



HexPly® M18

356°F (180°C) Curing Epoxy Matrix

Product Data

Description

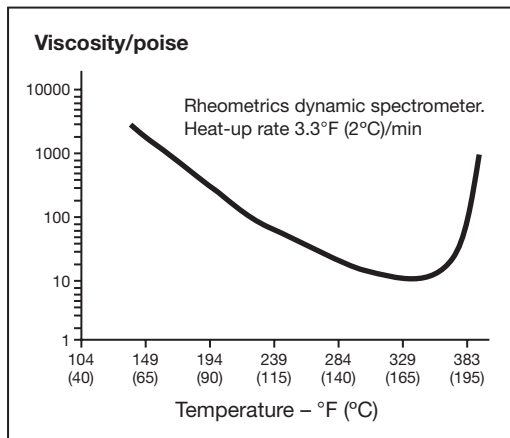
HexPly® M18 has been developed to fulfill the requirements of the aerospace industry for primary structures using standard manufacturing processes. The matrix has improved properties which allow easy layup, good tack life, and a good component surface finish. A low moisture uptake allows good hot/wet performance up to 302°F (150°C) and a general service temperature up to 356°F (180°C).

Features

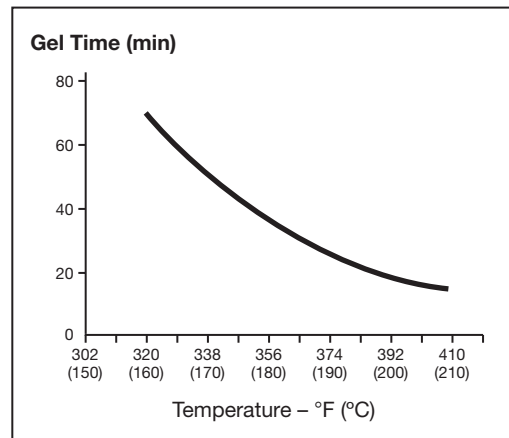
- Low Density Matrix Offering Potential Weight Savings
- Excellent Toughness and Damage Tolerance
- Outstanding Low Moisture Uptake
- Simple Straight-Up Cure Cycle (No Postcure Needed)
- High Strain to Failure
- Good Hot/Wet Properties up to 302°F (150°C)
- Processes to a Good Surface Finish on Components
- Suitable for Low Pressure Molding

Resin Matrix Properties

Rheology



Gel Time



Prepreg Curing Conditions

2 hours at 356°F (180°C) and 700kN/m² (7 bar) pressure.

Heat-up rate 3.3–13.3°F (2–8°C)/minute.

Components up to 30 mm thick can be cured without a dwell in the schedule provided that the heat-up rate is not more than 5°F (3°C)/minute. There is no deterioration in performance after 3 times the recommended cure schedule (verified by interlaminar shear strength tests).

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Cured Matrix Properties [cured at 356°F (180°C)]

		Method
Tensile strength	81.1 MPa	ISO R527 type 1
Tensile modulus	3.50 GPa	ISO R527 type 1
Tensile strain	3.7%	ISO R527 type 1
Poisson's ratio	0.38	ISO R527 type 1
Flexural strength	140 MPa	ISO 178
Flexural modulus	2.86 GPa	ISO 178
Compression strength	373 MPa	ISO 604
Toughness K_{1C}	0.89 MPa m	Tested in accordance with
Toughness G_{1C}	193 J/m ²	EGF Task Group on Polymers and Composites protocol.
Glass transition temperature (T_g)	388°F (198°C)	DMTA
Cured density	1.16 g/cm ³	
Vol. shrinkage	1.12%	

Storage

HexPly® M18 prepregs should be stored as received in a cool dry place or in a refrigerator. Following removal from refrigerated storage, allow the prepreg to reach room temperature before opening the polyethylene bag to avoid moisture condensation. (A full reel in its packaging can take up to 48 hours.)

Shelf Life

Tack life	at 73°F (23°C)	30 days [processing out life at 73°F (23°C), 40 days]
Guaranteed shelf life	at 0°F (-18°C)	12 months

Handling and Safety Precautions

Hexcel recommends that customers observe established precautions for handling resins and fine fibrous materials. Operators working with this product should wear clean, impervious gloves to reduce the possibility of skin contact and to prevent contamination of the material.

Material Safety Data Sheets (MSDS) have been prepared for all Hexcel products and are available to company safety officers on request from your nearest Hexcel Sales Office.

Important

Hexcel Corporation believes, in good faith, that the technical data and other information provided herein is materially accurate as of the date this document is prepared. Hexcel reserves the right to modify such information at any time. The performance values in this data sheet are considered representative but do not and should not constitute specification minima. The only obligations of Hexcel, including warranties, if any, will be set forth in a contract signed by Hexcel or in Hexcel's then current standard Terms and Conditions of Sale as set forth on the back of Hexcel's Order Acknowledgement.

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
- RTM Materials
- Honeycomb Cores
- Continuous Fiber Reinforced Thermoplastics
- Carbon, Glass, Aramid and Hybrid Prepregs
- Structural Film Adhesives
- Honeycomb Sandwich Panels
- Special Process Honeycombs
- Reinforced Fabrics

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 click here: <http://www.hexcel.com/contact/salesoffices>.