

Product characteristics and Processing guidelines

17/08/2018



BAS630T / PFA Prepreg is a pre-impregnated basalt fabric (BAS630T) with PFA (Polyfurfuryl Alcohol) resin.

Basalt fibers are extruded from 100% volcanic rocks. High quality fibers are selected for the production of Basaltex' fabrics. Basalt fibers are characterized by great mechanical properties combined with good heat/fire and chemical resistance.

BAS1101.63 prepreg is designed as fire barrier in composites for public transport, aviation, maritime, automotive as well as construction.

Typical features:

- self-extinguishing basalt prepreg with low heat and smoke release
- cure between 130 – 150 °C (press moulding, vacuum bagging, autoclave)
- short cycles and high productivity by press moulding
- rated to IMO FTPCode, EN 45545-2 and FAR25.853

Typical product characteristics:

Prepreg weight:	760 g/m ²
Fabric weight	630 g/m ²
Fabric Style:	1:3 Twill
Resin Weight Content:	18 %

Typical Laminate Properties of 7 layers BAS1101.63:

(press moulding: 155 °C / 10 min. / 10 bar / breathe after 1.5 min. / cool down under pressure)

Density after cure:	2.11 g/cm ³
Thickness:	2.31 mm (330 µm / layer)
Volume fiber fraction:	67 %

Tensile Modulus:	37 GPa	ASTM 3039
Tensile Strength:	754 Mpa	ASTM 3039
Flexural Modulus:	31 GPa	ASTM D790-17
Flexural Strength:	166 Mpa	ASTM D790-17 (Failure compression)

Handling and storage

- Please consult the Safety Datasheet and wear gloves when handling the prepreg.
- When well sealed, prepreg can be transported at ambient temperature and stored at -18°C with shelf life of 12 months.
- The prepreg can maintain its properties even when exposed longer or at higher temperature, as long as it remains flexible.
- Always seal bag and avoid moisture absorption at any time.

These values should be used as guidelines without any legal responsibility. The material will need to be tested to validate its use.

General Curing Conditions:

- Cure temperature: 140 – 150 °C for 10-15 min / layer (Oven), or 2 min / layer (press)
- Final thermal properties like Tg depend on cure temperature, time and post-cure.
- The cure of the resin gives rise to a release of water. Therefore, it is recommended to use venting for press curing and a water trap for vacuum curing.
- For thicker parts, cool down below 100 °C before demoulding might be required depending on the geometry.

Typical Curing Conditions for sandwich panels:

Example 1: vacuum bag / oven cure: 60x60 cm, 5cm balsa core, 8 layers BAS1101.63 each side

1. at -0.5 bar, ramp-up from 75°C to 120 °C in 60 min.
 2. at -1.0 bar, increase from 120°C to 150 °C in 60 min.
 3. cure at -1.0 bar at 150°C for 60 min.
 4. cool down at -1.0 bar to 90°C
 5. release pressure and demould
- (cure cycle should be optimized on the specific design of the panel)*

Example 2: press moulding sandwich panel: cork 4 cm, one later BAS1101.63 each side

1. spacer bars of 4 cm
2. press at 150 °C / 5 bar – venting after 30 s
3. demould after 3 min.

Preliminary Fire test results:

	Test	Norm	Test Institute	Parameter	Result	Criteria
Rail (EN 45545-2)	Cone Calorimeter	ISO 5660-1	RISE	MAHRE	10.9 kW/m ²	< 60 (HL3)
	Flame Spread	ISO5658-2	Warrington	CFE	23.7 kW/m ²	> 20 (HL3)
Marine IMO FTP Code Part 10	Cone Calorimeter	ISO 5660-1	RISE	Time to ign.	99 s	> 20 s
				Q30s,max	29.2 kW/m ²	< 60
				THR	6.5 MJ/m ²	< 20
				SPRavg	0.0002 m ² /s	< 0.005
Marine IMO FTP Code Part 5	Flame Spread	ISO5658-2	Warrington	CFE	23.7 kW/m ²	> 20
				Qpeak	0.75 kW	< 4.0
				Qtotal	0.04 MJ	< 0.7
				Qsust.burn.	2.34 MJ/m ²	> 1.5
Aviation FAR25.853	Vertical (60s)	AITM 2.0002A	DLR	Burn Length	9 mm	< 152
				After Flame	0 s	< 15 s
				Drip Flame	0 s	< 3 s

All results are based on initial screening test in view of further certification. Reports available on request.

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