

PRODUCT DATA SHEET

DESCRIPTION

Toray TC4015 cyanate ester film adhesive has been formulated for use in specific applications where low moisture absorption and high temperature bond strength is important. The resin system's strength and toughness when bonding solid, laminate, honeycomb, or foam core structures is comparable, and often greater, than high performance epoxy adhesives and polyimides especially at elevated temperatures.

Due to the cyanate ester resin system's inherently low shrinkage during cure, bonded structures will retain less inherent stress, and will therefore remain dimensionally stable during thermal cycling. This factor is of extreme importance when bonding structures for use in space. Finally, like other cyanate ester-based products, Toray's TC4015 film adhesive displays low outgassing and good microcracking resistance to assure structural integrity even after severe environmental exposure.

PRODUCT TYPE

177°C (350°F) Cure Cyanate Ester Film Adhesive

TYPICAL APPLICATIONS

- ▶ Space structures
- ▶ Ablative bonding
- ▶ High temperature 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, where the material retains enough tack, drape and handling properties for component lay-up.

*Ambient is 18–22°C (65–72°F)

TYPICAL NEAT RESIN PROPERTIES

T_g	321°C (610°F) after 232°C (450°F)
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SERVICE TEMPERATURE

260°C (500°F) Dry after 232°C (450°F) post cure

CURE PROFILE

Initial Cure	177°C (350°F) or 2 hours
Freestanding Post Cure	232°C (450°F) for > 1 hour

PRODUCT FORMATS

Unsupported Films	49–293gsm	0.010–0.060 psf
Supported Films	171–488gsm	0.035–0.100 psf



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MECHANICAL PROPERTIES

Tensile Lap Shear Strength*	Condition	Method	Results	
25°C (77°F)	RTD	ASTM D1002	15.2 MPa	2200 psi
260°C (500°F)	RTD	ASTM D1002	17.9 MPa	2600 psi

Supported, 293gsm (0.060 PSF) NWFG areal weight adhesive bonding 2024 aluminum with TCAC Primer 2A
Data above based on limited lot data, and is not for specification values

Revised 06/2019

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