



EpoxyLite® Hi Temp Epoxy Systems

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Product Summary

For more than 50 years, the aerospace industry has relied on EpoxyLite® resins. The United States space program created the need for a new generation of epoxy formulations with previously unattainable properties. Extensive research led to a patented high-temperature epoxy that was first used in the Mercury manned spaceflight program.

These EpoxyLite® Hi Temp Epoxy Systems have since found other specialized applications, from adhesives for high temperature strain gauges to laminating resins for bushing insulation in nuclear submarines.

Product Uses

- Strain Gauges
- Jet Fuel Pumps
- High Temperature Sensors and Probes
- Connectors / Lead seals
- High Temperature Laminates / Composites
- Teflon / Steel Shaft Seals
- Honeycomb Fillet
- Electromagnetic Brakes
- Aircraft Shaft Speed Sensors
- Satellite Temperature Sensors
- Fuel Valve Solenoids

Considerations Using EpoxyLite® Hi Temp Epoxies

General

EpoxyLite® Hi Temp Epoxies are two-component, heat-cured, 100% solids systems. They are supplied in kits containing the appropriate weight of Resin and Hardener. The Resin component is typically a viscous liquid or paste. The Hardener is a finely divided powder. They are available with a range of viscosities and fillers, making them suitable for use as adhesives, sealants, filleting compounds, and potting compounds. All of the Hi Temp Epoxies are solventless.

Properties

EpoxyLite® Hi Temp Epoxies offer excellent adhesion to metals, ceramics and most plastics. Hi Temp Epoxies are more rigid than conventional epoxies, a characteristic that should be considered in the application. Whereas conventional epoxies exhibit a marked loss of strength at temperatures in the 120-150°C (248-302°F) range and demonstrate poor thermal stability on aging, the Hi Temp Epoxies maintain excellent physical and electrical properties to at least 260°C (500°F), remaining serviceable to 315°C (600°F) or higher for short periods.

Hi Temp Epoxies are uniquely suited for applications requiring resistance to chemical attack at elevated temperatures including exposure to boiling acid, alkali and solvents. Only the strongest concentrations of acids, such as bright dip at elevated temperatures will soften the material. They provide superior radiation resistance and low outgassing characteristics.



EpoxyLite® is the resin system of choice for extremely hot, dirty, corrosive and hostile environments.

Summary of Product Benefits

- ✓ **Mechanical and Electrical Stability at Extreme Temperatures**
- ✓ **Exceptional Chemical Resistance**
- ✓ **Long Pot Life**
- ✓ **Short Cure Cycles**
- ✓ **Radiation Resistant**

Product Characteristics at a Glance



EpoxyLite® Hi Temp Epoxy Adhesives

- E 5302 Hi Temp** - Two-component adhesive system applied as a very heavy paste. Glass transition temperature 230°C (446°F)
- E 5403 Hi Temp** - Two-component adhesive system applied as a heavy paste. Suitable for edge filleting. Glass transition temperature 220°C (428°F)
- E 6103 Hi Temp** - Two-component adhesive system applied as a viscous liquid. Glass transition temperature 200°C (392°F)
- E 8121 Hi Temp** - Two-component adhesive system with a low filler loading. Designed for cementing applications requiring thermal resistance and a thin bond line. Excellent strain gauge adhesive.
- E 5526 Hi Temp** - Two-component, metal-filled structural adhesive offering high strength and long term stability at 232°C (446°F). Designed for improved weathering resistance.
- E 8822 Hi Temp** - Two-component adhesive applied as a viscous liquid. Slightly thixotropic. Superior dielectric performance.
- E 810-1 Hi Temp** - A unique three-component adhesive system that sets quickly (5-20 minutes) at room temperature with the addition of an Accelerator. Pot life is about 45 minutes before addition of Accelerator. The amount of Accelerator can be adjusted to meet specific application needs.

EpoxyLite® Hi Temp Epoxy Potting Compounds

- E 813-9 Hi Temp** - Two-component potting compound applied as a viscous liquid. "Low outgassing" per NASA reference GSC16562. Glass transition temperature 200°C (392°F).
- E 6203 Hi Temp** - Two-component potting compound applied as a viscous liquid. "Low outgassing" per NASA reference GSFC5006. Glass transition temperature 220°C (428°C).
- E 6726 Hi Temp** - Two-component potting compound applied as a viscous liquid. X-Ray opaque version of E 6203.
- E 8628 Hi Temp** - Two-component, low viscosity compound for service up to 200°C (392°F). For potting of collector rings, slip rings and field coils where rigidity and dimensional stability are required.

For More Information Ask For Our Technical Data Sheets.

ELANTAS PDG, Inc.

ELANTAS Electrical Insulation

Around the world, ELANTAS Electrical Insulation companies are respected as market leaders in the development and manufacturing of impregnating resins (varnishes), wire enamel, potting compounds and casting resins for a number of electrical, industrial, aerospace and civil applications. No matter what your challenge, be assured that ELANTAS Electrical Insulation products will meet your most demanding needs.

ELANTAS PDG, Inc.

Today, ELANTAS PDG, Inc. is recognized as the premier global supplier of specialty polymers for the electrical and electronic industries. ELANTAS PDG, Inc. is a member of ALTANA's ELANTAS Electrical Insulation Division based in Wesel, Germany.

With the support of ALTANA and by working with other ALTANA divisions, we offer a unique global approach to research, manufacturing and service that translates into more creative solutions, dependable supply and consistently high quality.

Many ELANTAS PDG, Inc. products are recognized as components of electrical insulation systems in accordance with UL 1446. ELANTAS PDG, Inc. is registered to ISO 9001:2000 and ISO/TS 16949:2002- Second Edition.

ELANTAS PDG, Inc.

5200 North Second Street
St. Louis, MO 63147 USA

Tel 314.621.5700

Fax 314.436.1030

info.elantas.pdg@altana.com
www.elantas.com

A member of  **ALTANA**



ELANTAS PDG, Inc. headquarters in St. Louis, Missouri

ELANTAS Electrical Insulation companies are strategically located throughout the world to meet the primary insulation, secondary insulation and electronic and engineering materials needs of our customers.

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