

# ER2081 Epoxy Resin

**Encapsulation Resins** 

ER2081 is a general purpose, filled resin, which features excellent electrical insulation characteristics. The hardener is not subject to moisture inhibition so the cured resin exhibits excellent surface appearance even when small volumes are cured at low ambient temperatures.

- · General purpose resin; low viscosity for a filled system
- Easy to use; cures even at low ambient temperatures
- · Cured resin exhibits some flexibility; minimises stress on delicate components
- Excellent electrical properties; ideal for encapsulating electronic circuitry

Approvals	RoHS Compliant (2015/863/EU): UL Approval:	Yes Meets UL94 V-0		
Typical Properties				
Liquid Properties:	Base Material	Ероху		
	Density Part A - Resin (g/ml)	1.75		
	Density Part B - Hardener (g/ml)	1.13		
	Part A Viscosity (mPa s 20-25°C)	17500		
	Part B Viscosity (mPa s 20-25°C)	1500		
	Mixed System Viscosity (mPa s 20-25°C)	5000		
	Mix Ratio (Weight)	5.08:1		
	Mix Ratio (Volume)	3.27:1		
	Usable Life (20°C)	1 hour		
	Gel Time (25°C)	2 hours		
	Cure Time (25°C)	48 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 35°C		
	Shelf Life	12 Months		
Cured System:	Thermal Conductivity (W/m.K)	0.45		
-	Cured Density (g/ml)	1.60		
	Temperature Range (°C)	-40 to +120		
	Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	+140		

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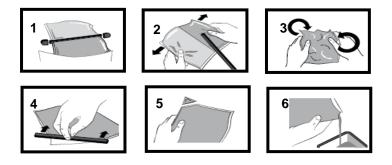
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Dielectric Strength (kV/mm)	10
Volume Resistivity (ohm-cm)	10 <sup>15</sup>
Shore Hardness	D80
Colour (Mixed System)	Black
Flame Retardancy	No
Tensile Strength (MPa)	30
Compressive Strength (MPa)	100
Deflection Temperature (°C)	40
Coefficient of Expansion (ppm/°C)	60
Loss Tangent @ 50 Hz	0.05
Permittivity @ 50 Hz	6.00
Comparative Tracking Index	Not Measured
Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20°C / 1 hour @ 100°C	0.9% / 1.5%
Elongation At Break	1%

# 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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