

## PRODUCT DATA SHEET

### DESCRIPTION

Toray TC890 high temperature polyimide prepreg system utilizes PROOF Research Advanced Composites Division 900HT resin system. TC890 is a high temperature, polyimide-based thermoset prepreg with outstanding dry property retention at 343°C (650°F), wet service property retention at 288°C (550°F), and short-term and intermittent service temperature capability to 427°C (800°F). TC890 has been successfully demonstrated in short term, transient heating applications to temperatures as high as 1300°F. TC890 is an excellent non-MDA replacement for high temperature PMR-15 applications. TC890 prepreg system is easily processable and thermally stable, exhibiting the highest glass transition temperature of commercially available structural matrices. This system displays exceptional toughness, excellent dielectric properties, and low toxicity.

### FEATURES

- ▶ Jet engine components
- ▶ Heat shields
- ▶ High temperature leading edges/radomes

### PRODUCT TYPE

High Temperature Polyimide

### TYPICAL APPLICATIONS

- ▶ Excellent toughness
- ▶ Excellent dielectric properties
- ▶ Non-MDA based resin system
- ▶ High glass transition temperatures, 93°C (200°F) greater than PMR-15, and 66°C (150°F) greater than AFRPE-4

### SHELF LIFE

<b>Out Life:</b>	Up to 30 days at ambient
<b>Frozen Storage Life:</b>	12 months at -18°C (< 0°F) or below

Out life is the maximum time allowed at ≤ 21°C (70°F) and ≤ 60% RH before cure.

*\*Out life tested by SBS on a 15 cm x 15 cm (6" x 6") laminate, cured in an autoclave. Users will need to evaluate their own out life limits based on thickness, size, and complexity of their own parts.*

### TYPICAL NEAT RESIN PROPERTIES

Density	1.33 g/cc
Dry T <sub>g</sub> (DMA)	454°C (850°F)



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### MECHANICAL PROPERTIES

Property	Condition	Method	Results	
Tensile Strength	RTD	ASTM D 3039	765 MPa	111 ksi
Tensile Modulus	RTD	ASTM D 3039	70.3 GPa	10.2 Msi
Tensile Strength	ETD	ASTM D 3039	815 MPa	118 ksi
Tensile Modulus	ETD	ASTM D 3039	84.1 GPa	12.2 Msi
Compression Strength	RTD	ASTM D 6641M	644 MPa	93 ksi
Compression Modulus	RTD	ASTM D 6641M	68.3 GPa	9.9 Msi
Compression Strength	ETD	ASTM D 6641M	456 MPa	66 ksi
Compression Modulus	ETD	ASTM D 6641M	63.1 GPa	9.2 Msi
In-Plane Shear Strength	RTD	ASTM 3518	72.3 MPa	10.5 ksi
In-Plane Shear Strength	ETD*	ASTM 3518	78.1 MPa	11.3 ksi
4-Pt Flexural Strength	RTD	ASTM D 7264M	673 MPa	98 ksi
4-Pt Flexural Modulus	RTD	ASTM D 7264M	133.1 GPa	19.3 Msi
4-Pt Flexural Strength	ETD	ASTM D 7264M	573 MPa	83 ksi
4-Pt Flexural Modulus	ETD	ASTM D 7264M	69.8 GPa	10.1 Msi
Bearing Response Strength	ETD	ASTM D 5961	501.6 MPa	73 ksi
SBS	RTD	ASTM D 2344	56 MPa	8.1 ksi
SBS	ETD	ASTM D 2344	48 MPa	6.9 ksi

Laminate data for Toray TC890 prepreg impregnated on desized T650-35 8HS 370 FAW fabric, 37% RC.  
Notes: ETD is 288°C (550°F) unless noted. \*ETD for In-Plane Shear strength was 316°C (600°F).

Call Toray Advanced Composites for details.

### CURE SCHEDULE

Call for details. This product requires a multi-hour cure at temperatures at or above 371°C (700°F).