

HMT6600

NEWPORT-FTP®
TOWPREG TECHNOLOGY

350°F (177°C) Cure, High T_g Hot-melt Towpreg

Typical applications

Aerospace
General aviation
Automotive
Industrial

Out life

21 days at 70°F (21°C)

Shelf life

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

Description

HMT6600 is a 350°F (177°C) cure, toughened, high T_g, hot melt towpreg epoxy resin system. Versatile processing, and excellent mechanical properties make HMT6600 especially suited for aerospace, general aviation, and industrial markets.

Benefits/features

- High T_g 200°C (392°F)
- Environmental friendly (Solvent free, no release paper or cover film)
- Moderate tack
- Excellent mechanical properties

Application

HMT6600 has good toughness, impact resistance and is well suited for filament winding process and automatic fiber placement (AFP) processes in a variety of structural applications.

HMT6600 can be supplied with most commercially available fibers (carbon, quartz, aramid, S-glass, E-glass, etc.)

Recommended processing conditions

HMT6600 can be cured at 350°F (177°C) for 2 hours with no need to post cure to achieve service temperature. Medium and high pressure molding techniques may be used to cure HMT6600. Recommended autoclave cure cycle is 50 to 100psi (350-690 kPa), 3°F (1.7°C)/min ramp to 350°F (177°C), hold for 120 minutes, cool to <140°F (60°C).

Alternate cure cycle is a 3°F (1.7°C)/min ramp to 350°F (177°C), hold for 60 minutes. Post cure for 120 minutes at 350°F (177°C).

Due to the time required for this material to gel, some applications using closed mold techniques may require lower pressure at the beginning of the cure cycle to minimize flow. Depending on the ramp rate, full pressure can be applied 6-9 minutes after the cure temperature 350°F (177°C) is reached.



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Technical Data Sheet

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

Property	Value
Gel time @ 350°F (177°C), minutes	16 – 20
Specific gravity	1.30
T _g Dry (DMA, E'), °C (°F)	200 (392)
Flexural strength, ksi (MPa)	25.1
Flexural modulus, Msi (GPa)	0.596

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

MR60H 24K Uni carbon, 32%RC, autoclave cured, 80 psi, 120 min. at 350°F, norm. to 60%FV

Property	Test method	RT
0° Tensile strength, ksi (MPa)		309 (2130)
0° Tensile modulus, Msi (GPa)		22.2 (153)
Poisson's ratio	ASTM D3039	0.335
90° Tensile strength, ksi (MPa)		5.31 (36.6)
90° Tensile modulus, Msi (GPa)		1.38 (9.51)
0° Compressive strength, ksi (MPa)	ASTM D695mod	250 (1720)
0° Compressive modulus, Msi (GPa)		22.0 (151)
0° Flexural strength, ksi (MPa)		331 (2280)
0° Flexural modulus, Msi (GPa)	ASTM D790	21.0 (144)
90° Flexural strength, ksi (MPa)		17.4 (120)
90° Flexural modulus, ksi (MPa)		1.45 (10.0)
Short beam shear strength, ksi (MPa)	ASTM D2344	19.4 (133)

HS40 12K Uni carbon, 27%RC, autoclave cured, 80 psi, 120 min. at 350°F, norm. to 60%FV

Property	Test method	RT
0° Tensile strength, ksi (MPa)		242 (1660)
0° Tensile modulus, Msi (GPa)	ASTM D3039	37.4 (257)
90° Tensile strength, ksi (MPa)		6.44 (44.4)
90° Tensile modulus, Msi (GPa)		1.16 (8.00)
0° Compressive strength, ksi (MPa)	ASTM D695mod	218 (1500)
0° Compressive modulus, Msi (GPa)		31.3 (215)
90° Compressive strength, ksi (MPa)		41.0 (282)
90° Compressive modulus, Msi (GPa)		1.29 (8.89)
0° Flexural strength, ksi (MPa)		259 (1780)
0° Flexural modulus, Msi (GPa)	ASTM D790	36.1 (248)
90° Flexural strength, ksi (MPa)		13.3 (91.7)
90° Flexural modulus, ksi (MPa)		1.28 (8.83)
Short beam shear strength, ksi (MPa)	ASTM D2344	18.1 (124)





