



Technical Data Sheet

ER2195 Epoxy Resin

Product Description

ER2195 is a flame retardant, general purpose, two part potting and encapsulating compound. The cured product exhibits a high degree of toughness and adhesion and is particularly suited to applications with stringent temperature cycling or thermal shock requirements. The flame retardant technology used is of a 'clean' type leading to relatively low toxicity fumes and low smoke emission.

Features

- Excellent electrical properties
- Flame retardant approved to UL94 V-0
- Excellent adhesion to a wide variety of substrates
- Low shrinkage and exotherm
- Good chemical and water resistance
- Non-toxic
- Semi-rigid
- Cost effective

Approvals:	RoHS Compliant UL Approval	Yes UL94 V-0
Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	1.82
	Density Part B - Hardener (g/ml)	0.94
	Part A Viscosity (mPa s 20-25°C)	150000
	Part B Viscosity (mPa s 20-25°C)	500
	Mixed System Viscosity (mPa s 20-25°C)	9000
	Mix Ratio (Weight)	9.77:1
	Mix Ratio (Volume)	5.04:1
	Usable Life (20°C)	4 hours
	Gel Time (25°C)	10 hours
	Cure Time (25 °C)	36 hours
	Cure Time (60 °C)	4 hours
	Cure Time (100 °C)	1 hour
	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)

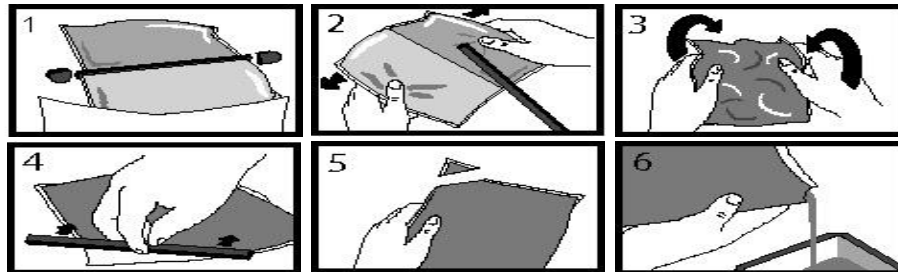
Exotherm
 (Measured on 100ml sample in a cylinder of
 diameter 49.4mm @ 20-25°C) < 35°C
 Shrinkage < 1%

Cured System: Thermal Conductivity (W/mK) 0.45
 Cured Density (g/ml) 1.67
 Temperature Range (°C) -40 to +130
 Max Temperature Range
 (Short Term °C / 30 Mins) +150
 Application and Geometry Dependent
 Dielectric Strength (kV/mm) 10
 Volume Resistivity (ohm-cm) 10¹⁵
 Shore Hardness D80
 Colour (Mixed System) Black
 Flame Retardency Yes
 Tensile Strength (MPa) 40
 Compressive Strength (MPa) 110
 Deflection Temperature (°C) 40
 Coefficient of Expansion (ppm/°C) 45
 Loss Tangent @ 50 Hz 0.04
 Permittivity @ 50 Hz 5.10
 Comparative Tracking Index >850 Volts
 Water Absorption
 (9.7mm thick disk, 51mm diameter) 0.7% / 1.2%
 10 days @ 20°C / 1 hour @ 100°C
 Elongation At Break 0.6%

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 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

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". **ER2195** does **NOT** contain DDM.

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