

ER1122 Epoxy Resin

ER1122 is a general purpose, two-part, hot or cold curing resin with superior adhesive properties. The cured material is tough however flexibility can be adjusted by altering the amount of hardener used. Increasing the amount of hardener will produce a more flexible product and decreasing the amount of hardener will produce a more rigid product. However, this should only be carried out after careful testing; some mix ratios are provided below.

- Excellent adhesion to a wide variety of substrates
- Adjustable flexibility to suit a range of applications; very versatile in use
- Good bond strength even in harsh conditions, including certain chemical environments
- Excellent electrical properties; can be used for encapsulation as well as bonding applications

Approvals	RoHS-2 Compliant (2011/65/EU):	Yes
	UL Approval:	No

Typical Properties

Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	1.16
	Density Part B - Hardener (g/ml)	0.97
	Part A Viscosity (mPa s 23°C)	11000
	Part B Viscosity (mPa s 23°C)	15000
	Mixed System Viscosity (mPa s 23°C)	12000
	Mix Ratio (Weight)	1:1
	Mix Ratio (Volume)	0.83:1
	Usable Life (20°C)	1-2 hours
	Gel Time (23°C)	4 hours
	Cure Time (23 °C)	48 hours
	Cure Time (60 °C)	4 hours
	Cure Time (100 °C)	1 hour
	Colour Part A - Resin	Clear
	Colour Part B - Hardener	Amber
	Storage Conditions	Dry Conditions: Above 15°C, Below 30°C
	Shelf Life	24 Months
	Exotherm	< 35°C
	(Measured on 100ml sample; cylinder of diameter 49.4mm @ 23°C)	
	Shrinkage	< 0.5%

Cured System:	Thermal Conductivity (W/m.K)	0.20
	Cured Density (g/ml)	1.05
	Temperature Range (°C)	-40 to +120
	Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	+140
	Dielectric Strength (kV/mm)	12
	Volume Resistivity (ohm-cm)	10 ¹⁴
	Shore Hardness	D80
	Colour (Mixed System)	Clear Amber
	Flame Retardancy	No
	Tensile Strength (MPa)	45-50
	Compressive Strength (MPa)	90
	Deflection Temperature (°C)	35
	Coefficient of Expansion (ppm/°C)	100
	Loss Tangent @ 50 Hz	0.01
	Permittivity @ 50 Hz	4.50
	Comparative Tracking Index	Not Measured
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20°C / 1 hour @ 100°C	< 0.5% / < 1%
	Elongation At Break	2.5%

Typical Properties of Cured Resin

Tensile shear strength of bonded pickled light alloy:

Mix Ratio (Resin:Hardener)	Cured 7 Days @ 25°C	Cured 20 mins @ 150°C
2.0 : 1	170kg/cm ²	300kg/cm ²
1.5 : 1	180kg/cm ²	310kg/cm ²
1.0 : 1	180kg/cm ²	350kg/cm ²
0.67 : 1	150kg/cm ²	300kg/cm ²

Tensile shear strength of bonded LD polyethylene (cured 7 days at room temperature):

Mix Ratio (Resin:Hardener)	Flame Treated Polyethylene	Chromic Acid Pickled Polyethylene
0.67 : 1	13.1kg/cm ²	13.2kg/cm ²

Chemical resistance: Bond strength is fully retained after 12 months immersion in diesel oil and substantially retained after 6 months immersion in water, ethanol or benzene.

Effect of room temperature aging on bond strength of bonded pickled light alloy.
Cured for 20 minutes @ 150°C, resin:hardener ratio 1:1:

Not Aged	1 Month	3 Month	6 Month	18 Months	24 Months	60 Months
330kg/cm ²	340kg/cm ²	280kg/cm ²	280kg/cm ²	300kg/cm ²	280kg/cm ²	210kg/cm ²

Mixing Procedures

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.

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.
- 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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