

PRODUCT DATA SHEET

DESCRIPTION

Toray RS-8HT is a BMI resin that 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.

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

PRODUCT TYPE

204°C (400°F) Cure BMI Resin System

TYPICAL APPLICATIONS

- ▶ Satellite structures
- ▶ Aerospace/missile structures
- ▶ Electromagnetic/dielectric structures

SHELF LIFE

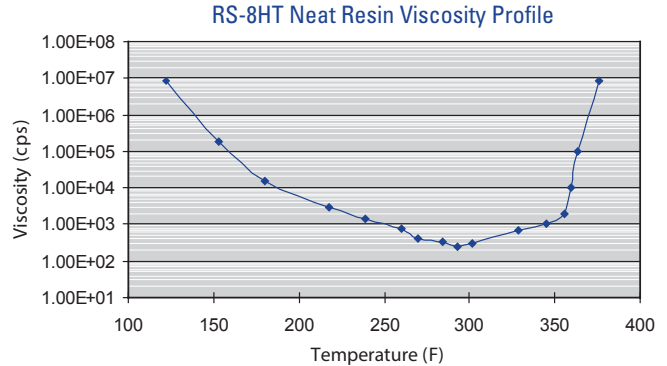
Tack Life:	14 days tack life at 25°C (77°F)
Out Life:	30 days out life at 25°C (77°F)
Frozen Storage Life:	6 months storage life at -18°C (< 0°F)

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.

NEAT RESIN PROPERTIES

Resin Density	1.23 g/cc	
Gel Time at 350°F (177°C)	17 min	
Viscosity at:	74°C (165°F)	50 poise
	80°C (176°F)	21 poise
	100°C (212°F)	3 poise



RS-8HT RESIN PROPERTIES

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

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



Contact us for more information:

North America/Asia/Pacific **Europe/Middle East/Africa**
e explore@toraytac-usa.com **e explore@toraytac-europe.com**
t +1 408 465 8500 **t +44 (0)1773 530899**

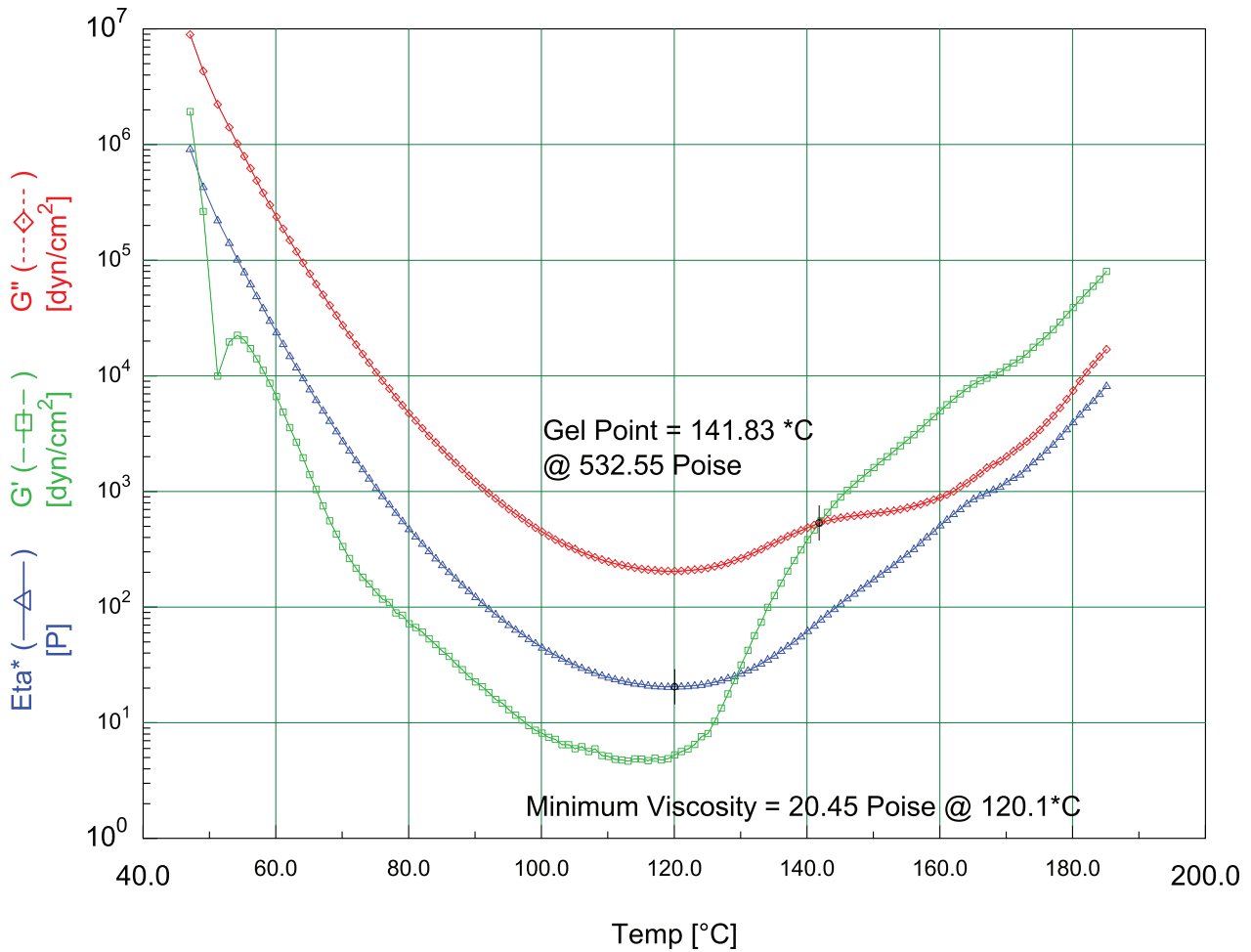
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RS-8HT T300 CURED PROPERTIES

