

PF 801

PHENOLIC PREPREG CO-CURABLE WITH EPOXY

- ↗ Self-adhesive resin system for sandwich panel application
- ↗ Formaldehyde free resin formulation
- ↗ Excellent FST behaviour
- ↗ Long shelf and shop life
- ↗ Co-curing with epoxy resin EP 121 to achieve outstanding mechanical properties combined with low FST properties

INTRODUCTION

PF 801 phenolic prepreg resin has been developed for the realisation of epoxy co-cured composite structures.

In a one-step co-curing process, PF 801 can be cured excellently with the epoxy resin EP 121. Because of the chemical cross-linking, which occurs between the phenolic and the epoxy molecules during the curing step, a strong bonding takes place at the interface of both thermosetting matrix system.

As a result, high flame-retardancy and excellent FST behaviour of the phenolic resin PF 801 and the outstanding mechanical properties of the epoxy resin EP 121 are combined to meet the highest requirements of structural interior applications as such as the passenger floor. This prepreg is used as a top layer to avoid electro-galvanic corrosion of carbon structure with aluminium and improve overall impact behaviour of the passenger floor panels.

The co-curing can be performed at a temperature range between 130°C (266°F) and 150°C (302°F) using a press and autoclave moulding with a pressure of at least 0.7 bar / 10 psi.

Such composite structures can be exposed easily to temperatures in the range of -55°C (-67°F) up to +90°C (194°F). The prepreg material is suitable for monolithic and sandwich structures:

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

PRODUCT INFORMATION

PF 801 phenolic 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	PF 801-44-53	PF 801-C15-50	TEST STANDARD
Resin	Phenolic	Phenolic	-
Prepreg Weight	225 ± 15 g/m ²	360 ± 15 g/m ²	EN2329
Volatile	< 7.0 %	< 6.0 %	EN 2330 (180°C/10min)
Resin Flow	10 - 25 % (4 plies, 140°C, 10 min, 4 bar)	22 - 23 % (4 plies, 140°C, 10 min, 4 bar)	EN 2332
Tackiness	T0 / None	T0 / None	-
Fibre Material	E-glass	3k HTA	-
Fabric Weight	105 g/m ² ± 5 %	193 g/m ² ± 5 %	EN 2331
Weave Style	1x3 Crowfoot	Plain Weave	-
Service Temperature (Cured State)	-55°C to +80°C (-67°F to 176°F)	-55°C to +80°C (-67°F to 176°F)	-
Resin Content	53 ± 3 %	50 ± 3 %	EN 2331
Typical Roll Length	< 177 m / 194 yd	< 177 m / 194 yd	-
Typical Roll Width	1.55 m / 61 in	1.55 m / 61 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	15

HEALTH AND SAFETY

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

QUALIFICATIONS / FIRE PERFORMANCE

PRODUCT	QUALIFICATIONS	FIRE PERFORMANCE
PF 801-44-53	<ul style="list-style-type: none"> ↪ ABS 5047-51 ↪ AIMS 05-10-019 (certification) 	<ul style="list-style-type: none"> ↪ FAR 25.853 Flame Test (self-extinguishing) ↪ ABD 0031
PF 801-C15-50	<ul style="list-style-type: none"> ↪ ABS 5034-A02 ↪ AIMS 05-10-013 (certification) 	<ul style="list-style-type: none"> ↪ FAR 25.853 Flame Test (self-extinguishing) ↪ ABD 0031

CURING CONDITIONS

PROPERTY	STANDARD CURE		TEST STANDARD
Cure Process	Press / Autoclave		-
Cure Pressure	0.7 – 4 bar / 10 – 58 psi		-
Heat-up Ramp Rate	Max 3°C / 5.4°F per min		-
Dwell Temperature	130°C (266°F)	155°C (311°F)	-
Dwell Time	90 min	45 min	-
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	PF 801-44-53		PF 801-C15-50		TEST STANDARD
0° Tensile Strength	X _T	320 MPa	46 ksi	900 MPa	131 ksi	ISO 527-4
0° Tensile Modulus	E _{T11}	17 GPa	2.47 msi	53 GPa	7.69 msi	ISO 527-4
0° Compressive Strength	X _C	350 MPa	51 ksi	600 MPa	87 ksi	EN 2850
0° Compressive Modulus	E _{C11}	17 GPa	2.47 msi	53 GPa	7.69 msi	EN 2850
0° Interlaminar Tensile Shear Strength	X _{ILTSS}	30 MPa	4.35 ksi	-	-	AITM 1.0019
0° Interlaminar Shear Strength	X _{ILSS}	-	-	40 MPa	5.80 ksi	EN 2563
Glass Transition Temperature	T _g	120°C	248°F	120°C	248°F	ISO 6721 (DMA)

MECHANICAL PROPERTIES AT 80°C (176°F)

PROPERTY	SYMBOL	PF 801-44-53		PF 801-C15-50		TEST STANDARD
0° Tensile Strength	X _T	210 MPa	31 ksi	780 MPa	113 ksi	ISO 527-4
0° Compressive Strength	X _C	250 MPa	36 ksi	450 MPa	65 ksi	EN 2850
0° Interlaminar Tensile Shear Strength	X _{ILTSS}	20 MPa	2.90 ksi	-	-	AITM 1.0019
0° Interlaminar Shear Strength	X _{ILSS}	-	-	32 MPa	4.64 ksi	EN 2563

BURN BEHAVIOUR

PROPERTY	PF 801-44-53	PF 801-C15-50	TEST STANDARD
Flammability vertical, 60s flaming – Burn length	100 mm	100 mm	AITM 2.0002A
Flammability vertical, 60s flaming – After flame time	0 s	0 s	AITM 2.0002A
Flammability vertical, 60s flaming – After flame time of drips	0 s	0 s	AITM 2.0002A
Max. specific optical smoke density within 4 min (flaming mode)	30 Ds	35 Ds	AITM 2.0007A
Heat Release	-	-	AITM 2.0006
Heat Release Rate	-	-	AITM 2.0006

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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