Thermoset EL-636 Epoxy Encapsulant

Description

LORD Thermoset EL-636 epoxy encapsulant is a two-component system specifically designed for high temperature applications. Thermoset EL-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 stir each component prior to mixing together. Mix Thermoset EL-636 resin with Thermoset EL-636 hardener at a 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 will 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 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.

Typical Properties*

	EL-636 Resin	EL-636 Hardener	Mixed
Appearance	White Paste	Black Paste	Gray Paste
Viscosity, cps @ 25°C	86,000	3500	50,000
Specific Gravity @ 25°C	1.61	1.00	1.58
Gel Time, min @ 93°C	–	–	30
Working Life, day @ 25°C	–	–	1-2

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

Shelf Life/Storage

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

Thermoset EL-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.

Cautionary Information

Before using this or any LORD product, refer to the Material Safety Data Sheet (MSDS) 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.

Typical Cured Properties**

Volume Resistivity, ohm-cm @ 25°C ASTM D 257	5.6×10^{15}
Coefficient of Linear Thermal Expansion, ppm/°C	35
Glass Transition Temperature (Tg), °C by TMA	180
Hardness Shore D, ASTM D 2240	95
Tensile Strength, MPa ASTM D 636	42.7
Dielectric Strength, V/mil ASTM D 149	464
Dielectric Constant @ 25°C 1 MHz, ASTM D 150	3.62
Dissipation Factor @ 25°C 1 MHz, ASTM D 150	0.023

**Data is typical and not to be used for specification purposes. Cure schedule of 24 hours at 65°C plus 2 hours each at 95°C, 150°C and 205°C.

Values stated in this technical data sheet 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.

Information provided herein is based upon tests believed to be reliable. In as much as LORD Corporation has no control over the manner in which others may use this information, it does not guarantee the results to be obtained. In addition, LORD Corporation does not guarantee the performance of the product or the results obtained from the use of the product or this information where the product has been repackaged by any third party, including but not limited to any product end-user. Nor does the company make any express or implied warranty of merchantability or fitness for a particular purpose concerning the effects or results of such use.

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