Toray MicroPly™ TCF4001

Toray Advanced Composites

PRODUCT DATA SHEET

DESCRIPTION

Toray MicroPly™ TCF4001 cyanate ester syntactic foam is unique in the industry due to its combination of low density and good structural properties. The material does not require pressure during cure to achieve its mechanical properties, and can be machined to shape if required. Toray MicroPly™ TCF4001 can be packed into tooling cavities.

FEATURES

- **Compatible with TC420 prepregs**
- **Excellent high temperature performance**
- **Post curable for higher T_g**

PRODUCT TYPE

177°C (350°F) Cure, Cyanate Ester Syntactic Foam

TYPICAL APPLICATIONS

- Low moisture pickup
- Low outgassing foam core for space structures
- Aircraft interiors
- Net molded foam parts
- High temperature potting
- Ablatives
- High temperature tooling masters
- High temperature tooling backup 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	0.35–0.42 g/cc (22–26 pcf nominal)
Cure Temperature	177°C (350°F) for 120 minutes 232°C (450°F) Optional post cure for 60–90 minutes
Dielectric Constant	1.554 at 10 GHz
Loss Tangent	0.0123 at 10 GHz

Contact us for more information:

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MECHANICAL PROPERTIES

Property	Condition	Method	Results	
Tensile Strength - 22–26 pcf	RTD	ASTM C 297	6.8–7.6 MPa	990–1100 psi
Compressive Strength - 22–26 pcf	RTD	ASTM C 297	12.4–15.9 MPa	1800–2300 psi

Data above represents limited lot data and is not specification values
Two-inch cylindrical specimens tested at 25°C (77°F) with 2-hour cure at 177°C (350°F) followed by a 60–90-minute post cure at 232°C (450°F)

TYPICAL CURE PARAMETERS

- 177°C (350°F) for 120 minutes
- Optional post cure of 60–90 minutes at 232°C (450°F), use slow heat-up rates for thick parts to prevent exotherm

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