Polyramic® SPR-684

POLYMER-TO-CERAMIC™ TECHNOLOGY

Resin Description

SPR-684 is a member of the Polyramic® family and is a polysiloxane substituted resin. SPR-684 is used as a flame retardant building block material for composites, laminates, and other aerospace applications where critical performance, processing, and environmental criteria cannot be met with traditional organic materials. SPR-684 is engineered to combine organic resin processing with high performance properties usually expected of an inorganic polymer. The optimal processing temperatures for these materials are typically between 392°F (200°C) and 842°F (450°C).

Physical Properties:

- Low, Stable CTE over a broad temperature range.
- Inherently flame retardant, no additives required.
- High modulus fiber reinforced material.

Environmental:

- Exceeds IPC Standard for halogen free
- DOT/IATA Non-Hazardous Material

Manufacturing / Processing:

- Engineer properties based on processing conditions.
- Compatible with existing lamination equipment.
- Suitable for a variety of fiber reinforcements.
- Solvent or Solvent-Free Capable.

Properties of Polyramic® SPR-684	
Appearance	Clear to Opaque
Viscosity (Tailorable)	300-8,000 cPs
Density	1.11 g/cm^3
Flash Point	>205°F (96°C) (DOT/IATA Non-Hazardous)
Odor	Mild to none
Total Halogen Content	<900 ppm (IPC Standard)
Gel Time/Temp	<1 minute @ 338°F (170°C)
Solvents	Toluene, Xylene, Hexane, THF, Acetone, MEK
Catalysts	Platinum and Peroxides
Fiber Compatibility	Carbon, E-Glass, S-Glass, Nextel, etc.
Prepreg Processing Conditions	
B-Stage Temp./Time	1-8 min at 302-320°F (150-160°C)
Laminate Cure Temp./Time	428°F (220°C) for 1 hour
Laminate Properties (Tailorable)	
Flexure Strength	46.4 - 61.0 ksi (320-420 MPa)
Flexure Modulus	3.3 - 5.0 ksi (23-34 GPa)
CTE (X,Y)	5 - 15 ppm
CTE (Z)	37 - 100 ppm
Storage	Room Temperature*

* May Refrigerate to extend shelf life.

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