

PRODUCT DATA SHEET

DESCRIPTION

Toray TC235SF-1 is a composite surfacing film designed to provide paintable composite surfaces off of the tool. TC235SF-1 is part of the Toray MicroPly™ brand of adhesives and syntactics. TC235SF-1 may be cured under vacuum-only pressure or under low autoclave pressure. The surfacing properties of TC235SF-1 allow smooth, paintable surfaces, even with thin-skinned honeycomb-stiffened composite structure.

FEATURES

- ▶ Opaque gray color
- ▶ Excellent coverage even with tight radius curved parts
- ▶ Co-curable with 121°C (250°F) or 177°C (350°F) prepregs
- ▶ Passes tape removal scribe test, initial and after 24 hours
- ▶ Excellent surfacing characteristics even under vacuum cure on thin-skin honeycomb laminates

PRODUCT TYPE

Epoxy Surfacing System 121°C–177°F (250°F–350°F)

TYPICAL APPLICATIONS

- ▶ Composite surfacing
- ▶ Vacuum or low pressure, or autoclave cure
- ▶ Solid laminate or honeycomb structure

SHELF LIFE

Out Life: 30 days at ambient

Frozen Storage Life: 12 months at -18°C (< 0°F)

Out life is the time during which the material retains enough tack, drape, and handling for component lay-up.

*Ambient is 18–22°C (65–72°F)

NEAT RESIN PROPERTIES

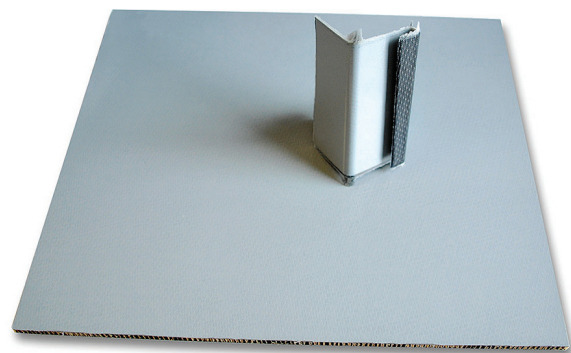
Density	1.33 g/cc
Dry T _g (by DMA)	121°C (250°F) cured at 119°C (246°F)
Gel Time	6–15 minutes at 121°C (250°F)

CURE SCHEDULE

60 minutes at either 121°C (250°F) or 177°C (350°F)

PRODUCT DETAILS

Standard Width	0.91 m (36") for lightning strike versions and 1.27 m (50") for standard surfacing film
Standard Film Weight	150gsm/0.030 psf



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LIGHTNING STRIKE PROTECTION

Composite surfacing films are used to aid in the application of the relatively fragile copper, aluminum, and bronze foils. Foils are a common method that allow composites to achieve higher levels of surface conductivity for lightning strike protection. There are several weights of foils designed to meet Zone 1A-3 protection. Airplane lightning strike zones are defined by SAE Aerospace Recommended Practices (ARP) 5414. The most likely areas to be hit are nacelles, radomes, wing tips, elevators, vertical fins, and horizontal stabilizers. Common lightning strike protection includes expanded foils, wire mesh, and embedded metallic wire.

LIGHTNING STRIKE FOIL OPTIONS*

Common Copper Foil Weights	142gsm/0.029 psf
	195gsm/0.040 psf

*Lightning strike versions have a copper foil laminated to the TC235SF-LS to aid adherence of the foil. The surfacing film is separated by a lightweight scrim to prevent the lightning strike foil from migrating to the surface during cure.

COMMON FILM WEIGHTS/CONFIGURATIONS

Product Name	Carrier	Weight gsm/psf	Roll Quantity	Film Width
TC235SF-1, 0.035 psf, NWPE, 1.27 m (50")	Non-Woven Polyester	171gsm/0.035 psf	46.5 sqm/500 sf	1.27 m (50")

Product Name	Carrier	Weight gsm/psf	Roll Quantity	Film Width	L/S Foil Weight
TC235SF-1, 0.032/0.029, 0.91 m (36")	Non-Woven Polyester	156gsm/0.032 psf	46.5 sqm/500 sf	0.91 m (36")	142gsm/0.029 psf
TC235SF-1, 0.032/0.040, 0.91 m (36")	Non-Woven Polyester	156gsm/0.032 psf	46.5 sqm/500 sf	0.91 m (36")	195gsm/0.040 psf

(1) TC235SF-LS may be offered with different lightning strike foils, and weights. Call for additional details if the specific configuration is not shown above.

HANDLING INSTRUCTIONS

Apply resin side of TC235SF-1 on tool side. Tool side should be treated prior to lay-up with a composite mold release. After cure, lightly sand (150 grit) or use a Scotch-Brite pad to remove residual release chemicals. Solvent wipe and then apply primer or paint coatings.