

PRODUCT DATA SHEET

DESCRIPTION

Toray MicroPly™ TCF4045 is a low dielectric, low density epoxy syntactic film. The material displays both good mechanical and dielectric properties. Toray MicroPly™ 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 antennae core fill
- ▶ Low observables
- ▶ Radar transparent structures

SHELF LIFE

Out Life:	14 days out life ≤ 21°C (70°F) and ≤ 60% RH
Frozen Storage Life:	6 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.

TYPICAL 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 D 2520	1.57 at 10 Ghz (x-band)
Loss Tangent Per ASTM D 2520	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")



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™

TORAY_MicroPly_TCF4045_PDS_v4.0_2020-02-28

PRODUCT DATA SHEET

MECHANICAL PROPERTIES

Property	Condition	Method	Results	
Compressive Strength	RTD	ASTM D 6641	50.3 MPa	7.3 ksi
Tensile Strength (Dogbone)	RTD	ASTM D 3039	20.7 MPa	3.0 ksi
Flexural Strength	RTD	ASTM D 790	26.9 MPa	3.9 ksi

Average ply thickness 1.47 mm (0.058")

TYPICAL CURE PARAMETERS

- ▶ Apply full vacuum > 25 inHg, reduce vacuum to 9 inHg
- ▶ 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

© 2020 Toray Advanced Composites. All data given is based on representative samples of the materials in question. Since the method and circumstances under which these materials are processed and tested are key to their performance, and Toray Advanced Composites has no assurance of how its customers will use the material, the corporation cannot guarantee these properties. Toray®, (Toray) AmberTool®, (Toray) Cetex®, (Toray) MicroPly™, and all other related characters, logos, and trade names are claims and/or registered trademarks of Toray Industries Inc. and/or its subsidiary companies in one or more countries. Use of trademarks, trade names, and other IP rights of Toray Industries Inc. without prior written approval by such is strictly prohibited.