



Technical Data Sheet

E2218 Epoxy Resin

Product Description

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. The system utilises a hardener free of DDM or other aromatic amines. The flame retardant filler used is a non-halogenated 'clean' type leading to relatively low toxicity fumes and low smoke emission.

Features

- Low viscosity
- Flame retardant, meets UL94 V-0
- Excellent adhesion to a wide variety of substrates
- Excellent thermal cycling characteristics
- Good flexibility
- Good chemical and water resistance

Approvals:	RoHS Compliant	Yes
	UL Approval	Meets UL94 V-0

Typical Properties:

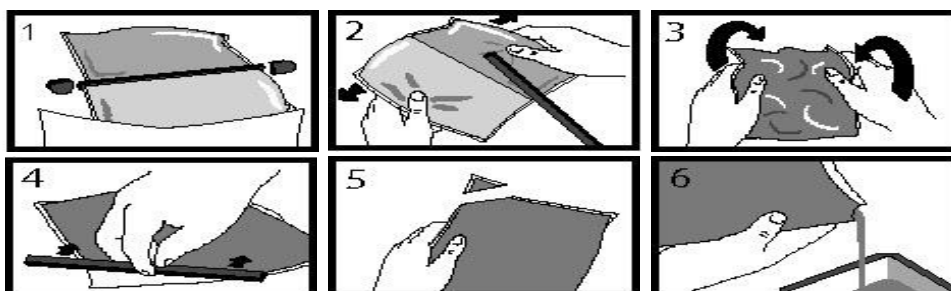
Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	1.22
	Density Part B - Hardener (g/ml)	0.96
	Part A Viscosity (mPa s @ 20-23°C)	800
	Part B Viscosity (mPa s @ 20-23°C)	400
	Mixed System Viscosity (mPa s @ 20-23°C)	500
	Mix Ratio (Weight)	3.58:1
	Mix Ratio (Volume)	2.82:1
	Usable 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
	Storage Conditions	Dry Conditions: Above 15°C, Below 30°C
	Shelf Life	24 Months (bulk) 18 months (resin pack)
	Exotherm	
	(Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23°C)	< 90°C
	Shrinkage	< 1%

Cured System:	Thermal conductivity (W/mK)	0.28
	Cured Density (g/ml)	1.16
	Temperature Range (°C) (Application and Geometry Dependent)	-50 to +150
	Max Temperature Range (Short Term °C / 5 Mins)	+ 245
	Dielectric Strength (kV/mm)	10
	Volume Resistivity (ohm-cm)	10 ¹⁴
	Shore Hardness	D55/A90
	Colour (Mixed System)	Black
	Flame Retardance	Yes
	Coefficient of thermal expansion (ppm/°C)	80-100
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20°C / 1 hour @ 100°C	< 1.5% / < 0.5%

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.

General

Sedimentation of the resin is likely to occur due to the low viscosity. This must be dispersed before removing any material from the container 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

Curing Schedule

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.

Cleaning

It is far easier for machines & containers to be cleaned before the resin has been allowed to cure. Electrolube's OP9004 is a non-flammable cleaner designed for this purpose. Cured resin may be slowly softened and removed by soaking in our OP9003 Resin Stripper.

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

Diamino Diphenyl Methane (DDM) has been used extensively in the resin industry but under changes to the EEC guidelines now requires a TOXIC label with the risk phrase "May Cause Cancer". This resin does **NOT** contain DDM.

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