

Creating Material Change



Mechanically Enhanced Prepreg Technical Data Sheet



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Mechanically Enhanced Prepreg

Haydale has developed a range of nanomaterial enhanced prepregs for use in the manufacture of sporting goods and other component prepreg applications. The prepreg materials have shown significant performance improvements in comparison to standard materials. By successfully embedding HDPlas® functionalised nanomaterials into polymers, prepreg with enhanced mechanical properties is produced.

Product highlights:

Enhanced resin dominated mechanical properties with improved performance in the following:

- o Interlaminar shear
- o Fracture toughness

Product code: GA-MEC
 Cured ply thickness: 0.12mm
 Fibres: T800 UD 120gsm
 Resin weight (nom): 34%
 Fibre volume fraction: 54%
 Prepreg width: 300mm, 600mm
 Tg, Storage Modulus Onset (DMA): 140°C

Cure Temperature		Cure Time	Tg Onset
80°C	Minimum	16 hours	90°C
90°C		8 hours	100°C
100°C		4 hours	110°C
120°C	Maximum	1 hour	120°C
130°C	Post cure	2 hours	140°C

Curing schedule is meant to be a guide only and is subject to local conditions, to avoid exotherm particular care must be taken with thick laminates. Ramp rates must not exceed 1.00°C per minute during initial cure. Ramp rates must not exceed 0.30°C per minute during post cure (free standing).

Property Tested	Method Standard	Units	Value	Comments	
Tensile Strength	ISO 527-5:2009	MPa	2040.8	Layup: [0]4s specimen direction 0°	
			50.7	Layup: [0]8s specimen direction 90°	
Tensile Modulus		GPa	151.8	Layup: [0]4s specimen direction 0°	
			7.4	Layup: [0]8s specimen direction 90°	
Tensile Strain		%	3.9	Layup: [0]4s specimen direction 0°	
			0.79	Layup: [0]8s specimen direction 90°	
Poissons Ratio				0.33	Layup: [0]4s specimen direction 0°
Flexural Strength		ISO 178:2010	MPa	1605	Layup: [0]8s specimen direction 0°
				101	Layup: [0]8s specimen direction 90°
Flexural Modulus			GPa	149.1	Layup: [0]8s specimen direction 0°
	7.8			Layup: [0]8s specimen direction 90°	
In-Plane Shear Stress			MPa	76.6	Layup: [-45/+45]4s specimen direction 0°
In-Plane Shear Modulus	ISO 14129:1997		GPa	6.0	Layup: [-45/+45]4s specimen direction 0°
ILSS	ISO 14130:1998		MPa	87.1	Layup: [0]8s specimen direction 0°

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Contact us: T: +44(0)1509 210027 E: info@haydale.com