

PRODUCT DATA SHEET



TENCATE ADVANCED COMPOSITES

RS-4A

PRODUCT TYPE

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

TYPICAL APPLICATIONS

- Core to Skin Bonding
- Space or Radome Honeycomb Structure

SHELF LIFE

Out Life

14 days out life 77°F (25°C)

Frozen Storage Life

6 months storage life at <0°F (-18°C)

Out Life is the time during which the material retains enough tack, drape and handling for easy component lay-up.

Revised 07/2015

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 TenCate Advanced Composites has no assurance of how its customers will use the material, the corporation cannot guarantee these properties.

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PRODUCT DESCRIPTION

RS-4A is a cyanate ester based film adhesive developed to provide good adhesive performance for core/face skin structures, co-curing, and secondary bonding.

PRODUCT BENEFITS/FEATURES

- Low cure shrinkage
- Good balance of toughness and material strength
- Meets NASA requirements for outgassing
- Low moisture absorption
- Low microcracking

PRODUCT FORMS

- Film adhesive
- Supported adhesive film to 64" wide (163 cm)

RS-4 FILM ADHESIVE MECHANICAL PROPERTIES ⁽¹⁾

Properties	Condition	Method	Results	
Flatwise Tensile Strength	RTD	ASTM D297	1.33 ksi	9.2 MPa
Lap Shear Strength	RTD	ASTM D1002	3.65 ksi	25.2 MPa

⁽¹⁾ Data courtesy of TRW

Adhesive areal weight: 147 g/m² (0.03 psf)

Flatwise Tensile used 6 lb. aluminum core with RS-3 graphite face sheets. 100% cohesive failure.

RS-4A FILM ADHESIVE MECHANICAL PROPERTIES

Properties	Condition	Method	Results	
Flatwise Tensile Strength ⁽¹⁾⁽³⁾	RTD	ASTM D297	0.8 ksi	5.5 MPa
Single Lap Shear Strength ⁽²⁾	RTD	ASTM D1002	2.1 ksi	14.5 MPa
Single Lap Shear Strength ⁽²⁾	ETD	ASTM D1002	2.26 ksi	15.6 MPa

ETD: 257°F (125°C)

⁽¹⁾ Adhesive areal weight 293 g/m² (0.06 psf) autoclave cured 2 hours at 350°F (177°C) follow by 1 hour 425°F (218°C) post cure

⁽²⁾ Bond Line Thickness: 0.001 inches. Data courtesy of NASA, Report BA97-[21-24].

⁽³⁾ Failure: Core; Skins: IM-7 (6K) PW/RS-3C, Core #8 Al Honeycomb

RS-4LT FILM ADHESIVE MECHANICAL PROPERTIES

Properties	Condition	Method	Results	
Flatwise Tensile Strength	RTD	ASTM D297	0.449 ksi	3.1 MPa
Lap Shear Strength ⁽¹⁾	RTD	ASTM D1002	1.67 ksi	11.5 MPa

Vacuum Bag Cure: 265°F (129°C) for 5.5 hours; Post Cure: 310°F (154°C) for 1.5 hours; 20% Core Failure.

⁽¹⁾ M55J Face Sheet; Adhesive Areal Weight: 147 g/m² 0.047 psf, Unsupported.

TYPICAL RS-4A CURE PARAMETERS

- Apply vacuum, pressurize to 45 to 100 psi
- Heat to 350°F (177°C) (+10°F/5°C) at 5°F ± 3°F/min (2°C ± 1°C/min).
- Hold at 350°F (177°C) for 2 hours (+15 min), Cool.
- May be post cured at 450°F (232°C) for 2 hours if higher service temperature is required.

TENCATE ADVANCED COMPOSITES

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