

# EH 420 / EH 420C

## EPOXY PREPREG CO-CURABLE WITH PHENOLIC

- ↗ Available in hotmelt (EH 420) and solvent (EH 420C)
- ↗ Extended shop life 30 days at room temperature - 21°C (70°F)
- ↗ Highly toughened and self-extinguishing resin system (black pigmented)
- ↗ Self-adhesive resin formulation with very good adhesion to core materials
- ↗ Short curing time – 10 minutes at 160°C (320°F)
- ↗ Suitable for co-curing with phenolic systems such as PH850C
- ↗ Excellent mechanical properties & FST behaviour

### INTRODUCTION

**EH 420 resin is a self-adhesive epoxy system designed for a wide variety of manufacturing process, controlled flow during curing, high interlaminar shear strength and very good adhesion to cores and metallic substrates at excellent FST properties.**

This prepreg material is very suitable for the manufacturing of high performance composite structures and light-weight sandwich components with high specific mechanical properties, excellent impact properties and very strong adhesion to honeycomb cores as demanded by aircraft secondary structures like radomes, fairing and leading edges. In combination with its very good FST performance, it is also very suitable for high performance aircraft interior components.

The resin matrix EH 420C is a 120°C (248°F) system, which can be cured at a temperature range between 120°C(248°F)/45 min and 160°C(320°F)/10 min. It 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. Such composite structures can be exposed easily to temperatures in the range of -55°C to +80°C (-67°F to +176°F).

The prepreg material is suitable for:

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

## PRODUCT INFORMATION

EH 420 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](http://www.gurit.com).

PROPERTY	EHG420CS-300-37	EH 420C-C20-42	EHG420C-68-40	TEST STANDARD
Resin	Epoxy	Epoxy	Epoxy	-
Prepreg Weight	470 ± 20 g/m <sup>2</sup>	352 +26 -12 g/m <sup>2</sup>	495 ± 20 g/m <sup>2</sup>	EN 2329
Volatile	< 1.5 %	< 1.5 %	< 1.5 %	EN 2330
Resin Flow	> 15 %	> 15 %	> 15 %	EN 2332
Tackiness	Medium to high	Medium to high	Medium to high	-
Fibre Material	E-glass	3k HTA	E-glass	-
Fabric Weight	300 g/m <sup>2</sup> ± 5 %	204 g/m <sup>2</sup> ± 5 %	296 g/m <sup>2</sup> ± 5 %	EN 2331
Weave Style	8H satin	2X2 Twill	8H satin	-
Service Temperature (Cured State)	-55°C to +80°C (-67°F to 176°F)	-55°C to +80°C (-67°F to 176°F)	-55°C to +80°C (-67°F to 176°F)	-
Resin Content	37 ± 3 %	42 -2 +4%	40 ± 3%	EN 2331
Typical Roll Length	50 m / 55 yd	50 m / 55 yd	50 m / 55 yd	-
Typical Roll Width	1.0 m / 39 in	1.27 m / 50 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	30

### HEALTH AND SAFETY

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

## QUALIFICATIONS / FIRE PERFORMANCE

PRODUCT	QUALIFICATIONS	FIRE PERFORMANCE
EHG420CS-300-37	-	→ FAR 25.853 Flame Test (self-extinguishing)
EH 420C-C20-42	-	→ FAR 25.853 Flame Test (self-extinguishing) → ABD 0031
EHG420C-68-40	→ WL.8.4568.60 → DAN 1242-40 (Floor application) → DAN 402 F (Plug F-Type)	→ FAR 25.853 Flame Test (self-extinguishing) → ABD 0031

## CURING CONDITIONS

PROPERTY	Standard Cycle			TEST STANDARD
Recommended curing process	Press / Autoclave / Vacuum-bag			-
Spec. Pressure	0.4MPa (0.06ksi)			-
Heat-up	3K/min to 60°C (140°F) (max)			-
Temperature	120°C (248°F)	135°C (275°F)	160°C (320°F)	-
Cure Time	45 min	30 min	10 min	-
Cool-down	5k/min to 60°C (140°F) (max)			-
Remove material at	120°C (248°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	EHG420CS-300-37		EH 420C-C20-42		EHG420C-68-40		TEST STANDARD
0° Flexural Strength	X <sub>F</sub>	730 MPa	106 ksi	1000 MPa	145 Ksi	700 MPa	102 ksi	ISO 178
0° Flexural Modulus	E <sub>F11</sub>	25 GPa	3.6 msi	60 GPa	8.7 msi	23 GPa	3.3 msi	ISO 178
0° Tensile Strength	X <sub>T</sub>	500 MPa	73 ksi	-	-	450 MPa	65 ksi	ISO 527-4
0° Tensile Modulus	E <sub>T11</sub>	22 GPa	3.2 msi	-	-	21 GPa	3.1 msi	ISO 527-4
0° Interlaminar Tensile Shear Strength	X <sub>ILTSS</sub>	50 MPa	7.3 ksi	70 MPa	10.2 ksi	50 MPa	36 ksi	AITM 1.0019
Climbing Drum Peel*	σ <sub>PEEL</sub>	230 N/75 mm		-		230 N/75 mm		EN 2243-3
Bending Load*	F <sub>BENDING</sub>	1500 N		-		1500 N		AITM 1.0018
Glass Transition Temperature	T <sub>g</sub>	120°C	248°F	120°C	248°F	120°C	248°F	ISO 6721 (DMA)

\*sandwich structure: 2 plies per side; core 3.2-48kg/m<sup>3</sup> 9.4mm (honeycomb)

### MECHANICAL PROPERTIES AT 80°C (176°F)

PROPERTY	SYMBOL	EHG420CS-300-37		EH 420C-C20-42		EHG420C-68-40		TEST STANDARD
0° Flexural Strength	X <sub>F</sub>	600 MPa	87 ksi	-	-	500 MPa	73 ksi	ISO 178
0° Flexural Modulus	E <sub>F11</sub>	24 GPa	3.5 msi	-	-	21 GPa	3.1 msi	ISO 178
0° Tensile Strength	X <sub>T</sub>	-	-	-	-	-	-	ISO 527-4
0° Tensile Modulus	E <sub>T11</sub>	-	-	-	-	-	-	ISO 527-4
0° Interlaminar Tensile Shear Strength	X <sub>ILTSS</sub>	34 MPa	4.9 ksi	50 MPa	7.3 ksi	50 MPa	7.3 ksi	AITM 1.0019
Climbing Drum Peel*	σ <sub>PEEL</sub>	230 N/75 mm		-		-		EN 2243-3
Bending Load*	F <sub>BENDING</sub>	1500 N		-		1500 N		AITM 1.0018
Glass Transition Temperature	T <sub>g</sub>	120°C	248°F	120°C	248°F	120°C	248°F	ISO 6721 (DMA)

\*sandwich structure: 2 plies per side; core 3.2-48kg/m<sup>3</sup> 9.4mm (honeycomb)

### BURN BEHAVIOUR

PROPERTY	EHG420CS-300-37	EH 420C-C20-42	EHG420C-68-40	TEST STANDARD
Flammability vertical, 60s flaming – Burn length	< 120 mm	< 120 mm	< 120 mm	AITM 2.0002A
Flammability vertical, 60s flaming – After flame time	0 s	0 s	0 s	AITM 2.0002A
Flammability vertical, 60s flaming – After flame time of drips	0 s	0 s	0 s	AITM 2.0002A
Max. specific optical smoke density within 4 min	84 Ds	84 Ds	84 Ds	AITM 2.0007A

## NOTICE

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**E** [contact@gurit.com](mailto:contact@gurit.com)

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