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

RS-8HT FB11K779 Neat Resin Viscosity Test

ramp 2°C deg per min



PRODUCT DATA SHEET

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

Properties	Condition (RTD, ETD, ETW)	Method	Results	
Tensile Strength 0°	RTD	ASTM D 3039	252 ksi	1737.5 MPa
Tensile Modulus 0°	RTD	ASTM D 3039	18 Msi	124.1 GPa
Tensile Strength 0°	ETD 316°C (600°F)	ASTM D 3039	68 ksi	468.8 MPa
Tensile Modulus 0°	ETD 316°C (600°F)	ASTM D 3039	18.5 Msi	127.6 GPa
Tensile Strength 0°	ETD 343°C (650°F)	ASTM D 3039	51 ksi	351.6 MPa
Tensile Modulus 0°	ETD 343°C (650°F)	ASTM D 3039	21.4 Msi	147.5 GPa
Compressive Strength 0°	RTD	ASTM D 695	184 ksi	1268.6 MPa
Compressive Modulus 0°	RTD	ASTM D 695	18.3 Msi	126.2 GPa
Compressive Strength 0°	ETD 316°C (600°F)	ASTM D 695	25 ksi	172.4 MPa
Compressive Strength 0°	ETD 343°C (650°F)	ASTM D 695	33 ksi	227.5 MPa
Compressive Strength 0°	ETD 371°C (700°F)	ASTM D 695	18 Msi	124.1 MPa

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

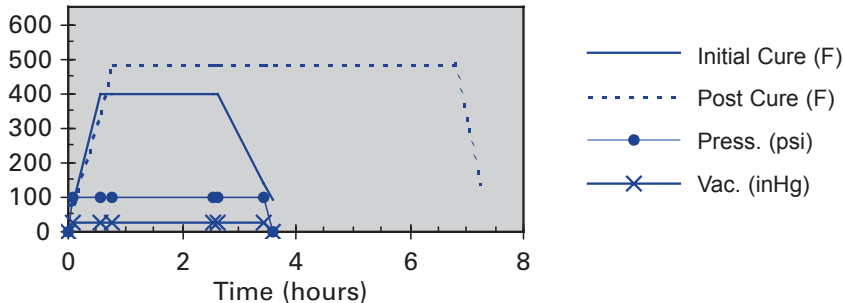
LAMINATE DATA USED T300-6K (3K) 8HS/RS-8HM FPP LAMINATE

Properties	Condition (RTD, ETD, ETW)	Method	Results	
Tensile Strength 0°	RTD	ASTM D 3039	99.4 ksi	685.3 MPa
Tensile Modulus 0°	RTD	ASTM D 3039	10 Msi	68.9 GPa
Compressive Strength 0°	RTD	ASTM D 695	93.1 ksi	641.8 MPa
Compressive Modulus 0°	RTD	ASTM D 695	10.1 Msi	69.6 GPa
Compressive Strength 0°	ETD	ASTM D 695	30.3 ksi	208.9 MPa
Flexural Strength 0°	RTD	ASTM D 790	121.6 ksi	838.1 MPa
Flexural Modulus 0°	RTD	ASTM D 790	9.7 Msi	66.9 GPa
Flexural Strength 0°	ETD	ASTM D 790	62.8 Msi	432.9 MPa
Flexural Modulus 0°	ETD	ASTM D 790	9.6 Msi	66.2 GPa
Interlaminar Shear Strength	RTD	ASTM D 2344	6.3 ksi	43.4 MPa
Interlaminar Shear Strength	ETD	ASTM D 2344	5.1 ksi	35.2 MPa

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

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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 204°C (400°F) (6°C/+10°F) at 3°C ± 2°C/min (5°F ± 3°F/min)
- Hold at 204°C (400°F) for 2 hours. (+15 min/-0 min)
- Cool at 3°C/min (5°F/min) to below 60°C (140°F)
- Post cure at 250°C (482°F) for 6 hours
- Alternate post cure at 288°C (550°F) for 4 hours (+30 minutes)

TYPICAL 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 oz/yd² 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)

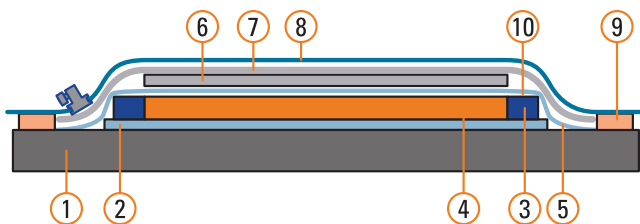


Figure 1

Revised 06/2019

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