1106

NEWPORT HIGH PERFORMANCE MATERIALS

MITSUBISHI CHEMICAL CARBON FIBER AND COMPOSITES

Technical Data Sheet

235-300°F (113-150°C) Cure Epoxy Adhesive Prepreg

Typical applications
Aerospace
Wind energy
Industrial manufacturing

Out life
7 days at 70°F (21°C)

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

Description
1106 is a 235°F to 300°F (113°C to 150°C) cure, toughened, flame retardant modified epoxy prepreg designed for one step assembly of sandwich panels for applications requiring high strength at temperatures from -67°F to 180°F (-55°C to 82°C).

Benefits/features
- Flame retardant, meets FAR 25.853 flammability requirements
- Low flow, dry tack
- Self adhesive prepreg
- Meets: MMM-A-132B, Type I, Class 3, Group 3 (long time exposure to temps -67°F to 180°F, no T-peel and blistering detection, cure temp 100°F to 200°F)
- AMS-A-25463B, Type I, Class 1, Group 3 (long time exposure to temps -67°F to 180°F, for bonding metal facing to metal cores only, cure temp 200°F to 300°F)
- Co-curable with most 250°F (121°C) curing prepregs

Variants
- 1106/8: Woven prepreg with increased tack
- 106/8: Unitape prepreg with increased tack

Application
1106 can be supplied with most commercially available fibers (carbon, quartz, aramid, E-glass, S-glass, etc.).

Woven fabrics (designated as NB) are available in standard commercial widths up to 60 inches (1.5 m).
Unitape prepreg (designated as NCT) is available with widths up to 39 inches (1 m) are available in fiber weights ranging from 150 to 300 gsm (0.031 to 0.061 psf)

Recommended processing conditions
1106 can be cured at temperatures from 235°F to 300°F (113°C to 150°C), depending on part size and complexity. Low, medium and high pressure molding techniques may be used to cure 1106. Recommended cure cycle is 25 to 60 psi (172 to 414 kPa), 3°F (1.7°C)/min. ramp to 250°F (120°C), hold for 60 minutes, cool to <140°F (60°C).

Please contact your account manager or MCCFC technical support to discuss specific applications.

Neat resin (values are average and do not constitute a specification)

Property	Measured value
Gel time @ 275°F (135°C), minutes	3 - 5
Specific gravity	1.30
T_g (DMA, E'), °F (°C)	221 (105)

Mechanical data (values are average and do not constitute a specification)

7781 E-glass fabric, press cured, 30 psi, 275°F for 90 min., using 7°F/min. ramp rate, as tested.

Property	Test method	RT
0° Tensile strength, ksi (MPa)	ASTM D3039	64 (441)
0° Tensile modulus, Msi (GPa)		3.3 (23)
0° Compression strength, ksi (MPa)	SACMA 1R-94	58 (400)
0° Flexural strength, ksi (MPa)	ASTM D790	86 (593)
0° Flexural modulus, Msi (GPa)		3.5 (24)
Short beam shear strength, ksi (MPa)	SACMA 8R-94	7.3 (50)

1106/8, 7781 E-glass fabric sandwich panels, 3-ply skin, BMS8-124/TY1/CL1/GR4 0.5" honeycomb core, 42%RC, autoclave cured, 30 psi, 275°F for 60 min., using 3°F/min. ramp rate, as tested.

Property	Test method	RT
CD Peel strength, in-lbs/in (Nm/m)	ASTM D1781	17.7 (78.7)
Flatwise tensile strength, psi (MPa)	ASTM C297	1090 (7.52)
Flexural strength, lbs (kN)	ASTM C393	299 (1.33)

3K70P Carbon fabric, 45%RC, autoclave cured, 25 psi, 190°F for 45 min., 250°F for 60 min., using 3°F/min. ramp rate, as tested.

Property	Test method	RT
0° Tensile strength, ksi (MPa)	ASTM D3039	110 (758)
0° Tensile modulus, Msi (GPa)		7.5 (52)
0° Compression strength, ksi (MPa)	SACMA 1R-94	68 (469)
0° Compression modulus, Msi (GPa)		7.3 (50)
0° Flexural strength, ksi (MPa)	ASTM D790	103 (710)
0° Flexural modulus, Msi (GPa)		7.6 (52)
Short beam shear strength, ksi (MPa)	SACMA 8R-94	8.4 (58)

