

CM-Preg T-C 150/600 CP002 38

Carbon fiber UD + Epoxy

Name structure: CM-preg T(UD) - FiberReference (-functional layer code) FAW / Width ResinReference ResinContent

CP002 is a epoxy resin system suitable for all common types of fiber reinforcements and. This resin system shows excellent impact and bonding behaviour.

PRELIMINARY PRODUCT DATA SHEET

		SI *			IMPERIAL*	
		Test methods	Units	Indicative Values	Units	Indicative Values
Neat resin and processing	Laminate cure time / temperature / pressure	-	min °C bar	60 / 140 / 3	min °F psi	60 / 285 / 43.5
	Optimized part compression molding time / temperature / pressure	-	min °C bar	-	min °F psi	-
	Gel time at processing temperature (1)	-	min	06:00	min	06:00
	Post-curing temp / time / heating rate	-	°C min K/min	-	°F min K/min	-
	Post-cured Tg (2)	ISO 6721-11	°C	-	°F	-
	Density	ISO 1183-1	g/cm3	1,245	-	1,249
Prepreg properties	Fibre areal weight (FAW) (3)	DIN EN 2557	g/m2	150	lb/ft2	0,031
	Prepreg areal weight (3)	DIN EN 2557	g/m2	242	lb/ft2	0,050
	Consolidated ply thickness (4)	-	mm	0,14	in.	0,006
	Resin content (RC) (3)	DIN EN 2557	Wt%	38	Wt%	38
	Fibre content (5)	-	V%	59,2	V%	59,2
	Width	-	mm	600	in.	23,6
	Storage life at -18°C / 23°C [0°F / 73°F]	-	months / weeks	12 / 3	months / weeks	12 / 3
Laminate Properties **	Tensile strength, 0° / 90° (6)	ISO 527	MPa	-	psi	-
	Tensile modulus of elasticity, 0° / 90° (6)	ISO 527	GPa	-	ksi	-
	Tensile strain (elongation) at break, 0° / 90° (6)	ISO 527	%	-	%	-
	Poisson 's ratio 0° / 90°	ISO 527	-	-	-	-
	Compressive strength, 0° / 90° (7)	ISO 14126	MPa	-	psi	-
	Compressive modulus, 0° / 90° (7)	ISO 14126	GPa	-	ksi	-
	Flexural strength, 0° / 90° (8)	ISO 14125	MPa	-	psi	-
	Flexural modulus of elasticity, 0° / 90° (8)	ISO 14125	GPa	-	ksi	-
	In plane shear strength (9)	ISO 14129	MPa	-	psi	-
	In plane shear modulus (9)	ISO 14129	GPa	-	ksi	-
	Interlaminar shear strength ILSS 0° (10)	ISO 14130	MPa	-	psi	-
	Energy to max force / impact energy (11)	ISO 6603-2	J	-	ft-lb	-
	Glass transition cured laminate storage onset / tan δ (2)	ISO 6721-11	°C	98 / 117	°F	208 / 243
	Thermal conductivity at 40/100/130°C [105/210/265°F] (12)	ASTM E1530-19	W/(K.m)	-	BTU / (K.in)	-
	Coefficient of linear thermal expansion 0°/90°/Z (13) 80 to 150 °C [175 to 300°F]	ISO 11359-2	µm/(m.K)	-	µin./(in.°F)	-

