 g/m^3
Shelf life at -18°C : 12 months	Fibre length : 50 mm
Shelf life at RT 23°C : 4 weeks	Nominal fibre volume : 57%
	Fibre : HS Carbon
Cure temperature : 120°C	Cure time: 2.5min per mm part thickness

Recommendations for use

(A more detailed “HexMC Instruction leaflet” is available from Hexcel)

- Remove HexMC from freezer. Allow it to warm up to room temperature for easier handling.
- Clean the mould with appropriate solvent to remove all impurities.
- Apply external release agent (Frekote 700 NC is recommended)
- Heat the mould to 120°C. HexMC curing time varies according to part thickness (2.5 minutes per mm part thickness as a guide).
- Set press pressure to 80 bars. Modify pressure up or down according to the complexity of the part.
- Determine the part weight. Cut HexMC to size accordingly.
- Remove the protective film.
- Load the product into the mould. It is recommended that approximately 80% of the mould area is covered.
- Close the mould and apply pressure.
- Hold the pressure for the appropriate cure time.
- After curing, open the hot mould and release the part. A mould equipped with ejector pins is recommended to help demoulding.

Note: HexMC flow is greatly improved with temperature advancemant, typically by heating in an oven. Heat can be applied to HexMC as it comes off the roll, after patterns are cut, or as preforms are made. The material is highly formable right after staging but becomes very stiff after cooling. Recommended staging and the complementary cure cycle for a 3mm thick panel is as follows:
Staging: 13 minutes at 100°C Curing 10 minutes at 120°C.

Mechanical properties

	Flexural	Tensile	I.L.S.	Compression
Strength (MPa)	400	300	45	350
Modulus (GPa)	30	40	na	35
Standards	ASTM D790	ASTM D638	ASTM D5379	ASTM D695

The glass transition temperature is 100°C as measured by DMTA following AITM 1-0003 for a 15 mn @ 120°C.

Note : These are typical values obtained with samples cut from a 4mm thick moulded plate, cured 15 mn at 120°C.

Storage and handling

Store the product in its original (or equivalent) sealed packaging at –18°C. Leave product to reach room temperature before unrolling, to prevent condensation. 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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- Carbon, glass, aramid and hybrid prepregs
- Reinforcement Fabrics
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- Honeycomb Sandwich Panels
- Engineered Core

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