

## ER2221

### Epoxy Resin

#### DESCRIPTION

**ER2221** is a high temperature resistant, thermally conductive, two-part encapsulation compound based on epoxy technology. Designed to meet increasing demands for efficient thermal dissipation, **ER2221** combines ease of processing with an enhanced thermal conductivity when compared to traditional thermally conductive encapsulants. It also offers enhanced performance in high temperature applications as well as those subject to thermal cycling.

READ ENTIRE TECHNICAL BULLETIN BEFORE USING THIS PRODUCT

#### FEATURES AND BENEFITS

- Excellent high temperature resistance; suitable for operating environments up to 150 °C
- Enhanced thermal conductivity; ideal for heat dissipation within a variety of applications
- Moderate viscosity for a filled system; provides thermal dissipation for units with limited spacing
- Does not contain abrasive fillers; low wear on dispensing machinery

#### APPROVALS

Standard	Status
RoHS Compliant (2015/863/EU)	Yes
UL Approval	UL94 V-0 (File: E100107)

#### PRODUCT INFORMATION

For available packaging sizes please visit:

[electrolube.com](http://electrolube.com)

### PHYSICAL PROPERTIES

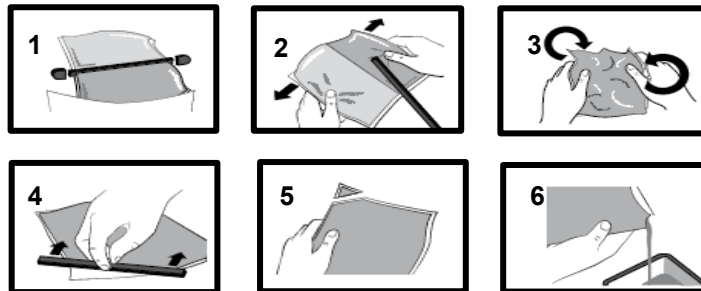
Category	Results
<b>Liquid Properties</b>	
Base Material	Epoxy
Color Part A - Resin Part B - Hardener	Black Brown
Density Part A - Resin (g/mL) Part B - Hardener (g/mL)	2.00 1.01
Viscosity (mPa s 23 °C) Part A Part B Mixed System	8000 250 6000
Mix Ratio Weight Volume	13.91:1 7.1:1
Usable Life (23 °C)	60 minutes
Gel Time (23 °C)	6 hours
Cure Time 23 °C 60 °C 100 °C	24 hours 2 hours 1 hour
Storage Conditions	Dry Conditions: Above 15 °C, Below 35 °C
Shelf Life	12 Months
Shrinkage	<1.0%
<b>Cured System</b>	
Color (Mixed System)	Black
Thermal Conductivity (W/m.K)	1.20
Cured Density (g/mL)	1.88

Category	Results
Temperature Range (°C)	-40 to 150
Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	+170
Volume Resistivity (ohm-cm)	10 <sup>10</sup>
Relative Thermal Index (°C)	+130
Dielectric Strength (kV/mm)	10
Shore Hardness	D90
Flame Retardancy	UL94 V-0 Approved
Tensile Strength (MPa)	50
Compressive Strength (MPa)	120
Coefficient of Expansion (ppm/°C)	30
Loss Tangent @ 50 Hz	0.05
Permittivity @ 50 Hz	6.00
Comparative Tracking Index	>850 Volts
Water Absorption (9.7 mm thick disk, 51 mm diameter) 10 days @ 20 °C / 1 hour @ 100 °C	< 0.5% / < 1.0%
Elongation at Break	6.5%

### APPLICATION GUIDELINES – RESIN PACKS

#### Mixing Procedures

When in Resin pack form, the resin and hardener are mixed by removing the clip and moving the contents around inside the pack until thoroughly mixed. To remove the clip, remove both end caps, grip each end of the pack, and pull apart gently. By using the removed clip, take special care to push unmixed material from the corners of the pack. Mixing normally takes from three to four minutes depending on the skill of the operator and the size of the pack. Both the resin and hardener are evacuated prior to packing so the system is ready for use immediately after mixing. The corner may be cut from the pack so that it may be used as a simple dispenser. There is also a YouTube video ([Epoxy Mixing Instructions](#)) available on the Electrolube channel to show the mixing process.



### APPLICATION GUIDELINES - BULK

#### Bulk Mixing

When mixing, care must be taken to avoid the introduction of excessive amounts of air. Automatic mixing equipment is available which will not only mix both the resin and hardener accurately in the correct ratio but do this without introducing air. Containers of Part A (Resin) and Part B (Hardener) should be kept sealed at all times when not in use to prevent the ingress of moisture. Bulk material must be thoroughly mixed before use. Incomplete mixing or use of the wrong mix ratio will result in erratic or partial curing.

### GENERAL

Sedimentation of the resin has been minimised by careful attention to the formulation. However, any sediment which may have occurred over long periods of time must be dispersed before removing any material from the container. This dispersion can be carried out (if necessary) by stirring with a broad bladed spatula or gently rolling the can. Take care not to introduce excessive amounts of air during this operation or it may be necessary to re-evacuate the resin. Sedimentation will be accelerated by storage at high temperatures. Sedimentation found in resin packs forms no problem since the sediment is re-mixed when the pack is used.

### ADDITIONAL INFORMATION

- Cleaning:** It is far easier for machines & containers to be cleaned before the resin has been allowed to cure. RRS is suitable for cleaning machines and containers and cured resin may be slowly softened and removed by soaking in our RRS.
- Curing:** Do not heat cure large volumes immediately. Allow these to gel at room temperature and post-cure at high temperature if required (refer to liquid properties for details). Small volumes (250 mL) may be heat cured immediately.
- Storage:** When storing under very cold conditions, the hardener may crystallise. If this occurs, simply warm (40 °C) the container gently until all crystals have re-melted.

### SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

### CONTACT INFORMATION

To confirm this document is the most recent version, please contact  
**TechnicalSupportTeam@hkw.co.uk**  
[www.electrolube.com](http://www.electrolube.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE . Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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