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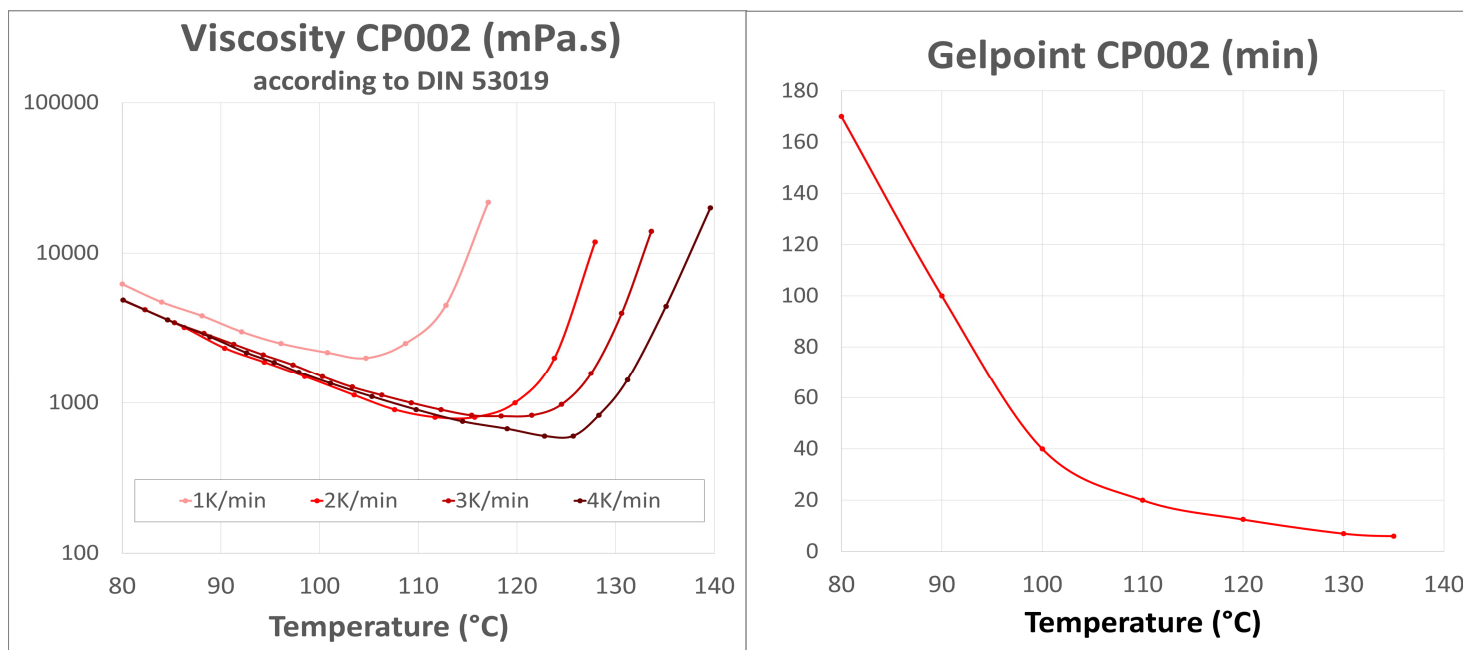
FST and flammability

UL94	V0
Flame resistance 60s	pass (T2mm)
Toxicity - Flaming mode	pass (T2mm)
Smoke density - Flaming mode	pass (T0.38mm)
Heat release	pass (T1.7mm)
	AITM2.002A / BSS 7230:F1 / FAR25.853 Appendix F part I a1-i
	AITM-3.0005 / BSS 7239
	AITM-2.0007-A / BBS 7238 / FAR25.853 Appendix F part V
	AITM-2.0006 / BSS 7322 / FAR 25.853 Appendix F part IV

Above FST results are based on resin, not all reinforcement types are checked and final application lay-up needs to be validated

* This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. **However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.** See the remaining notes on the next page.

