Toray TCF4050

Toray Advanced Composites

PRODUCT DATA SHEET

DESCRIPTION

Toray TCF4050 core splice adhesive is a cyanate ester-based core splice with flatwise tensile strength up to 260°C (500°F). This product has been developed to be compatible with Toray's high temperature TC420 and EX-1505 prepreg resin systems.

FEATURES

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

PRODUCT TYPE

177°C (350°F) Cure, Cyanate Ester Core Splice Adhesive

TYPICAL APPLICATIONS

- High temperature potting
- Ablatives

SHELF LIFE

Out Life:	Up to 7 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.*

TYPICAL NEAT RESIN PROPERTIES

Density	1.11 g/cc (69 pcf)
Cure Temperature	177°C (350°F). 232°C (450°F) post cure.
Expansion	2–4 times

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MECHANICAL PROPERTIES

Property	Condition	Method	Results	
Flatwise Tensile Strength - Cure 1	RTD	ASTM C 297	8.3 MPa	1.21 ksi
Flatwise Tensile Strength - Cure 2	RTD	ASTM C 297	8.3 MPa	1.21 Msi
Flatwise Tensile Strength - Cure 3	ETD_1	ASTM C 297	4.6 MPa	0.67 ksi
Flatwise Tensile Strength - Cure 4	ETD_2	ASTM C 297	4.5 MPa	0.65 ksi

ETD_1 = 232°C (450°F)
ETD_2 = 260°C (500°F)

Cure 1. 177°C (350°F)
Cure 2. After 60 min 232°C (450°F) post cure
Cure 3. With 232°C (450°F) post cure
Cure 4. With 260°C (500°F) post cure

TYPICAL CURE PARAMETERS

- 2°C/min (3°F/min) to 82°C (180°F), hold for 90 minutes.
- 2°C/min (3°F/min) to 177°C (350°F), hold for 2 hours.
- For optional post cure, continue heating at 2°C/min (3°F/min) for 60 minutes at 232°C (450°F).

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