

SC 160

HIGH TG COSMETIC CARBON PREPREG

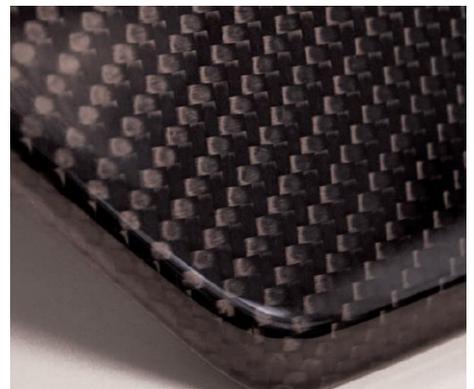
- ▣ Ultra-high clarity prepreg system
- ▣ Ideal for visual components
- ▣ Autoclave cure offers 180°C (356°F) Tg
- ▣ Rapid press moulding
- ▣ Curable at temperatures as low as 130°C (266°F)
- ▣ High tack and drape allowing easy in-mould repositioning

INTRODUCTION

SC 160 is a visual grade prepreg that utilises a high clarity, versatile, hot-melt epoxy resin formulation.

The unique formulation is ideal for manufacturing visual quality components using autoclave and press moulding. It can be cured at temperatures as low as 130°C (266°F), or it can be used for rapid press moulding of components at 160°C (320°F). A maximum resin Tg of 180°C (356°F) can be achieved from an autoclave cure. The product has high tack which aids the moulding of complex components in metal and carbon tooling, whilst maintaining a good out-life of up to 3 weeks at 21°C (70°F). SC 160 is a toughened system and offers excellent mechanical properties on a wide variety of reinforcing fabrics and fibres.

SC 160 is suitable for interior and exterior automotive, marine and other markets where a high clarity finish is required in conjunction with a high Tg.



PRODUCT INFORMATION

SC 160 visual carbon prepreg is available in a range of reinforcements, giving options for different light weight surfacing layers and heavier backing layers. SC160 is proven to meet automotive OEM environmental standards for interior and exterior parts following the application of a suitable lacquer.

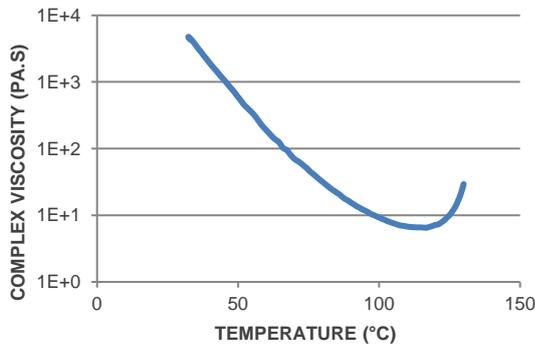
Please consult your local sales contact or Gurit Product Catalogue for further information. Full contact details can be found at www.gurit.com.

PREPREG PROPERTIES

RHEOLOGY DATA

SC 160 resin viscosity profile conducted at 1°C (1.8°F) per minute.

PROPERTY	VALUE	
Minimum Viscosity	6.6 Pa.s	66 P
Temperature at Minimum Viscosity	115 °C	239 °F



TRANSPORT & STORAGE

When stored sealed & out of direct sunlight.

STORAGE TEMP		UNIT	VALUE
-18°C	0°F	months	12
+21°C	+70°F	weeks	3

All prepreg materials should be stored in a freezer when not in use to maximise their useable life, since the low temperature reduces the reaction of resin and catalyst to virtually zero. However, even at -18°C (0°F), the temperature of most freezers, some reaction will still occur. In most cases after some years, the material will become unworkable.

HEALTH AND SAFETY

Please refer to product SDS for up to date information specific to this product.

MINIMUM CURE TIME & TEMPERATURE

SC 160 offers flexible curing options. The recommended minimum cure is 90 minutes at 130°C (266°F) with a 1°C (1.8°F) per minute ramp-rate, further post cure is required to gain maximum thermal properties. Introduction a 30 minutes dwell period at 80°C is advantages for removing surface pinholes on complex or larger mouldings.

