

# RENUVO™ SA

## UV CURING ADHESIVE FILM

Gurit has a range of blade repair products which are approved by blade OEM's and DNV-GL and globally available to deliver fast, efficient wind turbine repair.

**These focus on achieving:**

- Minimum turbine down time
- Consistent repair quality
- Ease of application
- Maximum weather window for application
- Minimum environmental impact from waste
- Maximizing operator health and safety

**Through:**

- Market leading product health and safety
- Practical repair packaging, dispensing
- Mixing solutions for easy processing
- Robust repairs in challenging conditions
- Technical support help line
- Two product streams, heat and UV cured



Our composite repair solutions maximise the wind repair window:

	<b>Prepreg + Primer</b>	<b>Application Temperature Range</b>						
	<b>OEM Qualified</b>	5°C	10°C	15°C	20°C	25°C	30°C	55°C
	<b>RENUVO™ SA</b>	(+)	(+)	(+)	(+)	(+)	(+)	+

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(+) Pre-heating of repair area on substrate/blade may be required

## PRODUCT INFORMATION

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### AVAILABILITY

The product is available in several formats please contact your local customer support for more information.

### TRANSPORT & STORAGE

The products should be kept in securely closed containers during transport and storage. Any accidental spillage should be soaked up with sand, sawdust, cotton waste or any other absorbent material. The area should then be washed clean (see appropriate Safety Data Sheet).

COMPONENT	TEMPERATURE	MONTHS
RENUVO™ SA	-18°C to +5°C	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 as indicated in the table above. 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

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The following points must be considered:

- Using UV curing equipment:
  - Eye-protection: UV filter function of class 2 or 2C as described in EN166 Personal eye Protection – specifications and EN170 Personal eye-protection, also with shade number of 1.7 up to 2.5.
  - Skin protection: Gloves (of a UV blocking material); Wear long sleeves. UV blocking clothing to cover all exposed skin directly in contact with the UV source.
  - Do NOT point the lamp directly at any skin, any eyes or any other personnel.
- Skin contact must be avoided by wearing protective gloves. Gurit recommends the use of disposable nitrile gloves for most applications. The use of barrier creams is not recommended, but to preserve skin condition a moisturising cream should be used after washing.
- Overalls or other protective clothing should be worn when mixing, laminating or sanding. Contaminated work clothes should be thoroughly cleaned before re-use.
- Eye protection should be worn if there is a risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.
- Ensure adequate ventilation in work areas. Respiratory protection should be worn if there is insufficient ventilation. Solvent vapours should not be inhaled as they can cause dizziness, headaches, loss of consciousness and can have long term health effects.
- If the skin becomes contaminated, then the area must be immediately cleansed. The use of resin-removing cleansers is recommended. To finish, wash with soap and warm water. The use of solvents on the skin to remove resins etc must be avoided.  
Washing should be part of routine practice:
  - before eating or drinking
  - before smoking
  - before using the lavatory
  - after finishing work
- The inhalation of sanding dust should be avoided and if it settles on the skin then it should be washed off. After more extensive sanding operations a shower/bath and hair wash is advised.

### APPLICABLE RISK & SAFETY PHRASES

Gurit produces a separate full Safety Data Sheet for all hazardous products. Please ensure that you have the correct SDS to hand for the materials you are using before commencing work.

## RENUVO™ SA (ADHESIVE FILM) PRIMER

This 1-page product summary is intended for use in conjunction with further advice provided in the remainder of this document. All data has been generated from typical production material and does not constitute a product specification. Using the RENUVO™ method, requires specialist training and equipment. It is recommended that all users are familiar with the processes, materials and equipment required before commencing any repair. A test repair patch should be conducted to ensure a sufficient level of adhesion using all materials, equipment and processes that will be used in practice, reflecting also the ambient conditions (e.g. temperature, humidity & sunlight exposure).

### COMPONENT PROPERTIES

PROPERTY	UNITS	PA11-7929	TEST METHOD
Format	-	Adhesive Film	-
Nominal Resin Content (by weight)	g/m <sup>2</sup>	1200	EN 2329
Nominal Fibre Weight	g/m <sup>2</sup>	25	-
Nominal Prepreg Areal Weight	g/m <sup>2</sup>	1225	-
Stitching Type	-	N/A	-
Sizing Type	-	Epoxy Compatible	EN 2331
Backer	-	White Backer/Black Backer	-

### PROCESSING, HANDLING & CURING PROPERTIES\*

The product should be applied out of direct sunlight to extend the working time.

PROPERTY	UNITS	300mW/cm <sup>2</sup>	2500mW/cm <sup>2</sup>	TEST METHOD
Recommended Handling Temperature	°C	+5 to +55		-
Maximum Relative Humidity	%	90		-
Working time	-	The product should be applied out of direct sunlight to extend working time.		-
Cure Time	min:sec	03:00*	00:20*	395nm UV-A Light Source*
Cure Height	mm	30*	1*	395nm UV-A Light Source*
Maximum laminate thickness per cure	-	3mm		-

### CURED RESIN MECHANICAL PROPERTIES\*

PROPERTIES	SYMBOL	UNITS	PA11-7929	TEST STANDARD
Cure Schedule	-	-	20 seconds at 1mm height using 2500mW/cm <sup>2</sup> lamp	395nm UV-A Light Source*
Cured Laminate Colour	-	-	3 - 5	Gardner
Glass Transition Temperature	T <sub>g1</sub>	°C	TBC	ASTM D7028
Tensile Strength	σ <sub>T</sub>	MPa	54.6	ISO 527-2
Tensile Modulus	E <sub>T</sub>	GPa	3.89	ISO 527-2
Tensile Strain	E <sub>T</sub>	%	1.69	ISO 527-2
Flexural Strength	σ <sub>F</sub>	MPa	104	ISO 14125
Flexural Modulus	E <sub>F</sub>	GPa	3.82	ISO 14125

\*The cure will depend on the type of UV lamp used to conduct the repair. Please contact Gurit Technical Support for advice.

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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](mailto:technical.support@gurit.com)

## 24-HOUR CHEMICAL EMERGENCY NUMBER

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

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