

# Polyramic® Resins

For High Temperature Applications



POLYMER-TO-CERAMIC™ TECHNOLOGY

Polyramic® resins fill the void in performance between specialty plastic materials and high temperature ceramic solutions. With processing requirements that are similar to traditional plastic polymers, they can be cured to a stable plastic state or formulated for use as a high temperature glassy ceramic matrix composite. Polyramic® resins can be processed to form a thermally and mechanically stable Silicon Oxycarbide (SiOC) ceramic. **Polyramic® resins do what conventional materials cannot.**

## Product Highlights

### Ease of Processing

Polyramic® resins can be quickly cured about 180°C and will produce a plastic-like material when heated into the 200-250°C range. Further processing to 850°C in inert gas results in a black oxycarbide glassy ceramic that is stable in air up to a minimum of 1,000°C.

### Low Viscosity Resin

- Facilitates high solids loading with fillers.
- Simplifies re-infiltration of composites.

### Cured State

- Curable over wide temperature range by use of suitable catalysts.

### Direct Pyrolysis

- Pyrolyzing to 850°C produces black glassy material with yields of 60 - 88%.

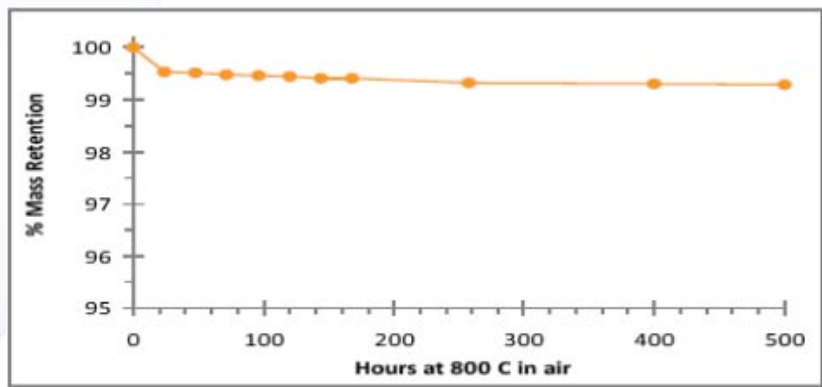
## Oxidation Resistance

### High Temperature

Retains 99% mass and appearance after 1 hour at 1,400°C in flowing air.

### Thermal & Shock resistance

Tested for 500 hours with repeated insertions/removals from furnace at 800°C.



## Mechanical Properties

### Composite Fabrication

2-D Carbon fiber reinforced, SiC filled Slurry layup tested in 3-point bend per ASTM C 1341-06.

Property	Value
Flex Modulus	64 GPa
Flex Strength	280 MPa
Fiber Volume	35%
Fabric Style	T300 6K

### Warranty

No analysis of this product is permitted. The data provided relates only to the material identified above, as supplied by Starfire Systems®, Inc. (SSI). Because conditions and methods of use of our products are beyond our control, this information should not be used as a substitution for customer's tests to ensure that SSI's products are safe, effective, and fully satisfactory for the intended end use. SSI's sole warranty is that the product will meet sales specifications in effect at the time of shipment.