

# PRODUCT DATASHEET



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

### STANDARD PRODUCT CONFIGURATION

Widths from 12" to 42" available

- 0.035 psf, 106 Glass Support
- 0.065 psf, 106 Glass Support
- 0.015 psf, Unsupported
- 0.030 psf, Unsupported

(Other configurations are available)

### 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 6/2017

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

### NEAT RESIN PHYSICAL PROPERTIES

|   |               |
|---|---------------|
| Dielectric Constant (10 GHz)                                      | 2.98          |
| Loss Tangent (10 GHz)   | 0.014         |
| Outgassing (TML)  | 0.32%         |
| Outgassing (CVCM)   | 0.00%         |
| Outgassing (WVR)  | 0.34%         |
| Density   | 1.21 g/cc     |
| Dry T <sub>g</sub> (DSC) with 350°F (177°C) standard cure 2 hrs   | 383°F (195°C) |
| Dry T <sub>g</sub> (DSC) with + 450°F (232°C) post cure 1.5-2 hrs | 460°F (238°C) |

### RS-4A FILM ADHESIVE MECHANICAL PROPERTIES

| Properties                                  | Condition | Method     | Results |           |
|---|-----------|------------|---------|-----------|
| Flatwise Tensile Strength <sup>(1)(3)</sup> | RTD       | ASTM D297  | 1.4 ksi | 9.65 MPa  |
| Single Lap Shear Strength                   | RTD       | ASTM D1002 | 4.1 ksi | 28.25 MPa |
| Single Lap Shear Strength <sup>(2)</sup>    | ETD       | ASTM D1002 | 5.0 ksi | 34.5 MPa  |

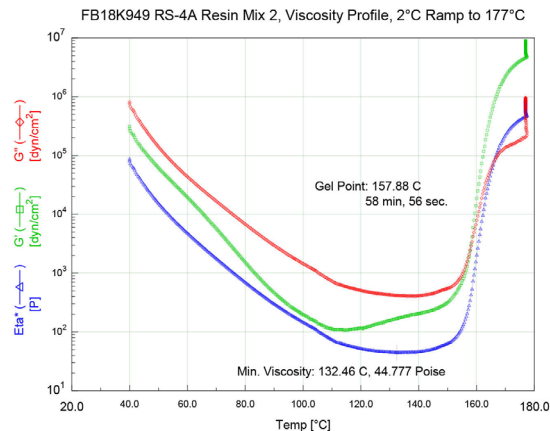
<sup>(1)</sup> Adhesive areal weight 217 g/m<sup>2</sup> (0.065 psf) autoclave cured 2 hours at 350°F (177°C) follow by 2 hours 425°F (218°C) post cure

<sup>(2)</sup> ETD: is tested at 257°F (125°C)

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

### TYPICAL RS-4A CURE PARAMETERS

- Apply vacuum, pressurize to 45 to 100 psi.
- Release vacuum after pressure is achieved.
- 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.



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