

PRODUCT DATA SHEET

DESCRIPTIONS

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

Lightning Strike Protection: Toray MicroPly™ TC235-LS is a surfacing film with metallic foils embedded. Embedding the foils inside the surfacing film aids application and protects the relatively fragile metal foils. Incorporating metal foil is a common protection method that allows composites to achieve higher levels of surface conductivity for lightning strike defense. 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 (as used in TC235-LS), wire mesh, and embedded metallic wire.

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**
- ▶ **Lightning strike versions provide outstanding conductivity for superior lightning protection**

PRODUCT TYPE

Epoxy Surfacing and Lightning Strike Protection 121°C–177°F (250°F–350°F) Flexible Cure Systems

TYPICAL APPLICATIONS

- ▶ Composite surfacing
- ▶ Vacuum bag only, low pressure or autoclave cure
- ▶ Solid laminate or honeycomb structure
- ▶ Lightning strike protection

SHELF LIFE

Out Life: 30 days out life ≤ 21°C (70°F) and ≤ 60% RH

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

Out life is the maximum time allowed at 21°C (70°F) or below and 60% or less RH before cure, after a single frozen storage cycle in the original unopened packaging at -18°C (0°F) or below for a period not exceeding the frozen storage life noted above.

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

Available Widths	Standard surfacing film: 1.27 m (50") Lightning strike versions: 0.91 m (36")
Standard Film Weight	150 gsm/0.030 psf



Contact us for more information:

North America/Asia/Pacific

e explore@toraytac-usa.com

t +1 408 465 8500

Europe/Middle East/Africa

e explore@toraytac-europe.com

t +44 (0)1773 530899

MicroPly™

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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
TC235-LS, 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
TC235-LS, 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

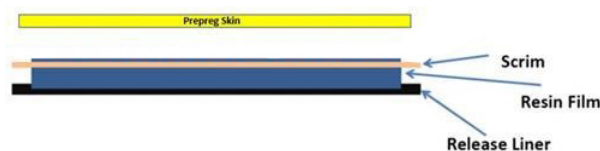
(1) TC235SF-LS may be offered with different lightning strike foils, and weights.
Call for additional details if the desired specific configuration is not shown above.

*Lightning strike versions have a copper foil laminated to the TC235-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.

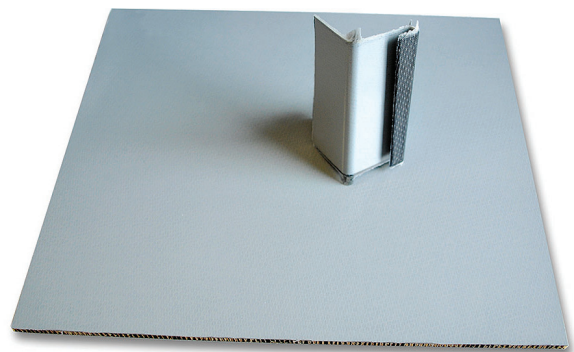
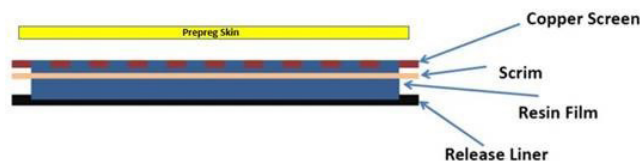
HANDLING INSTRUCTIONS

For TC235SF-1 and TC235-LS, the scrim side and conductive foil side respectively should be adjacent to the prepreg side of the part being fabricated. 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.

TC235SF-1 FOR LAY UP



TC235-LS FOR LAY UP



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