# **Encapsulation Resins**

# Technical Data Sheet



# ER2218 Epoxy Resin

ER2218 is a low viscosity, flame retardant, two part potting and encapsulating compound. The product has been specifically designed for compatibility with reflow applications, therefore remaining stable for short term, high temperature excursions.

- Exceptionally low viscosity; ideal for applications with complex geometries or limited spacing
- Combines flame retardancy with ease of application; efficient potting processes
- Excellent thermal stability; can withstand short term excursions at high temperatures
- Does not contain abrasive fillers; low wear on dispensing machinery

Approvals	RoHS-2 Compliant (2011/65/EU): UL Approval:	Yes Meets UL94 V-0
Typical Properti	es	
Liquid Properties:	Base Material Density Part A - Resin (g/ml)	Epoxy 1.22

Density Part B - Hardener (g/ml) 0.96 Part A Viscosity (mPa s @ 20-23°C) 800 Part B Viscosity (mPa s @ 20-23°C) 400 Mixed System Viscosity (mPa s @ 20-23°C) 500 Mix Ratio (Weight) 3.58:1 Mix Ratio (Volume) 2.82:1 Usable Life (20°C) 40 minutes Gel Time (23°C) 50 minutes Cure Time (23°C) 24 hours Cure Time (60 °C) 4 hours Cure Time (100 °C) 30 minutes Colour Part A - Resin Black Colour Part B - Hardener Amber

(Measured on 100ml sample; cylinder of diameter 49.4mm @ 23°C)

Shrinkage

< 1%

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Thermal conductivity (W/m.K) 0.28 **Cured System:** 

Cured Density (g/ml) 1 16

Temperature Range (°C) -50 to +150

Max Temperature Range (Short Term (°C)/5 Mins) + 245 (Application and Geometry Dependent) Dielectric Strength (kV/mm) 10 10<sup>14</sup> Volume Resistivity (ohm-cm) **Shore Hardness** 

D55/A90 Colour (Mixed System) Black Flame Retardancy Yes

Coefficient of thermal expansion (ppm/°C) 80-100

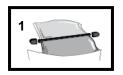
Water Absorption (9.7mm thick disk, 51mm diameter) < 1.5% / < 0.5%

10 days @ 20°C / 1 hour @ 100°C

# **Mixing Procedures**

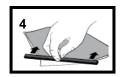
### **Resin Packs**

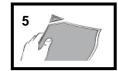
When in Resin pack form, the resin and hardener are mixed by removing the clip and moving the contents around inside the pack until thoroughly mixed. To remove the clip, remove both end caps, grip each end of the pack and pull apart gently. By using the removed clip, take special care to push unmixed material from the corners of the pack. Mixing normally takes from two 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.

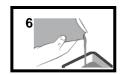












## **Bulk Mixing**

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 will result in erratic or partial curing.

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#### 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. Electrolube's 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 (250ml) 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.

Health & Safety: Always refer to the Health & Safety data sheet before use. These can be downloaded

from www.electrolube.com

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