



# Technical Data Sheet

<b>PRODUCT DESCRIPTION:</b>	<b>UR5597 Polyurethane Resin</b>	<b>DATE:</b>	<b>05/96</b>
<b>PRODUCT CODE:</b>	<b>UR5597</b>	<b>PAGES:</b>	<b>2</b>

## PRODUCT DESCRIPTION

**UR5597** has been formulated to give a semi rigid low viscosity flame retardant casting resin for use in potting or cable jointing applications. It exhibits excellent electrical insulation characteristics and good water resistance properties. As well as being flame retardant the system offers good impact resistance and excellent adhesion to a wide variety of substrates.

Overall the combination of properties in the **UR5597** system makes it an ideal potting resin especially where small and delicate components such as ferrites are involved, since the cured product creates very little stress, even when thermally cycled. **UR5597** is grey and can be supplied in kit, bulk or resinpack form. Other colours are available on request.

## PRODUCT USE

**UR5597** has been formulated to give little or no sedimentation if stored correctly (i.e. between 15 - 20°C). If sedimentation occurs, then the material should be rolled or the sediment re-mixed with the use of a spatula or other similar instrument. On no account should any material be removed if sedimentation has occurred and not been re-mixed. In Resinpack form sedimentation offers no problem since the sediment is re-mixed when the pack is mixed.

In bulk form the Resin (Part A) should be mixed with the Hardener (Part B) in the ratio:

6.47 : 1 by weight  
5.39 : 1 by volume

If in Resinpack form do not remove the aluminium laminate outer wrap until immediately before use. Cut the aluminium outer being very careful not to damage the inner pack. Remove the inner pack and discard the desiccant. Remove the clip from the inner pack (grip each end of the pack and pull gently) and move the contents around inside the pack until thoroughly mixed. Take special care to push unmixed material from the corners and ensure the colour is uniform throughout. Mixing normally takes from two to four minutes depending on the skill of the operator. 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.

When mixing resin and hardener avoid introducing excessive amounts of air. Automatic mixing equipment is available from **Electrolube Design Resins** which will accurately mix resin and hardener in the correct proportions without introducing air.

Bulk material or Resinpacks must be thoroughly mixed before use - incomplete mixing will result in erratic or even partially incomplete cure.

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### CURE SCHEDULE

Initial Cure	24 hours @ 20°C
Full Cure	72 hours @ 20°C
or after gelation	4 hours @ 60°C

### TYPICAL PROPERTIES OF RESIN AND HARDENER (@ 20°C)

Density of Resin	1.46 g/ml
Colour of Resin	Grey
Density of Hardener	1.22 g/ml
Colour of Hardener	Brown
Density of Mixed System	1.42 g/ml
Colour of Mixed System	Grey
Viscosity of Resin	80 poise
Viscosity of Hardener	0.5 poise
Viscosity of Mixed System	30 poise
Usable Life*	~20 minutes
Gel Time*	~45 minutes
Tack Free Cure Time*	~6 hours
Full Cure*	24 hours

\* 150g at 20°C

### TYPICAL CURED PROPERTIES

Shore A Hardness	~75
Thermal Conductivity	0.35 W/m°C
Water Absorption (24h @ 21°C)	0.2%
Volume Resistivity	$10^{12}$ ohm/cm
Dielectric Strength	12 kV/mm
Dielectric Constant (25°C @ 50Hz)	4.0
Dielectric Loss (25°C @ 50Hz)	0.04
Operating Temperature Range	-40°C minimum +110°C maximum

### HEALTH & SAFETY NOTES

Machines, containers etc are more easily cleaned before the resin has been allowed to harden. **Electrolube Design Resins OP9004** is a relatively safe non-flammable Cleaner for this purpose. Cured resin may be slowly softened and removed by soaking in **OP9003 Resin Stripper**.

Resinpacks stored in a cool dry place have a shelf life of at least 12 months providing the aluminium laminate outers have not been removed or damaged. Bulk material stored in original unopened containers will also have a shelf life of at least 12 months.

The main hazard of the UR5597 system is associated with Part B (Isocyanate Hardener). This is based on diphenylmethane diisocyanate (MDI) which is much less toxic than most other isocyanates. Avoid skin and eye contact by use of gloves, overalls and safety glasses or goggles. Wash any contamination from the skin immediately. Take care not to contaminate food-stuffs. MDI has low volatility and the TLV for the material is only likely to be approached if the material is sprayed or heated. **DO NOT HEAT THE ISOCYANATE (Part B)** or do anything likely to introduce a large number of fine droplets into the atmosphere.

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