

Technical Data Sheet

ER2220 Epoxy Resin

Product Description

ER2220 is a flame retardant, thermally conductive, two part encapsulation compound based on epoxy technology. Designed to meet increasing demands for efficient thermal dissipation, ER2220 combines ease of processing with an enhanced thermal conductivity when compared to traditional thermally conductive encapsulants. Combined with flame retardance achieving UL94 V-0 level, ER2220 provides the ultimate in protection and performance for a vast array of applications, including those in the rapidly expanding LED industry.

Features

- Excellent thermal conductivity
- Meets UL94 V-0
- Very low shrinkage and exotherm
- Good chemical and water resistance
- Excellent electrical properties
- Free of abrasive fillers, low wear on dispensing machinery

Approvals:	RoHS Compliant	Yes
	UL Approval	Meets

Typical Properties:

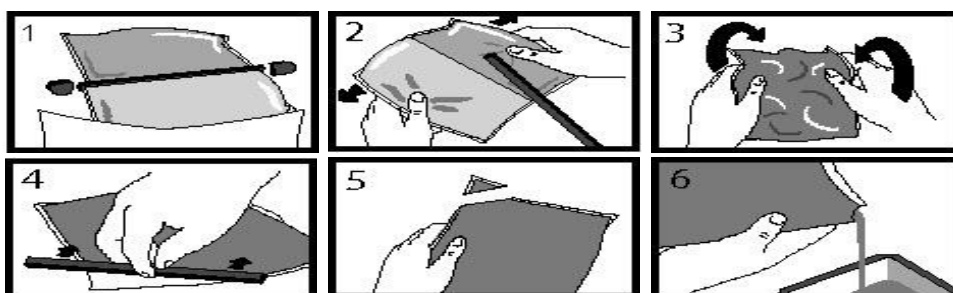
Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	2.38
	Density Part B - Hardener (g/ml)	0.93
	Part A Viscosity (mPa s 23°C)	55000
	Part B Viscosity (mPa s 23°C)	25
	Mixed System Viscosity (mPa s 23°C)	15000
	Mix Ratio (Weight)	20.81:1
	Mix Ratio (Volume)	8.15:1
	Usable Life (23°C)	120 mins
	Gel Time (23°C)	3 hours
	Cure Time (23 °C)	24 hours
	Cure Time (60 °C)	4 hours
	Cure Time (100 °C)	1 hour
	Colour Part A - Resin	Grey
	Colour Part B - Hardener	Black
	Storage Conditions	Dry Conditions: Above 15°C, Below 30°C
	Shelf Life	24 Months (bulk) 12 months (resin pack)
	Exotherm (Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23°C)	< 35°C
	Shrinkage	< 1%

Cured System:	Thermal Conductivity (W/mK)	1.54
	Cured Density (g/ml)	2.22
	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)	Grey
	Flame Retardency	Meets UL94 V-0
	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)	< 0.5% / < 1%
	10 days @ 20°C / 1 hour @ 100°C	
	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 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

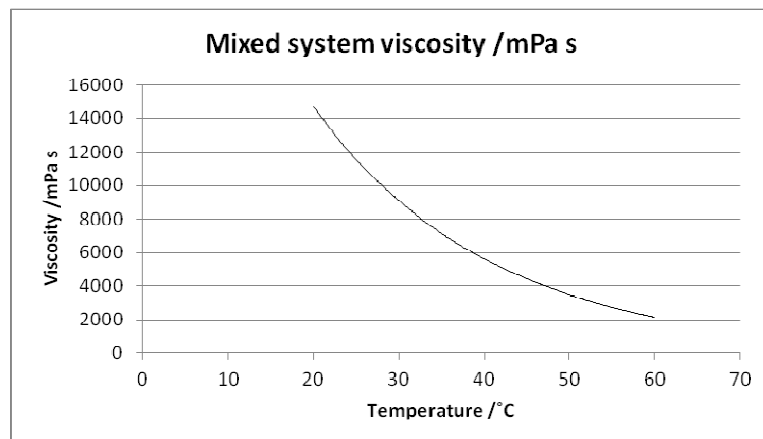
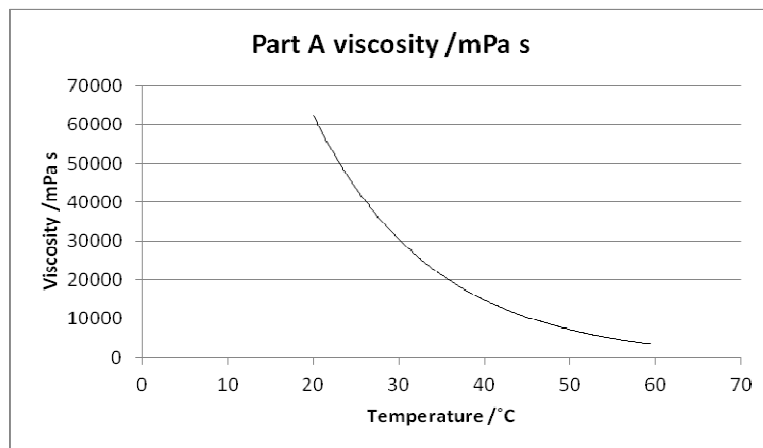
When mixing, care must be taken to avoid the introduction of excessive amounts of air. Automatic mixing equipment is available which will not only mix both the resin and hardener accurately in the correct ratio but do this without introducing air. Containers of Part A (Resin) and Part B (Hardener) should 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

Viscosity



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 RRS is suitable for cleaning machines and containers and cured resin may be slowly softened and removed by soaking in our RRS.

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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