SC 110T2

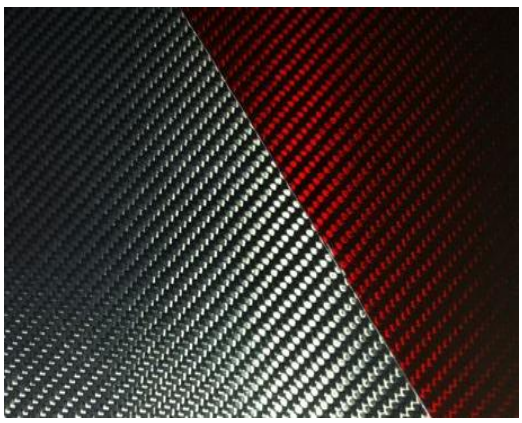
VISUAL CARBON PREPREG

- Ultra high clarity – ideal for visual components with no white-wash or spots
- High-strength prepreg system
- Versatile process window with autoclave and press moulding
- Curable at temperatures as low as 80°C (175°F)
- 45 minute cure at 120°C (250°F)
- 20 minute cure at 150°C (300°F) in a press
- High tack allowing easy in-mould repositioning

INTRODUCTION

SC 110T2 is a visual grade prepreg that utilises a high clarity, versatile, hot-melt epoxy resin formulation.

The unique formulation ensures that no white-wash or spots are evident in the cured resin. It is ideal for manufacturing high visual quality components using autoclave and press moulding. It can be cured at temperatures as low as 80°C (175°F), or it can be used for faster moulding of components at 120°C (250°F). An even faster cure of 20 minutes at 150°C (300°F) can also be achieved using the appropriate press moulding technology. This is achieved whilst maintaining a good out-life of up to 3 weeks at 21°C (70°F). SC 110T2 is a toughened system and offers excellent mechanical properties on a wide variety of reinforcing fabrics and fibres.



During the development of SC 110T2, extensive beta testing has been conducted to manufacture the most challenging visual components in order to demonstrate the robustness of the unique resin formulation. Tight curvature, resin rich seams and numerous components have been produced through autoclave and press moulding processes without any sign of white wash or spots.

SC 110T2 is suitable for interior and exterior automotive, marine and other markets where a high clarity finish is required.

PRODUCT INFORMATION

SC 110T2 visual carbon prepreg is available in a range of product formats. Please consult your local sales contact for further information.

SC 110T2 is proven to meet automotive OEM environmental standards for interior and exterior parts following the application of a suitable lacquer.

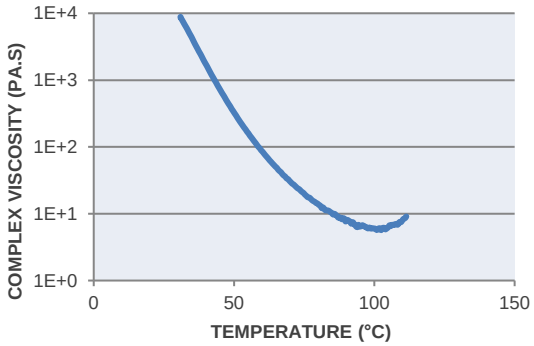
Full contact details can be found at www.gurit.com.

PREPREG PROPERTIES

RHEOLOGY DATA

SC 110T2 resin viscosity profile conducted at 1°C (1.8°F) per minute.

PROPERTY	VALUE	
Minimum Viscosity	5.7 Pa.S	57 P
Temperature at Minimum Viscosity	102°C	216°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 110T2 offers flexible curing options. The recommended minimum cure is 720 minutes at 80°C (176°F) with a 1°C (1.8°F) per minute ramp-rate.

PROPERTY	AUTOCLAVE		PRESS MOULDING	TEST STANDARD
Typical Laminate	8 plies of SC 110T2 RC245T prepreg with 40% resin content			-
Typical Ramp Rate	1 – 5°C (2 – 9°F) per minute		N/A	-
Cure Temperature	85°C (185°F)	120°C (248°F)	150°C (300°F)	-
Cure Dwell Time	600 (min)	45 (min)	20 (min)	-
Cure Pressure	+6bar (85Psi)		> +12bar (175Psi)	-
De-mould Temperature	< 60°C (140°F)		150°C (300°F)*	-
Dry Tg_1 (DMA)	110-125°C / 230 – 257°F			ASTM D7028

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

LAMNIATE MECHANICAL PROPERTIES

CURED RESIN PROPERTIES

Oven cured using standard processing techniques and recommended cure cycles on a single batch of material.

