

EH 275 / EP 114

180°C SERVICE TEMPERATURE EPOXY PREPREG

- ▮ Service temperature of 180°C (356°F)
- ▮ High volume, reference aerospace epoxy system
- ▮ Controlled resin flow
- ▮ Self-adhesive resin formulation with outstanding adhesion to core materials
- ▮ Highly toughened and self-extinguishing resin system
- ▮ Excellent mechanical properties

INTRODUCTION

EH 275 / EP 114 prepreg material is very suitable for the manufacturing of high performance composite structures and light-weight sandwich components with high specific mechanical properties. EH 275 also benefits from excellent impact properties and very strong adhesion to honeycomb cores as demanded by aircraft secondary structures like radomes, fairing and leading edges.

The resin matrix EH 275 / EP 114 is a 180°C (356°F) system, which can be cured at a temperature range between 160°C (320°F) and 180°C (356°F) and is offered in different tack levels to meet fabrication requirements of curved and complex shaped components.

Both monolithic and sandwich structures can be easily manufactured with this prepreg. The curing can be performed by press, vacuum and autoclave moulding with a pressure of at least 0.7 bar (10 psi).

The prepreg material is suitable for:

- ▮ Aviation and aerospace industries
- ▮ Machine industries
- ▮ Marine and automotive applications

Gurit manufactures this resin system at two sites using the following naming conventions:

- ▮ Gurit Kassel: EH 275
- ▮ Gurit Zullwil: EP 114

PRODUCT INFORMATION

EH 275 / EP 114 epoxy prepreg 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	EHG275-68-50	EHG275-44-55	TEST STANDARD
Resin	Epoxy	Epoxy	-
Prepreg Weight	630 ± 20 g/m ²	250 ± 20 g/m ²	EN 2329
Volatile	< 1.5 %	< 1.5 %	EN 2330
Resin Flow	> 20 %	> 20 %	EN 2332
Tackiness	medium to high	medium to high	-
Fibre Material	E-glass	E-glass	-
Fabric Weight	296 g/m ² ± 5 %	105 g/m ² ± 5 %	EN 2331
Weave Style	8H satin	1x3 Crowfoot	-
Service Temperature (Cured State)	-55°C to +135°C (-67°F to +275°F)		-
Resin Content	53.0 ± 3 %	58.0 ± 3 %	EN 2331
Typical Roll Length	50 m / 55 yd	50 m / 55 yd	-
Typical Roll Width	1.0 m / 39 in	1.0 m / 39 in	-

PREPREG PROPERTIES

TRANSPORT & STORAGE

When stored sealed & out of direct sunlight.

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.

STORAGE TEMP		UNIT	VALUE
-18°C	0°F	months	6
+21°C	+70°F	days	5

HEALTH AND SAFETY

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

QUALIFICATIONS / FIRE PERFORMANCE

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PRODUCT	QUALIFICATIONS	FIRE PERFORMANCE
EHG275-68-50	<ul style="list-style-type: none"> ↗ LN 29549 WL 8.4331.2 B ↗ MHB 75-T-2-0020-2-1 (certification) 	↗ FAR 25.853 Flame Test (self-extinguishing)
EHG275-44-55	<ul style="list-style-type: none"> ↗ LN 29549 WL 8.4330.2 B ↗ MHB 75-T-2-0021-2-1 (certification) 	↗ FAR 25.853 Flame Test (self-extinguishing)

CURING CONDITIONS

PROPERTY	STANDARD CURE		TEST STANDARD
Cure Process	Press / Autoclave / Vacuum-bag		-
Cure Pressure	0.7 – 4 bar / 10 – 58 psi		-
Heat-up Ramp Rate	Max 3°C / 5.4°F per min		-
Dwell Temperature	160°C (320°F)	180°C (356°F)	-
Dwell Time	90min	60min	-
Cool-down Ramp Rate	4°C per min / 7.2°F per min		-
Remove material at	< 60°C / 140°F		-

LAMINATE PROPERTIES

All data presented in this datasheet is based on the mechanical testing of a single batch of material.

MECHANICAL PROPERTIES AT ROOM TEMPERATURE (21°C / 70°F)

PROPERTY	SYMBOL	EHG275-68-50		EHG275-44-55		TEST STANDARD
0° Flexural Strength	X _F	400 MPa	58 ksi	350 MPa	51 ksi	ISO 178
0° Flexural Modulus	E _{F11}	18 GPa	2.6 msi	18 GPa	2.6 msi	ISO 178
0° Tensile Strength	X _T	300 MPa	44 ksi	270 MPa	39 ksi	ISO 527-4
0° Tensile Modulus	E _{T11}	17 GPa	2.5 msi	17 GPa	2.5 msi	ISO 527-4
0° Compressive Strength	X _C	280 MPa	41 ksi	280 MPa	41 ksi	EN 2850
0° Compressive Modulus	E _{C11}	16 MPa	2.3 ksi	16 MPa	2.3 ksi	EN 2850
0° Interlaminar Tensile Shear Strength	X _{ILTSS}	35 MPa	5.1 ksi	23 MPa	3.3 ksi	AITM 1.0019
Climbing Drum Peel*	σ _{PEEL}	250 N/75 mm		250 N/75mm		EN 2243-3
Bending Load*	F _{BENDING}	1600 N		1600 N		AITM 1.0018
Glass Transition Temperature	T _g	160°C	320°F	160°C	320°F	ISO 6721 (DMA)

*sandwich structure: 2 plies per side; core 3.2-48kg/m³ 9.4mm (honeycomb)

MECHANICAL PROPERTIES AT 80°C (176°F)

PROPERTY	SYMBOL	EHG275-68-50		EHG275-44-55		TEST STANDARD
0° Flexural Strength	X _F	180 MPa	26 ksi	180 MPa	26 ksi	ISO 178
0° Flexural Modulus	E _{F11}	10 GPa	1.5 msi	10 GPa	1.5 msi	ISO 178
0° Tensile Strength	X _T	-	-	-	-	ISO 527-4
0° Tensile Modulus	E _{T11}	-	-	-	-	ISO 527-4
0° Compressive Strength	X _C	-	-	-	-	EN 2850
0° Compressive Modulus	E _{C11}	-	-	-	-	EN 2850
0° Interlaminar Tensile Shear Strength	X _{ILTSS}	23 MPa	3.3 ksi	23 MPa	3.3 ksi	AITM 1.0019
Climbing Drum Peel*	σ _{PEEL}	-		250 N/75mm		EN 2243-3
Bending Load*	F _{BENDING}	1600 N		1600 N		AITM 1.0018
Glass Transition Temperature	T _g	160°C	320°F	160°C	320°F	ISO 6721 (DMA)

*sandwich structure: 2 plies per side; core 3.2-48kg/m³ 9.4mm (honeycomb)

NOTICE

All advice, instruction or recommendation is given in good faith but 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 the Company's Website: www.gurit.com/terms-and-conditions.aspx.

The Company strongly recommends that Customers make test panels and conduct appropriate testing of any goods or materials supplied by the Company 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. 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 are continuously reviewing and updating literature. Please ensure that you have the current version, by contacting Gurit Marketing Communications or your sales contact and quoting the revision number in the bottom right-hand corner of this page.

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