Technical Data Sheet

ER1451
Epoxy Resin

Product Description

ER1451 is a fast curing epoxy resin of low viscosity. The cured resin has found application for potting radio frequency transmitter devices. The system is clear and may be supplied in bulk, kit or resinpack form.

Features

- Excellent adhesion to a wide variety of substrates
- Good electrical properties
- Easy to use
- Low viscosity
- Good thermal cycling characteristics

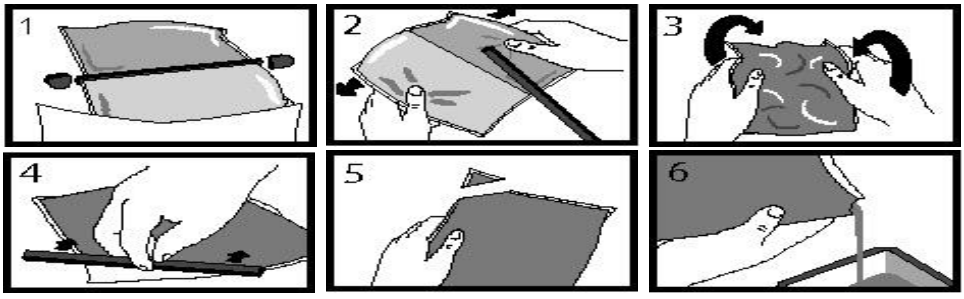
Approvals:	RoHs Compliant	Yes
	UL Approval	No
Liquid Properties:	Base Material	Epoxy
	Density Part A - Resin (g/ml)	1.09
	Density Part B - Hardener (g/ml)	0.95
	Part A Viscosity (mPa s 23°C)	200
	Part B Viscosity (mPa s 23°C)	300
	Mix Ratio (Weight)	2.41:1
	Mix Ratio (Volume)	2.10:1
	Mixed System Viscosity (mPa s 23°C)	250
	Usable Life (20°C)	20 minutes
	Gel Time (25°C)	30 minutes
	Cure Time (25 °C)	12 hours
	Cure Time (80 °C)	2 hours
	Cure Time (100 °C)	30 minutes
	Colour Part A - Resin	Clear
	Colour Part B - Hardener	Amber
	Storage Conditions	Dry Conditions: Above 15ºC, Below 30ºC
	Shelf Life	24 Months

Cured System:	Thermal Conductivity (W/mK)	0.20
	Cured Density (g/ml)	1.05
	Mixed System Viscosity (mPa 20-25°C)	250
	Temperature Range (°C)	-50 to +130
	Max Temperature Range (Short Term °C / 30 Mins) (Application and Geometry Dependent)	+150
	Dielectric Strength (kV/mm)	12
	Volume Resistivity (ohm-cm)	10^{14}
	Shore Hardness	D50
	Colour (Mixed System)	Clear Amber
	Flame Retardancy	No
	Tensile Strength (MPa)	30-35
	Compressive Strength (MPa)	60
	Deflection Temperature (°C)	35
	Coefficient of Expansion (ppm/°C)	80
	Loss Tangent @ 50 Hz	0.01
	Permittivity @ 50 Hz	4.0
	Comparative Tracking Index	Not Measured
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20ºC / 1 hour @ 100ºC	0.5% / 1.0%
	Elongation At Break	2.0%

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.

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

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