

CoolTherm® EP-636 Epoxy Encapsulant

Technical Data Sheet

CoolTherm® EP-636 epoxy encapsulant is a two-component system specifically designed for high temperature applications. CoolTherm EP-636 encapsulant is recommended for encapsulation of electric motor stator assemblies used on downhole oil pumps.

Features and Benefits:

High Temperature Electrical Performance – maintains electrical insulation stability at extremely high temperatures.

Environmentally Resistant – provides protection of electrical devices exposed to harsh environmental conditions.

Durable – exhibits very low weight loss over extended periods at elevated temperatures.

Application:

Mixing – Thoroughly mix each component prior to combining resin and hardener. Mix CoolTherm EP-636 resin with CoolTherm EP-636 hardener at a ratio of 100 parts resin to 1 part hardener, by weight, until uniform in color. Automatic meter/mix/dispense equipment may be used for high volume production.

Applications involving large mass castings may require a mix ratio of 100 part resin to 0.75 parts hardener, by weight. Tests should be conducted to determine the optimal mix ratio.

Unless a closed-chamber mechanical mixer is used, air may be introduced into the encapsulant system either during mixing or when catalyzing the mixture. Electrical properties of the epoxy encapsulant are best when air bubbles and voids are minimized. Therefore, in extremely high voltage or other critical applications, vacuuming may be appropriate.

Applying – Apply epoxy encapsulant using handheld cartridges or automatic meter/mix/dispense equipment.

Curing – Allow encapsulant to cure for 16-24 hours at 50-65°C, followed by 2 hours each at 95°C, 150°C and 205°C. In special circumstances where conditions do not permit the use of the typical cure schedule, alternate curing cycles may be determined by consultation with Parker LORD.

Cleanup – Disposable containers and utensils are recommended when working with epoxies. However, when disposable materials are impractical, uncured encapsulant can be removed by cleaning equipment with solvent. Solvent-cleaned utensils should be thoroughly dried before reuse; any remaining solvent can contaminate the next mixture.

Shelf Life/Storage:

Shelf life is one year for CoolTherm EP-636 resin and two years for CoolTherm EP-636 hardener when stored at 25°C in original, unopened container. CoolTherm EP-636 resin must be periodically rotated within its container to maintain maximum shelf life. Settling will occur if not mixed.

CoolTherm EP-636 hardener may crystallize during shipment or storage. If crystals appear, gently warm hardener at 50-65°C to melt crystals before mixing with resin.

Typical Properties*

	EP-636 Resin	EP-636 Hardener	Mixed
Appearance	White Liquid	Black Liquid	Gray Liquid
Viscosity, cP @ 25°C	86,000	3500	50,000
Specific Gravity @ 25°C	1.61	1.00	1.58
Gel Time, minutes @ 93°C	–	–	30
Working Life, days @ 25°C	–	–	1 - 2

*Data is typical and not to be used for specification purposes.



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Typical Cured Properties**

Thermal Conductivity, W/m·K	0.7
Coefficient of Linear Thermal Expansion, ppm/°C	35
Glass Transition Temperature (T _g), °C by TMA	180
Hardness Shore D, ASTM D 2240	95
Tensile Strength, MPa (psi) ASTM D 636	42.75 (6200)
Volume Resistivity, ohm-cm @ 25°C ASTM D 257	5.6 x 10 ¹⁵
Dielectric Strength, kV/mm (V/mil) ASTM D 149	18.3 (464)
Dielectric Constant @ 25°C 1 Mz, ASTM D 150	3.62
Dissipation Factor @ 25°C 1 MHz, ASTM D 150	0.023

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Cure schedule of 24 hours at 65°C plus 2 hours each at 95°C, 150°C and 205°C.

Cautionary Information:

Before using this or any Parker LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Values stated in this document represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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