PRODUCT DATA SHEET

TENCATE ADVANCED COMPOSITES

RS-8HT

PRODUCT TYPE

400°F (204°C) Cure BMI Resin System

TYPICAL APPLICATIONS

- Satellite Structures
- Aerospace/Missile Structures
- Electromagnetic/Dielectric Structures

SHELF LIFE

Tack Life

14 days tack life at 77°F (25°C)

Out Life

30 days out life at 77°F (25°C)

Frozen Storage Life

6 months storage life at <0°F (-18°C)

Tack life is the time during which the prepreg retains enough tack, drape and handling for easy component lay-up.

Out life is the maximum time allowed at room temperature before cure.

PRODUCT DESCRIPTION

RS-8HT is a BMI resin which provides excellent elevated temperature properties and processability. RS-8HT has been evaluated and qualified in the areas of satellite and airframe/missile structures. RS-8HT is also available in several modified formulations including: RS-8M, a high service temperature controlled flow formulation.

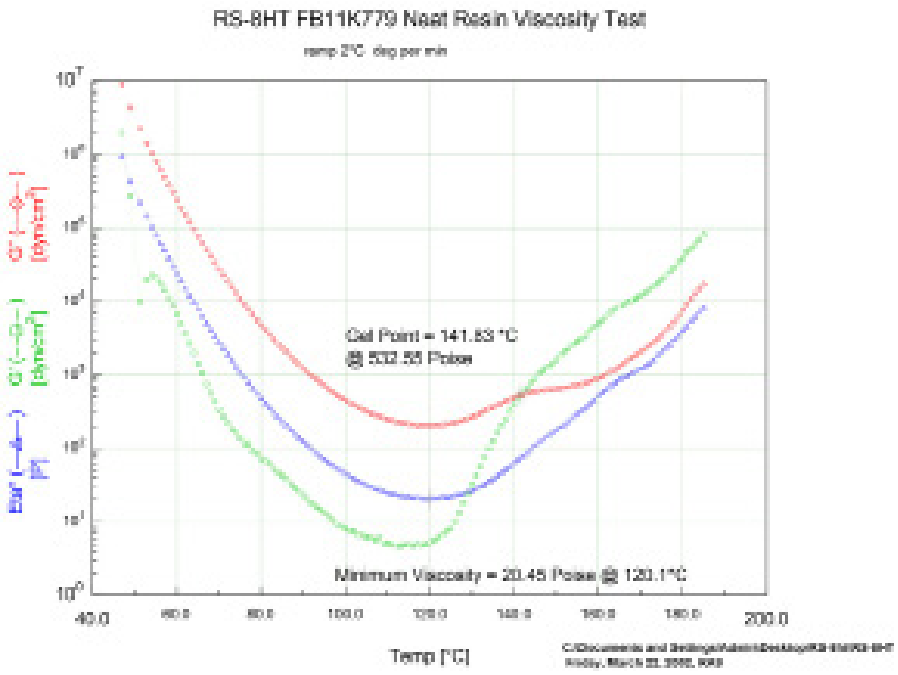
RS-8 PRODUCT BENEFITS/FEATURES

- Excellent Ambient and Elevated Temperature Properties
- Good Moisture Resistance
- Autoclave and Compression Consolidation
- Low Dielectric and Loss Tangent Over Wide Thermal and Electrical Ranges
- Elevated Glass Transition Properties Available with Higher Cure or Post Cure
- Good Handleability and Processing

NEAT RESIN PHYSICAL PROPERTIES

Density	1.23 g/cc
Gel Time at 350°F (177°C)	17 min

Viscosity at:	165°F (74°C)	50 poise
	176°F (80°C)	21 poise
	212°F (100°C)	3 poise



RS-8HT T300 CURED PROPERTIES

Dry Tg (DMA) with 400°F (204°C) cure	397°F (203°C)
Dry Tg (DMA) with 482°F (250°C) postcure	545°F (285°C)
Dry Tg (DMA) with 550°F (287°C) postcure	597°F (314°C)
Wet Tg (DMA) after 168 hour soak at 160°F (71°C)	567°F (297°C)

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RS-8HT RESIN PROPERTIES

Temperature	Tensile Strength	Tensile Modulus	Elongation
77°F (25°C)	13.9 ksi (95.8 MPa)	564 ksi (3889 MPa)	3.0%
350°F (177°C)	10.1 ksi (69.6 MPa)	412 ksi (2841 MPa)	3.0%
400°F (204°C)	10.4 ksi (71.7 MPa)	394 ksi (2717 MPa)	4.6%

Properties	Condition (RTD, ETD, ETW, Temperature)	Results
Fracture Toughness, G1c (in-lb/in^2)	RTD	1.2

LAMINATE DATA USED T300-6K/RS-8HT UDPP LAMINATE.