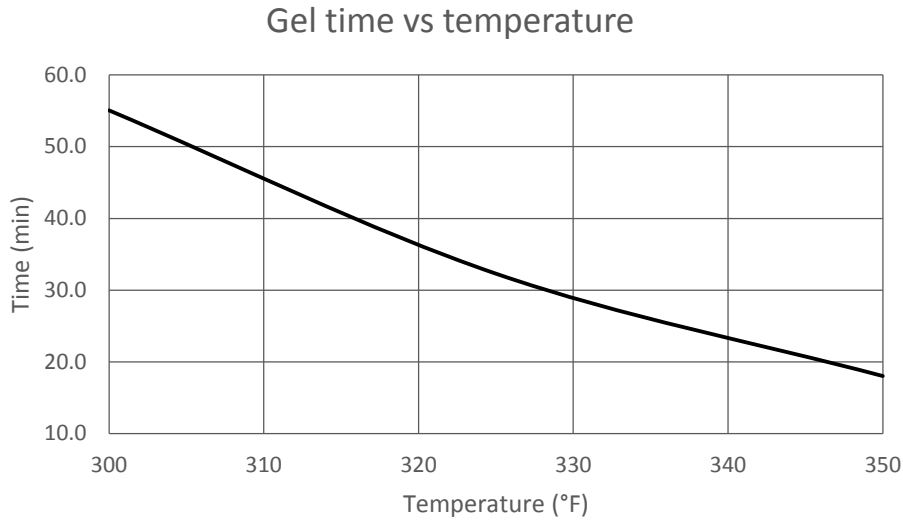
TRH50 18k Uni carbon, 32%RC, autoclave cured, 3°F/min ramp rate, dwell 120 min. at 250°F, ramp to 350°F and 50 psi (vent at 30psi), cure 120 min. at 350°F, norm. to 60%FV

Property	Test method	RT	180°F (80°C)
0° Tensile strength, ksi (MPa)		364 (2510)	386 (2660)
0° Tensile modulus, Msi (GPa)		20.9 (144)	21.1 (146)
Poisson's ratio	ASTM D3039	0.274	0.280
90° Tensile strength, ksi (MPa)		6.87 (47.4)	6.37 (43.9)
90° Tensile modulus, Msi (GPa)		1.35 (9.3)	1.23 (8.5)
0° Compressive strength, ksi (MPa)		184 (1270)	143 (986)
0° Compressive modulus, Msi (GPa)		19.4 (134)	19.6 (135)
90° Compressive strength, ksi (MPa)	ASTM D695mod	38.0 (262)	32.2 (222)
90° Compressive modulus, Msi (GPa)		1.64 (11.3)	1.45 (10.0)
0° Flexural strength, ksi (MPa)		241 (1660)	-
0° Flexural modulus, Msi (GPa)		15.2 (105)	-
90° Flexural strength, ksi (MPa)	ASTM D790	10.9 (75.2)	-
90° Flexural modulus, Msi (GPa)		1.02 (7.0)	-
Short beam shear strength, ksi (MPa)	ASTM D2344	19.0 (131)	14.5 (100)
±45° IPS Strength @5% strain, ksi (MPa)		****	7.96 (54.9)
±45° IPS Modulus, Msi (GPa)	ASTM D3518	0.707 (4.87)	0.569 (3.92)

E1145 Uni glass, 28%RC, autoclave cured, 3°F/min ramp rate, 120 min. at 350°F, 80psi, norm. to 60%FV

Property	Test method	RT
0° Tensile strength, ksi (MPa)		155 (1070)
0° Tensile modulus, Msi (GPa)		6.6 (45.5)
Poisson's ratio	ASTM D3039	0.25
90° Tensile strength, ksi (MPa)		13.4 (92.4)
90° Tensile modulus, Msi (GPa)		2.49 (17.2)
0° Compressive strength, ksi (MPa)		241 (1660)
0° Compressive modulus, Msi (GPa)	ASTM D695mod	7.0 (48.3)
Short beam shear strength, ksi (MPa)	ASTM D2344	15.0 (103)

Gel curve



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