

HMT321FR



250-300°F (121-149°C) Cure Hot-melt Towpreg

Typical applications

Aerospace
Marine
Automotive
Industrial
Sporting goods

Out life

21 days at 70°F (21°C)

Shelf life

6 months at 40°F (4°C)
12 months at 0°F (-18°C)

Description

HMT321FR is a 250°F (121°C) to 300°F (149°C) cure, hot melt towpreg with flame retardant, modified epoxy resin system designed for use in applications requiring flame retardance and high glass transition temperature. HMT321FR meets the requirements of FAR 25.853 Appendix F, Parts I, IV, V.

Benefits/features

- Environmental friendly (solvent free, no release paper or cover film)
- Moderate tack
- Excellent mechanical properties, especially in compression
- Flame retardant, meets FAR 25.853, app F parts I, IV and V.

Application

With good toughness and impact resistance HMT321FR is well suited for filament winding process and/or fiber placement process in variety of structural applications such as aerospace, marine, automotive, industrial and sporting goods markets.

Available on a wide range of standard, intermediate, and high modulus carbon fibers as well as glass or aramid. Compatible with many Newport 250°F (121°C) to 300°F (149°C) cure epoxy systems.

Recommended processing conditions

HMT321FR can be cured at temperatures from 250°F (121°C) to 300°F (149°C) depending on part size and complexity. Low, medium, and high pressure molding techniques may be used to cure Newport HMT321FR resin. Recommended cure cycle is 50 – 100 psi (345 – 690 kPa), 3°F (5.4°C) to 275°F (135°C), hold for 60-90 minutes, cool to <140°F (60°C).



Neat resin [values are average and do not constitute a specification]

Property	Value
Gel time @ 275°F (135°C), minutes	16 - 20
Specific gravity	1.47
T _g (DMA, E'), °C (°F)	155 (311) Dry
	107 (225) Wet*1 *1 After equilibrium in 160°F/85RH% Humidity
	151 (304) Wet*2 *2 After 1000 hours soak (73°F Jet A Fuel)
	153 (307) Wet*3 *3 After 1000 hours soak (60°F MIL-H-5606 Hydraulic fluid)

Mechanical data [values are average and do not constitute a specification]

TR 50S 12K, 33%RC, autoclave cured, 80psi, 90 minutes at 275°F, as tested

Property	Test method	RT
0° Tensile strength, ksi (MPa)	ASTM D3039	272 (1880)
0° Tensile modulus, Msi (GPa)		21.4 (148)
0° Compressive strength, ksi (MPa)	ASTM D695	259 (1790)
0° Compressive modulus, Msi (GPa)		18.7 (129)
0° Flexural strength, ksi (MPa)	ASTM D790	
0° Flexural modulus, Msi (GPa)		
0° Short beam shear strength, ksi (MPa)	ASTM D2344	

Flame retardant properties

FAR 25.853 Appendix F Part I (a)(1)(ii) 60 sec.		
Specimen thickness: 0.035"	Results	Test requirements
Self-extinguish, time after removal	0 sec.	15 sec. max.
Average burn length	2.9"	6° max.
Self-extinguish drip time	0 sec.	3 sec. max.

FAR 25.853 Appendix F Part IV (OSU heat release rate)		
Specimen thickness: 0.035"	Results	Test requirements
Heat release rate @2 min. (kW-min/m ²)	39.5	65 max.
Peak heat release rate (kW/m ²)	44.8	65 max.
Time to peak heat (sec.)	36	--

FAR 25.853 Appendix F Part V (Smoke emission)		
Specimen thickness: 0.120"	Results	Test requirements
Specific optical density	139	200 Ds max.
Time of peak smoke density	239	--

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