

SF 80FB

Fire-Barrier Surfacing Film

- Provides an intumescent fire barrier to epoxy substrates
- Tested to Federal Motor Vehicle Safety Standard 302 and BS476 Pt 6+7
- Capable of a 9 : 1 expansion ratio
- Reduction in surface film-laminate interfacial voids
- Improved opacity
- Improved resistance to water ingress

Introduction

SF 80FB surfacing material is a black, filled epoxy film containing a 320g intumescent layer. Typical applications include the protection of structural components in high risk areas such as engine bays, exhaust runs, and around the fuel system.

SF 80FB can be used directly against a suitably release treated mould surface, with prepreg or SPRINT® plies laid up behind it, or as a final layer in the mould. SF 80FB can be cured with vacuum only processing.

The epoxy system is supplied ready impregnated into a supporting medium and ready catalysed, requiring only a moderate temperature cure.

During service intumescent layer combusts to form a stable, insulating char which will protect the underlying substrate from ignition by expanding to 9mm.

Insulating Properties: The intumescent layer is formulated to minimise the generation of toxic fumes under fire conditions.

Instructions for Use

1. Ensure SF 80FB surfacing material has attained ambient temperature (circa 18-22°C) before it is removed from its packaging to avoid condensation of water on the surface film whilst defrosting.
2. Apply a single layer of SF 80FB surfacing material to a suitably release treated mould surface. When applying directly to a mould, release agents suitable for epoxy resins should be used and tests should be performed by the user to ensure that satisfactory release is obtained.
3. The material can be placed into the mould in any size/shape and care should be taken to butt adjoining pieces.
4. Once the mould surface has been covered and before the backing laminate has been added, air paths need to be introduced around the circumference of the part. This is usually achieved by placing glass tows at a 0.5m interval around the perimeter of the part in contact with surface film through to the vacuum stack.
5. Apply SPRINT® or prepreg layers behind the surface film (NOTE: significant improvements in surface stability due to voiding and component quality are obtained if SPRINT® layers are used behind the surfacing film rather than prepreg). The use of glass tows between layers of SPRINT® and the surface film is also recommended (as in 4) above) to aid air breathing.

6. Apply release film and breather suitable for the reinforcing laminate over the laminate stack. Cut and fit as necessary. Overlaps are acceptable. Consult SPRINT® or prepreg datasheet for optimum bagging procedure.
7. Apply vacuum bag with minimum 90% vacuum.
8. Heat to 70 ±5°C (ramp between 0.5°C and 2°C per minute) whilst under >90% vacuum.
9. Continue to ramp to the final cure temperature required by the resin system and hold for the correct period (see table 6 below - **Typical Cure Cycle**). Temperature ramp rates should be between 0.5°C and 2°C per minute, as before. If ramp rates are in excess of 1/2°C per minute, a dwell of up to 30 minutes will be required at 70°C. Contact Technical Services for further information.
10. Allow to cool to ambient temperature before removing consumables and demoulding.

Properties

Uncured Resin Properties	
SPRINT® Out-life @ 18-22°C	28 days
Resin Out-life @ 21°C	8 weeks
Storage time at -18°C	2 years
Hazard Definition	Xi, N
Colour	Black
Tack	Medium
Carrier	Glass and fire barrier material
Carrier Weight (g)	25 + 320g
Total Areal Weight (g)	825

Cure Cycle Parameters	
Minimum cure temperature	85°C
Minimum cure time (at minimum cure temperature)	10 hours
Minimum cure time at 90°C	8 hours
Minimum cure time @ 100°C	4 hours
Minimum cure time @ 110°C	2 hours
Minimum cure time @ 120°C	1 hour

Cured Resin Properties*		
		Test Method
Cured Ply Thickness (mm)	0.6	
Taber Abrasion Resistance (mg)	40	Taber abrasion is carried out to ASTM D4060 with test wheel CS10 @ 500 Cycles @ 90% Vacuum
Shore D Hardness***	759	Shore D measured to ASTM D2240
Tg1 DMTA (°C)	120	
Fire Rating	Tested to FMVSS302	
Surface Spread of flame and fire propagation**	BS476 Pt 6 & 7	

Note:

* Data generated with vacuum pressure / oven only cure specified below as 'fast'

** Data relates to test work carried out on the intumescent carrier.

Typical Cure Cycle			
	Slow Cure	Standard Cure	Fast Cure
Ramp from ambient to:	70°C @ 2°C per minute	70°C @ 2°C per minute	70°C @ 2°C per minute
Ramp from 70°C to:	85 @ 1/2°C per minute	100 @ 1/2°C per minute	120 @ 1/2°C per minute
	Hold for 10 hours at 85°C	Hold for 4 hours at 100°C	Hold for 1 hour at 120°C
	Cool and demould	Cool and demould	Cool and demould

Health and Safety

Although Surfacing Materials have improved health and safety characteristics when compared to wet lay-up epoxy systems and conventional prepregs, the following points must still be considered:-

1. Avoid skin contact - wear disposable nitrile gloves.
2. Avoid eye contact. If this occurs, flush with water for 15 minutes and seek medical advice.
3. Ensure good ventilation of vacuum pump exhaust during laminate cure.
4. Avoid inhalation and eye contact with sanding dust. After any sanding operation of reasonable size a shower or bath should be taken and should include hair washing.
5. Wear overalls or other protective clothing. Thoroughly clean or discard soiled garments.
6. Use only resin removing creams/soap and water on exposed skin. Do not use solvents.

Washing should be part of routine practice:

- before eating or drinking
- before smoking
- before using the lavatory
- after finishing work

In the pre-cured state SPRINT® materials contain 'dry' fibres which can be released when the material is being cut or processed. Care should be taken while handling the material to prevent contact with the skin and to control the egress of fibres into the workplace. Products that contain carbon fibres should be treated with particular care as carbon fibre is electrically conductive. Electrical equipment should be protected from carbon dust and fibres.

SP-High Modulus produces a separate full Material Safety Data Sheet for all hazardous products. Please ensure that you have the correct MSDS to hand for the materials you are using before commencing work. A more detailed guide for the safe use of SP-High Modulus resin systems is also available from SP-High Modulus, and can be found on our website at www.gurit.com

Applicable Risk & Safety Phrases

R 36/38, 43, 51/53
S 24, 26, 28, 37/39, 57, 60



Transport & Storage

When not in use SF 80FB products should be maintained at -18°C. Shelf life for SF 80FB is two years at -18°C and two weeks at 18-22°C. To avoid condensation on the rolls allow to reach room temperature before unwrapping.

Notice

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