HMT4030

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

Meets FAR 25.853 Appendix F – Parts I, IV, and V

Typical applications

Aerospace
Marine
Automotive
Industrial

Out life

30 days at 70°F (21°C)

Shelf life

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

Description

HMT4030 is a 250°F (121°C) to 300°F (149°C) cure, and toughened modified epoxy resin system designed for use in applications requiring a high level of flame retardancy. HMT4030 meets the requirements of FAR 25.853 Appendix F, Parts I, IV, V. With no odor and VOC-free processing, it is a great material to replace traditional phenolic applications. Most importantly, HMT4030 offers the same range of mechanical properties offered by traditional epoxy systems, a limitation of the phenolic systems.

Benefits/features

- Flame retardant
- Excellent mechanical properties
- Meets FAR 25.853 Appendix F, Part I (a)(1)(i), and (a)(2)(iii) flammability requirements
- Meets FAR 25.853 Appendix F, Part IV heat release requirements
- Meets FAR 25.853 Appendix F, Part V smoke emission requirements
- Compatible with all Newport 250°F (121°C) to 300°F (149°C) cure epoxy systems
- Environmental friendly (solvent free, no release paper or cover film)

Application

HMT4030 is well suited for filament winding and/or fiber placement processes in a variety of structural applications. HMT4030 is suitable for a wide range applications where flame retardance, smoke density, and heat release requirements must be met.

HMT4030 can be supplied with most commercially available fibers.

Recommended processing conditions

HMT4030 can be cured at temperatures from 250-300°F (121-149°C), depending on part size and complexity. Low, medium, and high pressure molding techniques may be used for curing. Recommended cure cycle is 50-100psi (345-690 kPa), 3°F (1.7°C) /min. ramp to 275°F (135°C), hold for 60 minutes, cool to <140°F (60°C).

MITSUBISHI CHEMICAL CARBON FIBER AND COMPOSITES

Technical Data Sheet

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

Property		Value
Gel Time @ 275°F (135°C), minutes		5 – 9
Specific Gravity		1.42
Dry T_g (DMA, E'), °C (°F)		135 (275)
Wet T_g[1] (DMA, E'), °C (°F)		77 (171)
Wet T_g[2] (DMA, E'), °C (°F)		131 (268)
Wet T_g[3] (DMA, E'), °C (°F)		129 (264)
Tensile strength, ksi (MPa)	ASTM D638 Type I	7.54 (52.0)
Tensile modulus, Msi (GPa)		0.627 (4.32)

[1] 160°F, 85%RH until equilibrium
[2] 1000 hours soaking in 73°F Jet A fuel
[3] 1000 hours soaking in 160°F MIL-H-5606 hydraulic fluid

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

TR50S 15K Uni Carbon 36%RC, autoclave cured, 80psi, 90 minutes at 275°F, norm. to 60%FV

Property	Test Method	RT
0° Tensile strength, ksi (MPa)	ASTM D3039	340 (2340)
0° Tensile modulus, Msi (GPa)		24.0 (165)
0° Compressive strength, ksi (MPa)	ASTM D695mod	270 (1860)
0° Compressive modulus, Msi (GPa)		21.0 (144)
0° Flexural strength, ksi (MPa)	ASTM D790	275 (1890
0° Flexural modulus, Msi (GPa)		22.0 (151)
0° Short Beam Shear strength, ksi (MPa)	ASTM D2344	14.0 (96.5)

1062 E-glass 1145Tex 36%RC, autoclave cured, 80psi, 90 minutes at 275°F, norm. to 60%FV

Property	Test Method	RT
0° Tensile strength, ksi (MPa)	ASTM D3039	170 (1170)
0° Tensile modulus, Msi (GPa)		6.7 (46)
0° Compressive strength, ksi (MPa)	ASTM D695mod	200 (1370)
0° Compressive modulus, Msi (GPa)		7.5 (51)
0° Flexural strength, ksi (MPa)	ASTM D790	190 (1310)
0° Flexural modulus, Msi (GPa)		6.9 (47)
0° Short Beam Shear strength, ksi (MPa)	ASTM D2344	14.7 (101)
±45° IPS Strength @5% Strain, ksi (MPa)	ASTM D3518	15.7 (108)
±45° IPS Modulus, Msi (GPa)		0.668 (4.60)

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Technical Data Sheet

Flame Retardance Data [values are average and do not constitute a specification]

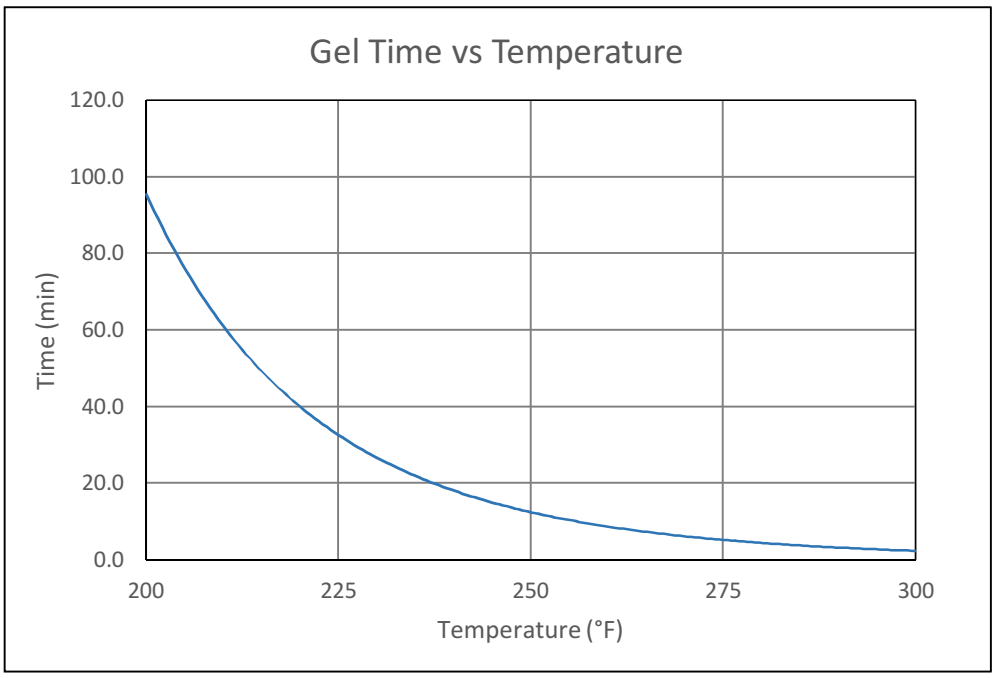
FAR 25.853 Appendix F, TR50S-15K Uni Carbon, 33%RC

Part I a1ii 12 sec.		
60-Second vertical flame test results at thickness	Requirements	0.040"
Self-extinguish, Time after flame removal	15 sec. max	11 sec.
Average Burn Length	8" max	1.6"
Self-extinguish Drip Time	5 sec. max	0 sec.

Part IV (OSU Heat Release Rate)		
Results at thickness	Requirements	0.040"
Heat release rate @2 min. (kW-min/m^2)	65 max	44
Peak Heat release rate (kW/m^2)	65 max	43
Time to peak heat (sec)	n/a	41

Part V (Smoke Emission)		
Results at thickness	Requirements	0.112"
Specific optical density (Ds)	200 max.	134.0
Time of peak smoke density	n/a	240

Gel Curve



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