Properties	Condition (RTD, ETD, ETW, Temperature)	Method	Results	
Tensile Strength 0°	RTD	ASTM D3039	252 ksi	1737.5 MPa
Tensile Modulus 0°	RTD	ASTM D3039	18 Msi	124.1 GPa
Tensile Strength 0°	ETD-600°F (316°C)	ASTM D3039	68 ksi	468.8 MPa
Tensile Modulus 0°	ETD-600°F (316°C)	ASTM D3039	18.5 Msi	127.6 GPa
Tensile Strength 0°	ETD-650°F (343°C)	ASTM D3039	51 ksi	351.6 MPa
Tensile Modulus 0°	ETD-650°F (343°C)	ASTM D3039	21.4 Msi	147.5 GPa
Compressive Strength 0°	RTD	ASTM D695	184 ksi	1268.6 MPa
Compressive Modulus 0°	RTD	ASTM D695	18.3 Msi	126.2 GPa
Compressive Strength 0°	ETD-600°F (316°C)	ASTM D695	25 ksi	172.4 MPa
Compressive Strength 0°	ETD-650°F (343°C)	ASTM D695	33 ksi	227.5 MPa
Compressive Strength 0°	ETD-700°F (371°C)	ASTM D695	18 ksi	124.1 MPa

- Autoclave cured 2 hours at 400°F (204°C). No post cure.
- Fiber volume ~58%, data not normalized
- Tg by RDA-G'.....374°F (190°C)

LAMINATE DATA USED T300-6K (3K) 8HS/RS-8HM FPP LAMINATE.

Properties	Condition (RTD, ETD, ETW, Temperature)	Method	Results	
Tensile Strength 0°	RTD	ASTM D3039	99.4 ksi	685.3 MPa
Tensile Modulus 0°	RTD	ASTM D3039	10 Msi	68.9 GPa
Compressive Strength 0°	RTD	ASTM D695	93.1 ksi	641.8 MPa
Compressive Modulus 0°	RTD	ASTM D695	10.1 Msi	69.6 GPa
Compressive Strength 0°	ETD	ASTM D695	30.3 ksi	208.9 MPa
Flexural Strength 0°	RTD	ASTM D790	121.6 ksi	838.1 MPa
Flexural Modulus 0°	RTD	ASTM D790	9.7 Msi	66.9 GPa
Flexural Strength 0°	ETD	ASTM D790	62.8 ksi	432.9 MPa
Flexural Modulus 0°	ETD	ASTM D790	9.6 Msi	66.2 GPa
Interlaminar Shear Strength	RTD	ASTM D2344	6.3 ksi	43.4 MPa
Interlaminar Shear Strength	ETD	ASTM D2344	5.1 ksi	35.2 MPa

- Press molded with no vacuum or bagging. Cured at 400°F (204°C) for 2 hours, 30 minutes. Post cured in air 4 hours at 550°F (280°C)
- All data normalized to 60% fiber volume, except ILSS.
- Tg by RDA-G'..... 608°F (320°C)
- ETD..... 600°F (316°C)

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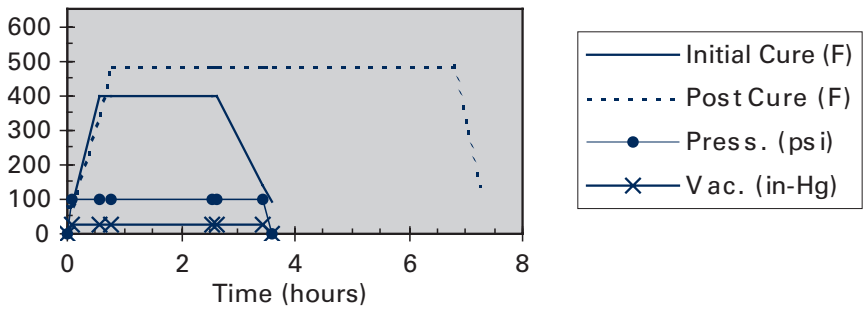
TYPICAL RS-8HT CURE/POST CURE PROFILE

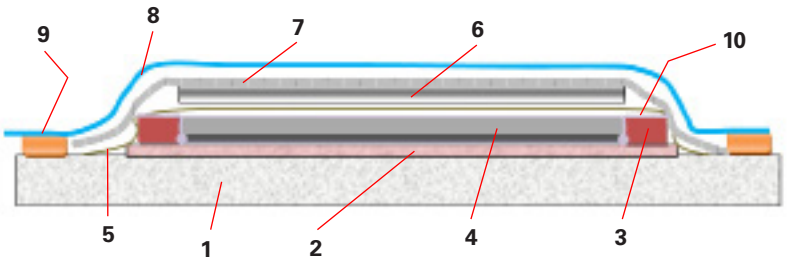


TYPICAL CURE PARAMETERS

- Apply vacuum. For autoclave applications, pressurize to 45-100 psi
- Heat to 400°F (204°C) (+10°F/6°C) at 5°F ± 3°F/min (3°C ± 2°C/min)
- Hold at 400°F (204°C) for 2 hours. (+15 min/-0 min)
- Cool at 5°F/min (3°C/min) to below 140°F (60°C)
- Post cure at 482°F (250°C) for 6 hours
- Alternate postcure at 550°F (288°C) for 4 hours (+30 minutes)

COMPOSITE LAMINATE STACKING SEQUENCE: LIST OF MATERIALS

1. Tool – aluminum, steel, Invar, composite (tool plates must be release coated or film covered)
2. Release coat or film – Frekote 700NC or 770NC, FEP, TEDLAR
3. Silicone Edge Dams – Thicker than laminate
4. Laminate
5. Release coat or film – Frekote 700NC or 770NC, FEP, TEDLAR
6. Caul plate – aluminum, steel, Invar, silicone rubber sheet (metal caul plates must be release coated or wrapped)
7. 2.2 osy polyester breather – 1 or more
8. Vacuum bag
9. Vacuum sealant
10. Glass yarn string - (alternatively or additionally breather may wrap over top of dam to contact edge)



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