HexPly® M73

350°F (177°C) curing toughened epoxy resin

HEXCEL®

Product Data Sheet

Description

HexPly® M73 is a 350°F (177°C) curing toughened resin with 350°F (177°C) dry and 270°F (132°C) wet service capabilities. HexPly® M73 is formulated for autoclave or press molding and can be cured at 350°F for six hours. A two-hour cure at 350°F with two-hour post-cure at 390°F may also be used. Unidirectional tape and woven fabric impregnated with HexPly® M73 resin will retain tack for 10 or more days at room temperature.

Features

- 350°F (177°C) dry and 270°F (132°C) wet service temperature
- 350°F (177°C) cure
- Available in broad range of reinforcements for both tapes and fabrics
- Controlled flow
- Toughened epoxy exhibiting “co-continuous” morphology
- Autoclave or press mold processing
- Excellent hot/wet performance with impact resistance

Applications

- Aircraft primary and secondary structures
- Space structures
- Any application where impact resistance and lightweight use are required

Neat Resin Data

Typical Neat Resin Physical Properties

Properties		RT
Tensile Strength	ksi	11.2
	MPa	77
Flexural Strength	ksi	20.6
	MPa	142
Flexural Modulus	Msi	0.53
	GPa	3.7
Density	g/cm^3	1.29
K_{1C}, Mpa-$m^{1/2}$		0.945
G_{1C}, J/m^2		237
Tg (laminate)		
G^I		186
G^{II}		231
Tan Delta		239

All resin castings cured at 350°F for 6 hours.

Wet = 14-day water immersion at 160°F (71°C).

K_{1C} and G_{1C} tested using 3-point bending mode.

HexPly® M73/IM7 Unidirectional Tape

Laminate Mechanical Properties	-75°F	RT	220°F Wet
Open Hole Compression			
(25/50/25 orientation) Strength, ksi		46.7	37.0[1]
Edge Delamination Str, ksi			
Onset	37		
Ultimate	92		
Compression After Impact			
(25/50/25 orientation) 1500 in-lb/in. impact level Strength, ksi		28	
Interlaminar Fracture Toughness			
G_{1C} (DCB), in-lb/in.		1.8	
G_1C (ENF), in-lb/in.		3.3	

HexPly® M73/IM7 Unidirectional Tape

Laminate Mechanical Properties	-75°F	RT	220°F		250°F	300°F
0 Tensile Properties						
Strength, ksi	353	364				
Modulus, Msi	22.9	23.5				
Strain, %	1.52	1.46				
90 Tensile Properties						
Strength, ksi		9.3				
Modulus, Msi		1.21				
Strain, %		0.77				
0 Compression Properties						
Strength, ksi		244		221[1]	195[1]	160[1]
Modulus, Msi		22.3	21.4	21.2[1]	21.2[1]	21.7[1]
0 Flexural Properites						
Strength, ksi		256	246	173[1]	162[1]	125[1]
Modulus, Msi		21.7	22.2	20.1[1]	21.2[1]	18.9[1]
0 Interlaminar Properties						
Strength, ksi		18.5	13.6	12.9[1]	11.4[1]	9.0[1]
IPS Properties (45 tension)						
Strength, ksi		0.72		0.61[3]	0.58[3]	0.34[3]
Weight Gain, %				0.9	0.9	0.9

Notes: All panels cured for 6 hours at 355°F, 85 psi
[1]Wet = 1 week immersion in 160°F water.
[2]Wet = 2 weeks immersion in 160°F water.
[3]Wet = 150°F/85% RH to equilibrium (approximately 1.1% weight gain).
All data reported is based on actual specimen thickness.

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

Shipping
Prepreg is generally shipped in a sealed polyethylene in refrigerated transportation or in containers with dry ice.

Disposal of Scrap Materials
Disposal of this material should be in a secure landfill in accordance with state and federal regulations.

For more information
Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets.
Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexMC®-i molding compounds
- HexFlow® RTM resins
- HexBond™ adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles
- HexAM® additive manufacturing

For U.S. 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:

https://www.hexcel.com/contact

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