PROPERTY	AUTOCLAVE						PRESS MOULDING	TEST STANDARD
Typical Laminate	8 plies of SC 160 RC245T prepreg with 40% resin content							-
Typical Ramp Rate	1 – 3°C (2 – 9°F) per minute						N/A	-
Cure Temperature	130°C / 266°F*	140°C / 284°F*	150°C / 302°F*	160°C / 320°F*	170°C / 338°F*	180°C / 356°F*	160°C (320°F)	-
Cure Dwell Time	90 min	90 min	90 min	90 min	60 min	30 min	15 min	-
Cure Pressure	Up to +6bar (85Psi)						> +12bar (175Psi)	-
Cure Vacuum	-1bar (14.5Psi)						-	-
De-mould Temperature	< 80°C (176°F)						160°C (320°F)**	-
Dry T _{g1} (DMA)	135°C / 275°F	150°C / 302°F	165°C / 329°F	175°C / 347°F	180°C / 356°F	180°C / 356°F	170°C / 338°F	ASTM D7028
Wet T _{g1} (DMA)*	> 130°C / 266°F							ASTM D7028

* Additional post cure is required to gain maximum thermal properties from these lower cure temperatures

**suitable for use in conjunction with hot-in / hot-out rapid component manufacture is possible using appropriate press tooling

LAMINATE PROPERTIES

Mechanical test data is currently being generated for the SC 160. All data presented in this datasheet is based on the mechanical testing of a single batch of material.

WOVEN LAMINATE

Cured using standard processing techniques and a minimum cure time of 90 minutes at 130°C (266°F).

PROPERTY	SYMBOL	RC245T		TEST STANDARD
Fabric / Fibre Description	-	245g/m2 2x2 twill fabric using T300 3k fibre		-
Resin Content	-	40 %		-
Cure Method	-	Cure Pressure -1 bar		-
Cure Schedule	-	90 minutes at 130°C (266°F)		-
Cured Ply Density	ρ_{ply}	1.47 g/cm ³	0.053 lb/in ³	Archimedes
Glass Transition Temperature	T _{g1}	156 °C	313 °F	ISO 6721 (DMA)
Cured Ply Thickness	t _{ply}	0.27 - 0.31 mm	0.011 - 0.012 in	ASTM D 3171 Method II
0° Tensile Cured Fibre Volume*	V _f	43.5 %		ASTM D 3171 Method II
0° Tensile Strength (Normalised to 60%)	X _T	648 MPa	94 Ksi	ISO 527-4
0° Tensile Modulus (Normalised to 60%)	E _{T11}	71 GPa	10.3 Msi	ISO 527-4
0° Compressive Str. Fibre Volume*	V _f	48.7 %		ASTM D 3171 Method II
0° Compressive Strength (Normalised to 60%)	X _C	815 MPa	118 Ksi	SACMA SRM1-94
0° Compressive Mod. Fibre Volume*	V _f	49.6 %		ASTM D 3171 Method II
0° Compressive Modulus (Normalised to 60%)	E _{C11}	66 GPa	9.6 Msi	SACMA SRM1-94
90° Tensile Cured Fibre Volume*	V _f	49.6 %		ASTM D 3171 Method II
90° Tensile Strength	Y _T	617 MPa	89 Ksi	ISO 527-4
90° Tensile Modulus	E _{T22}	70 GPa	10.2 Msi	ISO 527-4
90° Compressive Str. Fibre Volume *	V _f	48.7 %		ASTM D 3171 Method II
90° Compressive Strength	Y _C	753 MPa	109 Ksi	SACMA SRM1-94
90° Compressive Mod. Fibre Volume*	V _f	51.8 %		ASTM D 3171 Method II
90° Compressive Modulus	E _{C22}	65 GPa	9.4 Msi	SACMA SRM1-94
0° Flexural Fibre Volume*		50.4 %		
0° Flexural Strength	X _F	744 MPa	108 Ksi	ISO 14125
0° Flexural Modulus	E _{F11}	47 GPa	6.8 Msi	ISO 14125
0° ILSS Fibre Volume*	V _f	51.4 %		ASTM D 3171 Method II
0° ILSS	X _{ILSS}	71 MPa	10.3 Ksi	ISO 14130

* original laminate fibre volume fraction

NOTICE

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Gurit is continuously reviewing and updating literature. Please ensure that you have the current version by contacting your sales contact and quoting the revision number in the bottom left-hand corner of this page.

TECHNICAL CONTACT INFORMATION

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