

# SF 120FRS

## FIRE RETARDANT LOW SMOKE SURFACE FILM

- ▮ Provides an effective fire retardant layer using the proven 120FRS resin matrix
- ▮ Compatible with Epoxy & certain Phenolic prepregs
- ▮ Curable at temperatures as low as 95°C (203°F)
- ▮ Improves de-moulded surface finish
- ▮ Can achieve 120°C (248°C) Tg using vacuum bag processing
- ▮ Excellent drape allowing easy in-mould repositioning

### INTRODUCTION

**SF 120FRS is a low temperature curing fire retardant & smoke suppressant epoxy resin surfacing film.**

SF 120FRS can be cured at temperatures as low as 95°C / 203°F, but can also be used for faster manufacture of components through its 120 minute cure at 140°C / 284°F. SF 120FRS provides an effective fire retardant layer to be used in conjunction with SE 120FRS / ST 120FRS prepreg / SPRINT™ to improve the surface finish direct from out of autoclave, vacuum only processing.

The 120FRS resin matrix has been tested in accordance with the stringent European fire test standard EN45545, achieving a HL2 rating in R7 category (HL1 in R1).

#### TYPICAL APPLICATIONS

SF 120FRS is ideally suited to rail / industrial / commercial marine craft and civil applications where additional resin is required for producing sandwich laminates in conjunction with other products in the 120FRS series.



## PRODUCT INFORMATION

### AVAILABILITY

SF 120FRS is available with twin glass scrims to provide stability and breathability. It is supplied on a single silicon paper. Please contact Technical Support to discuss specific requirements and Customer Support for availability.

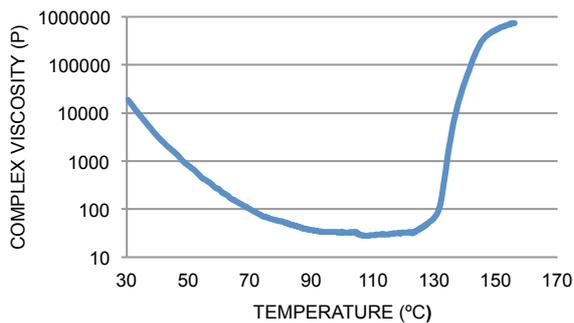
PROPERTY	UNIT	SF 120FRS
Tack	-	Medium
Colour	-	Yellow
Surface Film Weight	g/m <sup>2</sup>	200
Glass Carrier Weight	g/m <sup>2</sup>	2 x 70
Total Film Weight	g/m <sup>2</sup>	340

### PREPREG PROPERTIES

#### RHEOLOGY DATA

SF 120FRS resin viscosity profile conducted at 1°C (1.8°F) per minute.

PROPERTY	VALUE	
Minimum Viscosity	29 Pa.s	289 P
Temperature at Minimum Viscosity	110°C	229°F



#### TRANSPORT & STORAGE

When stored sealed & out of direct sunlight.

STORAGE TEMP		UNIT	VALUE
-18°C	0°F	months	24
+21-23°C	+70-73°F	days	8

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.

#### HEALTH AND SAFETY

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

#### MINIMUM CURE TIME & TEMPERATURE

SF 120FRS offers flexible curing options. The recommended minimum cure is 16 hours at 95°C (203°F) with a 0.3°C (0.5°F) per minute ramp-rate.

PROPERTY	VACUUM BAG / AUTOCLAVE			TEST STANDARD
Typical Laminate	1 x 200g SF120FRS / 4 x PHG 840 600g E-Glass prepreg			-
Typical Ramp Rate	0.3°C / 0.5°F per minute			-
Cure Temperature	95°C / 203°F	130°C / 266°F	140°C / 284°F	-
Cure Dwell Time	16 hours	180 min	120 min	-
Cure Pressure	Up to +6bar (85Psi)			-
Cure Vacuum	-1bar (14.5Psi)			-
De-mould Temperature	< 80°C (176°F)			-
Dry Tg, (DMA)	> 120°C / 248°F			ASTM D7028

## CURED RESIN PROPERTIES

Oven cured for 16 hours at 95°C (203°F) with a 0.3°C (0.5°F) per minute ramp-rate.

PROPERTY	SYMBOL	SF 120FRS		TEST STANDARD
Resin Density	$\rho_{ply}$	1.25 g/cm <sup>3</sup>	0.045 lb/in <sup>3</sup>	Archimedes
Tensile Strength	$\sigma_T$	44 MPa	6.4 ksi	ISO 527-2
Tensile Modulus	$E_T$	4.0 GPa	0.58 Msi	ISO 527-2
Flexural Strength	$\sigma_F$	80 MPa	11.6 Ksi	ISO 178
Flexural Modulus	$E_F$	3.9 GPa	0.57 Msi	ISO 178
Compressive Strength	$\sigma_C$	170 MPa	25 Ksi	ISO 178

## FIRE TESTING BURN BEHAVIOUR

PROPERTY	SF 120FRS	TEST STANDARD
Max Average Rate of Heat Release (MAHRE)*	37.04 kW/m <sup>2</sup>	ISO5660-1 (indicative only)

\*used as a surfacing ply on PHG840 600g woven E-glass

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