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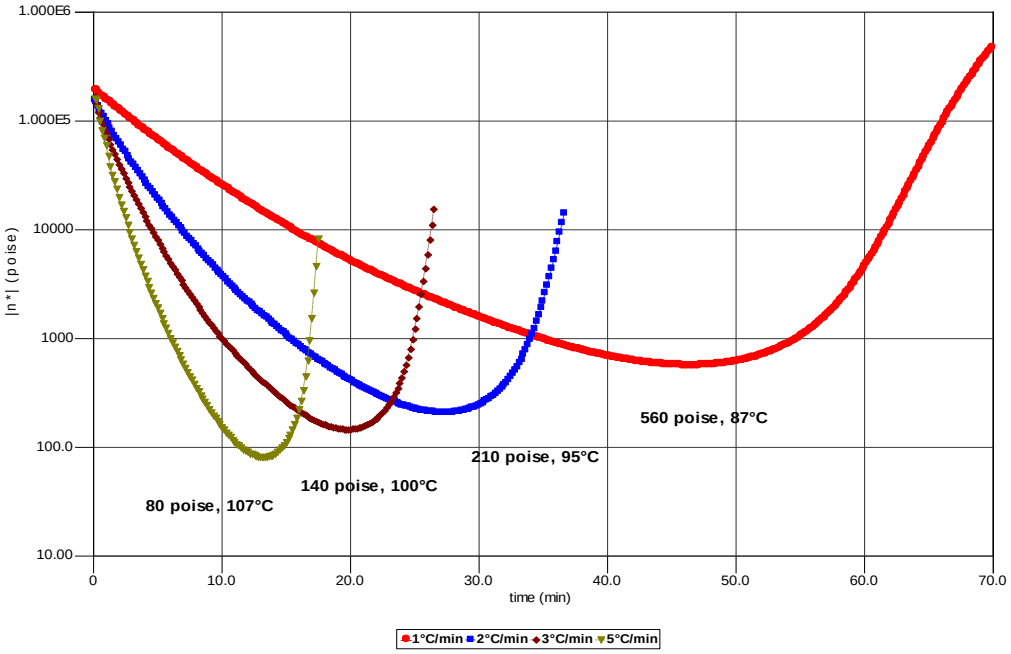
106/8, 185gsm, 31%RC, Uni S-glass and 106/8, 244gsm, 41%RC, Uni S-glass, autoclave cured, 50 psi, 275°F for 60 min., using 3°F/min. ramp rate, as tested.

Property	Test method	185gsm 31%RC		244gsm 41%RC	
		RT	160 °F	RT	160°F
0° Tensile strength, ksi (MPa)	ASTM D3039	242 (441)	-	186 (1280)	-
0° Tensile modulus, Msi (GPa)		7.4 (23)	-	6.1 (42)	-
0° Compression strength, ksi (MPa)	SACMA 1R-94	136 (400)	100 (689)	106 (731)	75 (517)
0° Flexural strength, ksi (MPa)	ASTM D790	200 (593)	110 (758)	165 (1140)	97 (669)
0° Flexural modulus, Msi (GPa)		7.8 (24)	6.7 (46)	6.1 (42)	5.6 (38.6)
Short beam shear strength, ksi (MPa)	SACMA 8R-94	10.9 (50)	7.3 (50)	10.9 (75)	7.3 (50.3)

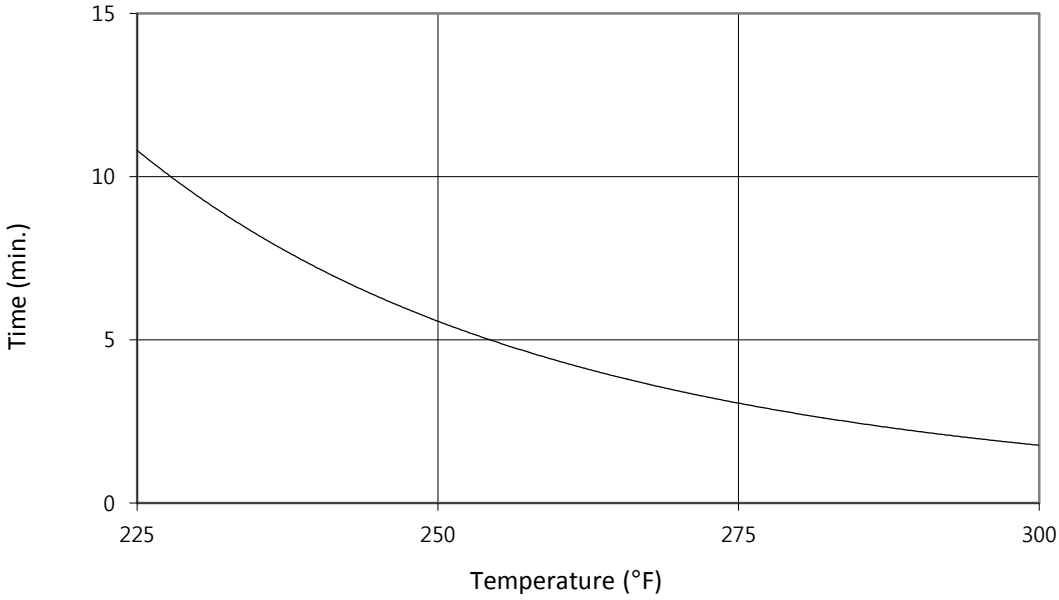
1106 Viscosity vs. temperature

TA - AR2000 parallel plate rheometer



Gel time vs. temperature

*not valid for 106/8 or 1106/8



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