

DESCRIPTION

TenCate TCF4045 low dielectric, low density epoxy syntactic film. The material displays both good mechanical and dielectric properties. TCF4045's base resin chemistry features low moisture absorption with good high temperature properties.

FEATURES

- › **Good high temperature properties**
- › **Lightweight core fill**
- › **Good dielectric properties**

PRODUCT TYPE

177°C (350°F) Cure, Low Dielectric Epoxy Syntactic Film

TYPICAL APPLICATIONS

- › Radomes and antenna core fill
- › Low observables
- › Radar transparent structures

SHELF LIFE

Out Life:	Up to 14 days at ambient
Frozen Storage Life:	6 months at -18°C (<0°F)

Out life is the maximum time allowed at ambient temperature before cure.* Ambient is 18–22°C (65–72°F)

* Out life tested by handling and cure evaluation. Users may need to separately evaluate out life limits on thicker, more complex parts.

NEAT RESIN PROPERTIES

Density	0.61 g/cc (38 pcf nominal)
Dry T _g	180°C (356°F)
Wet T _g	166°C (331°F)
Dielectric Constant Per ASTM D2520	1.57 at 10 Ghz (x-band)
Loss Tangent Per ASTM D2520	0.0078 at 10 Ghz (x-band)

PRODUCT FORM

Product Configuration	Film Thickness ~ 1.91 mm (75 mils) (Other thicknesses may be available upon request.)
Sheet Size	30.5 cm x 61 cm (12" x 24")



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MECHANICAL PROPERTIES

Properties	Condition	Method	Results	
Compressive Strength	RTD	ASTM D6641	50.3 MPa	7.3 ksi
Tensile Strength (Dogbone)	RTD	ASTM D3039	20.7 MPa	3.0 ksi
Flexural Strength	RTD	ASTM D790	26.9 MPa	3.9 ksi

Average ply thickness 1.47 mm (0.058 inches).

TYPICAL CURE PARAMETERS

- › Apply full vacuum > 25 in. Hg, reduce vacuum to 9 in. Hg.
- › Add autoclave pressure to 25–50 psi
- › Heat 1°C/min (2°F/min) to 127°C (260°F), hold for 3 hours.
- › Then heat to 179°C (355°F) for 3 hours, cool 3°C/min (5°F/min) to 66°C (150°F) then release vacuum and pressure.

Revised 05/2018

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