RENUVO™ PP

UV Curing Composite Technology

UV CURING PREPREG

- UV Curing resin system with dedicated RENUVO™ Lamp Technology
- Material can be used between +5°C to +30°C (+41°F to +86°F)
- Compatible with current topcoat solutions
- Benefits from SparPreg™ handling characteristics
- Clean processing avoiding mixing and contamination
- Excellent Mechanical Properties
- Long out-life at room temperature

INTRODUCTION

RENUVO™ Prepreg (PP) is a breakthrough UV curing Prepreg system, developed by Gurit as a repair system for turbine blades. The system is used in combination with RENUVO™ Multi-Purpose System (MPS) to complete structural repairs.

RENUVO™ PP offers a step change in materials for the repair market. With working temperatures as low as +5°C (+41°F), RENUVO™ PP has demonstrated a practical solution to an engineering problem; how to perform repairs, quickly, at these temperatures. For this reason, the material has been formulated for both hot and cold environments, and is available in unidirectional (UD) and biaxial (XE) formats.

The RENUVO™ PP system eliminates the human error of mixing, dispensing and working with more traditional wet laminating repair systems. Additionally the material offers the operator the security that wherever the material has been sourced it is the same product manufactured to the same high exacting process.

Using a dedicated UV source, ideally RENUVO™ Lamp Technology, RENUVO™ PP is cured in 180 seconds for a leading edge repair, up to 3 plies of 600g/m^2 E-glass prepreg. Used in combination with RENUVO™ MPS, the repair can be quickly finished without the need for secondary operations to fill and fair.

PRODUCT INFORMATION

RENUVO™ PP is available in a range of product formats. Please consult your local sales contact for further information. Full contact details can be found at www.gurit.com.

PROPERTY	600 G/M^2 E-GLASS UD		600 G/M^2 E-GLASS BIAX		TEST STANDARD
Format	0° Unidirectional Prepreg		±45° Biaxial Prepreg		-
Nominal Resin Content (by weight)	35 %		35 %		EN 2329
Nominal Fibre Weight	600 g/m^2	0.123 lb/ft^2	600 g/m^2	0.123lb/ft^2	-
Nominal Areal Weight	924 g/m^2	0.187 lb/ft^2	924 g/m^2	0.187 lb/ft^2	-
Stitching Type	-		Textured Polyester		-
Sizing Type	Epoxy Compatible		Epoxy Compatible		EN 2331
Backer	2 x 50µm MDPE		2 x 50µm MDPE		-

PREPREG PROPERTIES

TRANSPORT & STORAGE

The RENUVO™ Prepreg should be stored in its original packaging during transport and storage. Suitable long-term storage conditions will result in a shelf life of 18 months at 21°C (+70°F).

STORAGE TEMP.	UNIT	VALUE
-18°C (0°F)	months	18
+21°C (+40°F)	months	18

Storage should be in a dry place out of direct sunlight and ambient light, since the prepreg is sensitive to UV light. The recommended storage temperature should be between -18°C and 21°C (0°F and +70°F). Whilst storage at higher temperatures between +5°C and 30°C (+41°F and +86°F) prior to application will not adversely affect the product shelf-life, it may cause problems such as distortions of the prepreg and excess resin bleed. It is recommended that the prepreg is stored in its original sealed plastic wrapper and box to protect it from ambient UV light.

HEALTH AND SAFETY

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

PREPREG PROCESSING AND HANDLING

The product should be applied out of direct sunlight to extend the working time. Please refer to the RENUVO™ Blade Repair Solution process notes. Specific prepreg product working practices apply to this product, details of which can be obtained from Gurit by the Technical Support department.

PROPERTY	600G/M^2 E-GLASS UD	600G/M^2 E-GLASS BIAX	TEST STANDARD
Recommended Handling Temperature	+5 to +30°C / +41 to +86°F		-
Maximum Relative Humidity	90 %		-
Cure Time @ 300mW/cm^2	3 mins		-
Cure Height @ 300mW/cm^2	30 mm / 1.18 in		-
Recommended ply drop length	30 mm / 1.18 in	7.5 mm / 0.30 in	-
Cured Laminate Colour (Gardner)	3 - 5		-
Dry Tg_1 (DMA)	95°C / 203°F		ASTM D7028

*please refer to the RENUVO LAMP datasheet for more information

LAMINATE PROPERTIES

All data presented in this datasheet is based on the testing of a single batch of material, tested at room temperature (21ºC / + 71ºF)

PROPERTY*	SYMBOL	600G/M^2 E-GLASS UD		600G/M^2 E-GLASS BIAX		TEST STANDARD
Cured Ply Thickness	mm	0.48		0.49		-
Cured Ply Thickness Tolerance	mm	+/- 0.03		+/- 0.03		-
Fibre Volume Fraction	FVF	53 %				ASTM D 3171 Method II
0° Tensile Strength	X_{T11}	900 MPa	131 Ksi	427 MPa	62 Ksi	ISO 527-4
0° Tensile Modulus	E_{T11}	41 GPa	5.9 Msi	27 GPa	3.9 Msi	ISO 527-4
0° Tensile Strain	ε_{T11}	1.1 %		2.0 %		ISO 527-4
90° Tensile Strength	X_{T22}	26 MPa	3.8 Ksi	-	-	ISO 527-4
90° Tensile Modulus	E_{T22}	13 GPa	1.9 Msi	-	-	ISO 527-4
0° Flexural Strength	X_F	1140 MPa	165 Ksi	455 MPa	66 Ksi	ISO 14125
0° Flexural Modulus	E_{F11}	36 GPa	5.2 Msi	17 GPa	2.5 Msi	ISO 14125
0° Inter-laminar Shear Strength	X_{ILSS}	69 MPa	10.0 Ksi	25 MPa	3.6 Ksi	ISO 14130
0° Compressive Strength	X_{C11}	966 MPa	140 Ksi	607 MPa	88 Ksi	SACMA SRM1-94
Lap Shear (EP Prepreg)	τ_{EPOXY}	10 MPa	1.5 Ksi	-	-	BS 5350 Part C5
Lap Shear (Infused PE)	$\tau_{POLYESTER}$	11 MPa	1.6 Ksi	-	-	BS 5350 Part C5

*Mechanical properties evaluated at 0° to fibre direction

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:

Europe	+44 1273 289451
Americas	+1 646 844 7309
APAC	+65 3158 1412

E customer.support@gurit.com

W www.gurit.com