PROPERTY	SYMBOL	12 hrs at 80°C (176°F)		60 mins at 120°C (185°F)		TEST STANDARD
Glass Transition Temperature	Tg_1	101°C	214°F	126°C	259°F	ISO 6721 (DMA)
Tensile Strength	σ_T	81 MPa	11.8 ksi	95 MPa	13.8 ksi	ISO 527-2
Tensile Modulus	E_T	3.9 GPa	0.57 Msi	3.7 GPa	0.53 Msi	ISO 527-2
Flexural Strength	σ_F	161 MPa	23.3 Ksi	149 MPa	21.5 Ksi	ISO 178
Flexural Modulus	E_F	4.0 GPa	0.58 Msi	3.7 GPa	0.54 Msi	ISO 178
Compressive Strength	σ_C	178 MPa	25.8 Ksi	182 MPa	26.4 Ksi	ISO 604

WOVEN LAMINATE PROPERTIES

Cured using standard processing techniques and a fast cure time of 60 minutes at 120°C (248°F) on a single batch of material.

PROPERTY	SYMBOL	RC245T		TEST STANDARD
Fabric / Fibre Description	-	245g/m2 2x2 twill fabric using T300 3k fibre		-
Resin Content	-	40 %		-
Cure Method	-	Cured Pressure -1 bar		-
Cure Schedule	-	60 minutes at 120°C (248°F)		-
Cured Ply Density	ρ_{ply}	1.49 g/cm^3	0.054 lb/in^3	
Glass Transition Temperature	Tg_1	120^{0}C	248°F	ISO 6721 (DMA)
Cured Ply Thickness	t_{ply}	0.25 – 0.26 mm	0.010 in	ASTM D 3171 Method II
0° Tensile Cured Fibre Volume*	V_f	55.9 %		ASTM D 3171 Method II
0° Tensile Strength (Normalised to 60%)	X_T	794 MPa	115 Ksi	ISO 527-4
0° Tensile Modulus (Normalised to 60%)	E_{T11}	69 GPa	10.0 Msi	ISO 527-4
0° Compressive Str. Fibre Volume *	V_f	53.6 %		ASTM D 3171 Method II
0° Compressive Strength (Normalised to 60%)	X_C	797 MPa	116 Ksi	SACMA SRM1-94
0° Compressive Mod. Fibre Volume *	V_f	54.8 %		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	54.9 %		ASTM D 3171 Method II
90° Tensile Strength (Normalised to 60%)	Y_T	766 MPa	111 Ksi	ISO 527-4
90° Tensile Modulus (Normalised to 60%)	E_{T22}	72 GPa	10.4 Msi	ISO 527-4
90° Compressive Str. Fibre Volume	V_f	52.0 %		ASTM D 3171 Method II
90° Compressive Strength (Normalised to 60%)	Y_C	775 MPa	112 Ksi	SACMA SRM1-94
90° Compressive Mod. Fibre Volume *	V_f	56.0 %		ASTM D 3171 Method II
90° Compressive Modulus (Normalised to 60%)	E_{C22}	65 GPa	9.4 Msi	SACMA SRM1-94
0° Flexural Strength	X_F	886 MPa	129 Ksi	ISO 14125
0° Flexural Modulus	E_{F11}	54 GPa	7.8 Msi	ISO 14125
±45° IPS Fibre Volume*	V_f	53.8 %		ASTM D 3171 Method II
±45° In-Plane Shear Strength (at 5% shear strain)	τ_{12}	73 MPa	10.5 Ksi	ISO 14129
±45° In-Plane Shear Modulus	G_{12}	4.2 GPa	0.61 Msi	ISO 14129
±45° In-Plane Shear Poisson's Ratio	ν_{12}	0.75 %		ISO 14129
0° ILSS Fibre Volume*	V_f	52.9 %		ASTM D 3171 Method II
0° ILSS	X_{ILSS}	78 MPa	11 Ksi	ISO 14130

* Original laminate fibre volume fraction

NOTICE

All advice, instruction or recommendation is given in good faith but the selling Gurit entity (the Company) only warrants that advice in writing is given with reasonable skill and care. No further duty or responsibility is accepted by the Company. All advice is given subject to the terms and conditions of sale (the Conditions) which are available on request from the Company or may be viewed at Gurit's Website: www.gurit.com/terms-and-conditions.aspx

The Company strongly recommends that Customers make test panels in the final process conditions and conduct appropriate testing of any goods or materials supplied by the Company prior to final use to ensure that they are suitable for the Customer's planned application. Such testing should include testing under conditions as close as possible to those to which the final component may be subjected. The Company specifically excludes any warranty of fitness for purpose of the goods other than as set out in writing by the Company. Due to the varied nature of end-use applications, the Company does, in particular, not warrant that the test panels in the final process conditions and/or the final component pass any fire standards.

The Company reserves the right to change specifications and prices without notice and Customers should satisfy themselves that information relied on by the Customer is that which is currently published by the Company on its website. Any queries may be addressed to the Technical Services Department.

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

For all other enquiries such as technical queries:

Telephone	+ 44 1983 828000 (08:30 – 17:00 GMT)
Email	technical.support@gurit.com

24-HOUR CHEMICAL EMERGENCY NUMBER

For advice on chemical emergencies, spillages, fires or exposures:

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