

## **UR5040**

### **Polyurethane Resin**

UR5040 is a high performance polyurethane encapsulation system which features flame retardancy, excellent electrical properties and low permeability to water. The colour of UR5040 is red.

- Excellent oxidation resistance; high performance in a range of challenging environments
- Low moisture sensitivity during cure and good adhesion to a wide variety of substrates
- Low Viscosity; ensures good flow around complex units and geometries
- High toughness and tear resistance; offers good physical protection

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

#### **Typical Properties**

Liquid Properties:	Base Material	Polyurethane
	Density Part A - Resin (g/ml)	1.48
	Density Part B - Hardener (g/ml)	1.19
	Part A Viscosity (mPa s @ 23°C)	19500
	Part B Viscosity (mPa s @ 23°C)	215
	Mixed System Viscosity (mPa s @ 23°C)	4900
	Mix Ratio (Weight)	4.27:1
	Mix Ratio (Volume)	3.46:1
	Usable Life (20°C)	15 mins
	Gel Time (23°C)	45 mins
	Cure Time (23 °C)	48 hours
	Colour Part A - Resin	Red
	Colour Part B - Hardener	Brown
	Storage Conditions	Dry Conditions: Above 15°C, Below 35°C
	Shelf Life	12 Months

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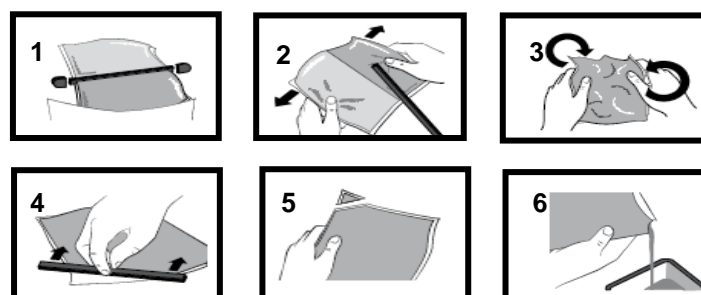
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Cured System:	Thermal Conductivity (W/m.K)	0.45
	Cured Density (g/ml)	1.41
	Temperature Range (°C)	-60 to +125
	Max Temperature Range (Short Term (°C)/30 mins) (Application and Geometry Dependent)	+130
	Dielectric Strength (kV/mm)	18
	Volume Resistivity (ohm-cm)	10 <sup>14</sup>
	Shore Hardness	A75-80
	Flame Retardancy	Meets UL94 V-0
	Colour (Mixed System)	Red
	Comparative Tracking Index	Not Measured
	Dielectric Constant (25°C @ 50 Hz)	3.1
	Dissipation Factor (25°C @ 50 Hz)	0.03 (25°C @ 50 Hz)

## **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](http://www.electrolube.com)

Revision 1: Jan 2013

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