ER2183
Epoxy Resin

ER2183 is a flame retardant, thermally conductive, two-part potting and encapsulating compound. The flame retardant technology used is of a 'clean' type leading to relatively low toxicity fumes and low smoke emission.

- Excellent thermal conductivity; ideal for applications requiring heat dissipation
- Low viscosity for a filled system; provides thermal dissipation for units with limited spacing
- Does not contain abrasive fillers; low wear on dispensing machinery
- Meets UL94 V-0 approval; high level of flame retardancy

Approvals	**RoHS Compliant (2015/863/EU):**	**Yes**
	UL Approval:	**Meets UL94 V-0**

Typical Properties

Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	2.13
	Density Part B - Hardener (g/ml)	0.93
	Part A Viscosity (mPa s 23°C)	80000
	Part B Viscosity (mPa s 23°C)	25
	Mixed System Viscosity (mPa s 23°C)	5000
	Mix Ratio (Weight)	12.78:1
	Mix Ratio (Volume)	5.58:1
	Usable Life (20°C)	120 mins
	Gel Time (23°C)	7 hours
	Cure Time (23 °C)	24 hours
	Cure Time (60 °C)	4 hours
	Cure Time (100 °C)	1 hour
	Colour Part A - Resin	Black
	Colour Part B - Hardener	Black
	Storage Conditions	Dry Conditions: Above 15ºC, Below 35ºC
	Shelf Life	24 Months (bulk) 12 months (resin pack)
	Exotherm (Measured on 100ml sample; cylinder of diameter 49.4mm @ 23ºC)	< 35ºC
	Shrinkage	< 1%

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Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

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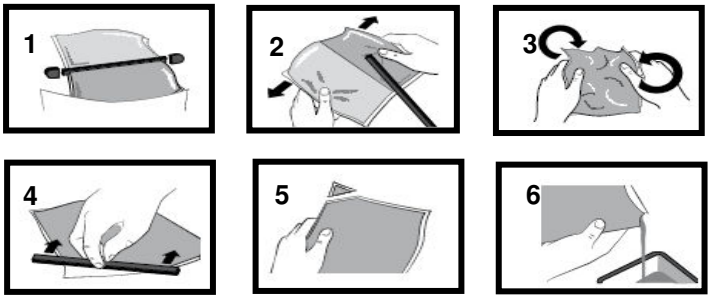
Cured System:	Thermal Conductivity (W/m.K)	1.25
	Cured Density (g/ml)	1.95
	Temperature Range (°C)	-40 to +130
	Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	+150
	Dielectric Strength (kV/mm)	10
	Volume Resistivity (ohm-cm)	10^{15}
	Shore Hardness	D90
	Colour (Mixed System)	Black
	Flame Retardancy	Yes
	Tensile Strength (MPa)	60
	Compressive Strength (MPa)	120
	Deflection Temperature (°C)	60
	Coefficient of Expansion (ppm/°C)	30
	Loss Tangent @ 50 Hz	0.05
	Permittivity @ 50 Hz	6.00
	Comparative Tracking Index	>850 Volts
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20ºC / 1 hour @ 100ºC	< 0.5% / < 1%
	Elongation At Break	0.4%

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 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.



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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. 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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