** Properties are determined on compression moulded laminates and data is not corrected to a certain volume fraction. Processing recommendations are based on a typical set-up, differences in tooling and presses can have effect on required processing settings and are to be validated. The intent is to give a starting point for processing the material via compression molding. *Laminate lay-up is done in such a way that orientation of each ply is the same. TLaminate lay-up is done in such a way that UD orientations of each ply is the same meaning [0°]n.*



NOTES, SEE DATASHEET ON PAGE 1

- 1 Gel time is determined on resin and follows the point where the resin no longer has enough tack to stick to a specific surface, in this case glass or metal
- 2 Tg is determined via DMA testing and storage modulus onset point is used as Tg. Sample set-up modes are single cantilever and 3 point bending with span of 8-50mm [0,31"-1,97"]. Heating rate 2-3°C/min ; Amplitude 10-50µm and frequency 1-10 Hz. Sample geometry: Length 10-50mm [0,394"-1,969"] ; width 3-10mm [0,118"-0,394"] ; Thickness = 1-3mm [0,039" - 0,118"]. Tg is resin dependent and value for cured laminate is based on resin average.
- 3 Fiber areal weight (FAW), prepreg areal weight and resin content (RC) are calculated based on prepreg areal weight and reinforcement areal weight. An average of at least three rectangular samples of 100 x 100mm [3,9" x 3,9"]. It is a mass based calculation.
- 4 Consolidated ply thickness (CPT) also called cured ply thickness is the thickness of a single layer prepreg after consolidation.
- 5 Fibre content (FC) can be used to calculate volume corrected property levels: $V\% \text{ corrected property} = (\text{property} * \text{desired } V\% \text{ correction}) / \text{fibre content}$.
- 6 tensile properties were tested according to -4 type 2 method, only for UD types where -5 is applied. Bonded or friction tabs are used when needed. Sample size can vary dependent on the type of reinforcement (random, woven, UD). Typical size range: Length = 250mm [9,8"] ; Width = 15-25mm [0,59"-0,98"] ; Thickness = 1-2.5mm [0,039" - 0,098"]. Test speed 2mm/min [0,078 inch/min] ; Gauge length of 50mm [1,79"].
- 7 Sample geometry: Length = 140mm [5,51"] ; Width = 10mm [0,39"] ; Thickness 2-10mm [0,079"-0,394"]. Gauge length 12.7mm [0,5"] ; test speed of 1mm/min [0,039inch/min]
- 8 Procedure A is applied with 3 point bending set-up and a test speed 1.7 mm/min [0,067 inch/min], for UD-0° testing 5,5mm/min [0,217inch/min] is used. Load member radius of 5mm [0,314"] and support radii of 3 or 5 mm [0,118" or 0,314"]. Sample size: Length 60-130mm [2,36"-5,12"] ; Width = 10-15mm [0,39"-0,59"] ; Thickness 2-4mm [0,0787"-0,157"]. Span: UD90° 40mm [1,57"-3,15"] ; UD-0° 80mm [3,15"-2,52"] ; others 64mm [2,52"]
- 9 IPS (in plane shear) is conducted on prepreg laminates stacked [45°/-45°]ns. typical sample size 2x25x250mm [0,078" x 0,98" x 9,84"], thickness can vary depending on material and application. Adhesive or friction tabs are used were required. Test speed 2mm/min [0,079inch/min]
- 10 Apparent interlaminar shear strength measured according to short beam test in 3 point bending set-up. Sample geometry 2x10x20mm [0,079" x 0,394" x 0,787"] , test speed 1mm/min [0,039inch/min] and span 10mm [0,394"].
- 11 Determination of puncture impact. Sample length and width or diameter is 60mm [2,36"] and thickness 2mm [0,079"] . Impact velocity is 4,4 m/s [173inch/s] and hemispherical striker with diameter 20mm [0,79"]. Impact energy is the energy absorbed by deflection at force drop of 50% (= puncture definition)
- 12 Sample diameter 50mm or 50x50mm [1,97" x 1,97"] with specimen thickness 3mm [0,12"]
- 13 Coefficient of linear thermal expansion is determined via thermodynamical analysis where a sample is heated and dimensional changes are measured. A linear heating ramp of 5K/min is applied and preferred sample size are cylinders OD5mm [0,197"] x H5-10mm [0,197" - 0,394"]. Rectangular samples W5mm x L5mm [0,197" x 0,197"] are also allowed

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