

PROVISIONAL TDS

## UR7005 Polyurethane Resin

UR7005 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. After curing the resin has an excellent thermal conductivity with a good flexibility at low temperatures and a high thermal resistance.

- High thermal conductivity; ideal for applications requiring efficient heat dissipation
- Good temperature resistance and excellent flexibility at low temperatures.
- 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

### Typical Properties:

Liquid Properties:	Base Material Polyurethane	Polyurethane
	Density Part A - Resin (g/ml)	1.63
	Density Part B - Hardener (g/ml)	1.24
	Part A Viscosity (mPa s @ 23°C)	12000
	Part B Viscosity (mPa s @ 23°C)	50
	Mixed System Viscosity (mPa s @ 23°C)	1800
	Mix Ratio (Weight)	7.14:1
	Mix Ratio (Volume)	5.34:1
	Usable Life (23 °C)	60mins(100g )
	Gel Time (23°C)	150mins
	Cure Time (80 °C)	180mins
	Final Hardness	5-7 days at RT
	Colour Part A – Resin	Black
	Colour Part B – Hardener	Amber
	Storage Conditions	Dry Conditions: Above 15°C, Below 35°C
	Shelf Life	12 Months
	Exotherm (Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23°C)	< 60°C
	Shrinkage	<1%

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Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

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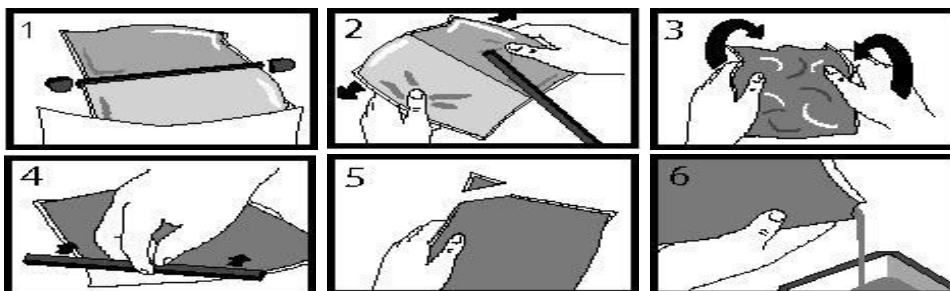
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Cured system:	Thermal Conductivity (W/m.K)	0.79
	Cured Density (g/ml)	1.59
	Tensile strength(N/mm <sup>2</sup> )	10
	Glass transition temperature (°C)	17(TMA)
	Coefficient of Expansion (ppm)	52 < 17°C, TMA 139> 17°C, TMA
	Temperature Range (°C)	-50 to +165
	Dielectric Strength (kV/mm)	18
	Volume Resistivity (ohm-cm)	10 <sup>14</sup>
	Shore-Hardness D	50-60
	Flame Retardancy	UL94 V-0
	Colour (Mixed System)	Black

## 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

- Development:** UR7005 was previously designated the development code CNUR013.
- 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)

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