

LARC™ RP46 POLYIMIDE
LOW COST HIGH TEMPERATURE TECHNOLOGY

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LARC™ RP46 Polyimide Low Cost High Temperature Technology

The LARC™ RP46 polyimide was developed in 1991 at NASA Langley Research Center as an ultra-high-performance composite matrix resin for use in aircraft engine components, as well as a more environmentally friendly alternative to commercially available high temperature matrix resins. The LARC™ RP46 polyimide is prepared with non-toxic 3,4'-oxyldianiline(ODA). This chemistry has led to several improved performance characteristics over similar high temperature polyimides. These improvements include

- 700°F use temperature
- Significantly less moisture absorption
- Better chemical corrosion resistance
- Greater microcracking resistance
- Higher structural durability

The 700°F use temperature LARC™ RP46 is 150°F higher than that of commonly used PMR-type high temperature resins. In addition, it features significantly less moisture absorption and is therefore less susceptible to moisture induced damage. It also has better corrosion resistance to chemicals, greater microcracking resistance, and higher durability with regard to structural integrity.

The fabrication costs for Langley Research Center RP46 polyimide technology are expected to be significantly lower than similar because most of the rigid handling regulations established by the Occupational Safety and Health Administration(OSHA) can be eliminated because of the use of non-toxic 3,4'-oxyldianiline(ODA). The LARC™ RP46 polyimide technology is easy to process, with a cure cycle very similar to that of other commercially available PMR-type resins.

Commercial Uses

Langley Research Center RP46 polyimide technology can be used as a high-performance, high-temperature-resistant composite, adhesive, molding, coating material, foam, or film. Potential applications include high temperature printed circuit boards, wire coating, and molded hardware.

Benefits

- Low cost
- Easy to process
- Non-toxic