UR5097
Polyurethane Resin

UR5097 is a flame retardant, thermally conductive, two part potting and encapsulating compound. The cured polyurethane is particularly suited to applications with stringent temperature cycling or thermal shock requirements.

- High thermal conductivity; ideal for applications requiring efficient heat dissipation
- Approved to UL94 V-0; high level of flame retardancy
- Very low water absorption; offers excellent protection in the presence of water and high humidity
- Does not contain abrasive fillers and has good flow characteristics; low wear on dispensing machinery

Approvals	**RoHS-2 Compliant (2011/65/EU):**	**Yes**
	UL Approval:	**UL94 V-0 File #E100107**

Typical Properties

Liquid Properties:	Base Material	Polyurethane
	Density Part A - Resin (g/ml)	1.53
	Density Part B - Hardener (g/ml)	1.24
	Part A Viscosity (mPa s @ 23ºC)	30000
	Part B Viscosity (mPa s @ 23ºC)	50
	Mixed System Viscosity (mPa s @ 23ºC)	6000
	Mix Ratio (Weight)	7.46:1
	Mix Ratio (Volume)	6.01:1
	Usable Life (20°C)	20 mins
	Gel Time (23°C)	80 mins
	Cure Time (23 °C)	24 hours
	Cure Time (60 °C)	4 hours
	Colour Part A – Resin	Black
	Colour Part B – Hardener	Amber
	Storage Conditions	Dry Conditions: Above 15ºC, Below 35ºC
	Shelf Life	12 Months
	Exotherm (Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23ºC)	< 40ºC
	Shrinkage	< 1%

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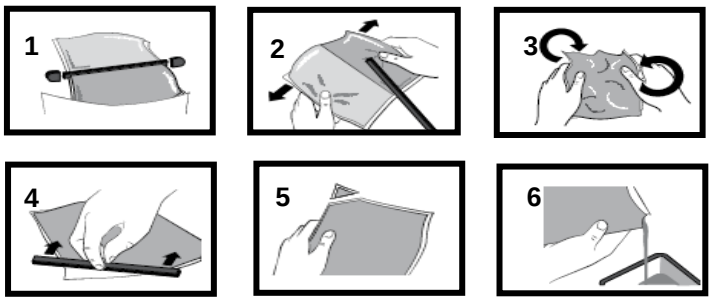
Cured System:	Thermal Conductivity (W/m.K)	0.65
	Cured Density (g/ml)	1.49
	Temperature Range (°C)	-40 to +110
	Max Temperature Range (Short Term (°C)/30 mins) (Application and Geometry Dependent)	+130
	Dielectric Strength (kV/mm)	18
	Volume Resistivity (ohm-cm)	10^{14}
	Shore Hardness	A85
	Colour (Mixed System)	Black
	Flame Retardancy	UL94 V-0 Approved
	Loss Tangent @ 50 Hz	0.015
	Permittivity @ 50 Hz	3.60
	Comparative Tracking Index	>600 Volts
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20ºC / 1 hour @ 100ºC	<0.2% / <0.5%
	Elongation At Break	Not Measured

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.



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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 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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