

SF 70

SPRINT® Toughened Surfacing Film

- **Toughened System**
- **Protects underlying laminate**
- **Reduction in surface film-laminate interfacial voids**
- **Improved resistance to water ingress**
- **Suitable for post painting**

Introduction

SF 70 surfacing material is a light green toughened, epoxy film designed to enhance the surface finish of moulded composite components. It allows a good surface finish to be obtained by vacuum-bag moulding processes. It can be used directly against a suitably release treated mould surface, with prepreg or SPRINT® plies laid up behind it. When fully cured with SPRINT® or prepreg, SF 70 forms a stable tough surface which can be sanded in preparation for painting. The epoxy system is supplied ready impregnated into a supporting medium and ready catalysed, requiring only a moderate temperature cure.

Availability

SF 70 surfacing material is currently available in 150g film weight. It is supplied in roll lengths of 50lm.

Curing schedule

Typical Cure Profiles

The successful use of these cure schedules will depend on part size and laminate construction. Heat up rate and dwell periods need to be tailored to take consideration of oven capacity, thermal mass of tool, laminate construction etc. Data in the table below is based on laminate temperatures, air temperatures may need to be higher. It is recommended that SP is contacted for further advice before utilising any of the suggested cure cycles.

	Ultra Slow Cure Schedule	Standard Cure Schedule	Fast Cure Schedule
	0.3°C/minute ramp to 55°C	1°C/minute ramp to 55°C	2°C/minute ramp to 55°C
	1 hour dwell @ 55°C	1 hour dwell @ 55°C	1/2 hour dwell @ 55°C
	0.3°C/minute ramp to 70°C	1°C/minute ramp to 70°C	2°C/minute ramp to 120°C
	16 hour dwell @ 70°C	16 hour dwell @ 70°C	25 minutes @ 120°C
	Cool below 60°C	Cool below 60°C	Cool below 60°C
Total Time	20 hours	18 hours	2 hour

Properties

Uncured Resin Properties	
SPRINT® Out-life @ 18-22°C	14 days
Resin Out-life @ 21°C	4 weeks
Storage time at -18°C	2 years
Hazard Definition	Xi, N
Colour	Pale Green
Tack	Medium
Carrier	Glass
Carrier Weight (g)	140
Total Areal Weight (g)	290

Cured Resin Properties*		
		Test Method
Cured Ply Thickness (mm)	0.155	
Taber Abrasion Resistance (mg)	19.0	Taber abrasion is carried out to ASTM D4060 with test wheel CS10 @ 500 Cycles @ 90% Vacuum
Shore D Hardness	89.5	Shore D measured to ASTM D2240
Tg1 DMTA (°C)	91	16 hr @ 70°C

Note: * Data generated with vacuum pressure / oven only cure specified above as 'ultra slow'

Cure Cycle Parameters	
Minimum cure temperature	70°C
Minimum cure time (at minimum cure temperature)	16 hours
Minimum cure time at 90°C	3 hours
Minimum cure time @ 100°C	1.5 hours
Minimum cure time @ 110°C	45 mins
Minimum cure time @ 120°C	25 mins

Instructions for Use

1. Ensure SF 70 surfacing material has attained ambient temperature (circa 18-23°C) before it is removed from its packaging to avoid condensation of water on the surface film whilst defrosting.
2. Remove the paper backer to expose the 'tacky' side of the surface film. Apply the product tacky side towards the mould.
3. Apply a single layer of SF 70 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.
4. The material can be placed into the mould in any size/shape however it is important to include a minimum 5mm overlap at any join interface.
5. 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 underside of the surface film.
6. 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).
7. 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.
8. Apply vacuum bag with minimum 90% vacuum.
9. Heat according to cure cycle data on the opposite page.
10. Allow to cool to ambient temperature before removing consumables and demoulding. Before attempting to use surface film on large parts, consult Technical Services for most up to date information.

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

SP 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 resin systems is also available from SP, 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 70 Surfacing Material products should be maintained at -18°C. Shelf life for SF 70 Surfacing Material 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.

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