

NASA Langley Research Center is actively seeking partnerships and collaborations to commercialize its Tough, Soluble, Aromatic, Thermoplastic Polyimides for demanding technologies.

The Market Opportunities

Potential products include:

- Flexible circuit board cover layers
- Moisture- and wear-resistant coatings
- Binder for ceramics, carbon products
- Composite matrix resins
- High strength adhesives
- Medical applications

The Benefits

- Excellent adhesion to Copper, Aluminum, Titanium and ceramics
- High modulus and exceptional fracture toughness,
- Solution processed as either polyamic acid or polyimide
- Melt processible via injection, extrusion and compression molding
- Solvent, moisture and alkali resistant
- 100% amorphous and non-cracking
- Tough coatings and excellent dielectric substrate for thin-film multilayer flexible circuits and wires

The Technology

Polyimides are used in a variety of high performance/ high temperature applications, adhesives, matrix resins for composites, films for electronics, semiconductor coatings, durable mechanical parts, medical equipment and wire/fiber optic cladding. Typically, polyimides are processed as amic acids, which release water during conversion. LaRC™-SI (Soluble Imide) overcomes this problem because it is processed in imidized form. LaRC™-SI has outstanding mechanical properties, environmental durability and good high temperature resistance.

LaRC™-SI is suitable for mechanical applications. Parts made with this moldable engineering plastic are tough, lightweight and durable. The self-bonding properties of LaRC™-SI allow for extremely high loadings of fillers, increasing hardness and compressive strength while lowering coefficient of thermal expansion and decreasing friction. Specialty composite parts made with LaRC™-SI and ceramics are suitable for

LaRC™-SI

Tough, Soluble, Aromatic, Thermoplastic Polyimides



satellite mirrors and abrasion resistant coatings in the textile industry.

LaRC™-SI has excellent chemical resistance and reliability. Parts can operate at elevated temperatures and in hostile environments. LaRC™-SI's high modulus, strength and fracture toughness afford long lasting parts which resist cracking and fatigue. LaRC™-SI is resistant to hydrocarbons, lubricants, anti-freeze, hydraulic fluids, and detergents. It has very low moisture pickup and can operate in hot-wet environments.

LaRC™-SI's properties make it possible to inject or compression mold large and small parts that can be further machined or polished. LaRC™-SI is a true amorphous thermoplastic. It is an excellent high strength, hot-melt adhesive, and an extremely durable dielectric.

Additional Information

To discuss in detail how this technology can profit you and your business, please contact:

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