

## UR5083 Polyurethane Resin

Product Code: UR5083

### PRODUCT DESCRIPTION

**UR5083** is a very high performance resin system that has the unique "self heal" when penetrated.

This remarkable ability has found use in several applications in electronic devices that require:

1. The testing of circuits and devices through the resin itself
2. The need to pass wires or connections through the resin when in :

This resin also has the ability to adhere to the case or unit device while slipping off the test probe, wire or connector on withdrawal; the hole quickly fills and seals to provide a moisture barrier.

Other features of the system include:

- \* High water resistance
- \* Low moisture sensitivity during cure
- \* Excellent electrical properties
- \* Low penetrating viscosity
- \* Long usable life

### PRODUCT USE

**UR5083** has been designed for the use of protecting delicate components and the replacements of silicon type gels. Applications would include transducers, connectors, coils and cable joints.

In bulk form the resin (Part A) should be mixed with the hardener (Part B) in the following ratio:

2.00 : 1 by weight  
2.10 : 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. Mixing normally takes from two to four minutes depending on the skill of the operator. Resin and hardener are

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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 can be used as a simple dispenser.

**UR5083** is available in bulk, resinpack and kit form.

### CURE SCHEDULE

|              |                      |
|--------------|----------------------|
| Initial Cure | 24 hours @ 25°C      |
| Full Cure    | 48 - 72 hours @ 25°C |

### TYPICAL PROPERTIES OF SYSTEM @ 25°C

|   |                          |
|---|--------------------------|
| Density of Resin                            | 0.96 g/ml                |
| Colour of Resin                             | Translucent              |
| Viscosity of Resin                          | 10 poise                 |
| Density of Hardener                         | 1.00 g/ml                |
| Colour of Hardener                          | Yellow                   |
| Viscosity of Hardener                       | 6 poise                  |
| Density of Mixed System                     | 0.98 g/ml                |
| Colour of Mixed System                      | Translucent              |
| Viscosity of Mixed System                   | 8 poise                  |
| Pot Life (time to double initial viscosity) | 26 minutes               |
| Usable Life                                 | 90 minutes               |
| Gel Time                                    | 4 hours (200g mass size) |

### TYPICAL CURED RESIN CHARACTERISTICS

|                    |                          |
|--------------------|--------------------------|
| Shore A Hardness   | Not measurable           |
| Volume Resistivity | $1.4 \times 10^9$ ohm-cm |
| Temperature Range  | -60 to +100°C            |

### HEALTH & SAFETY NOTES

Machines, containers etc are more easily cleaned before the resin has been allowed to harden. **Electrolube 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**.

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Resinpacks and bulk material will have a shelf life of at least 6 months provided they are stored in dry conditions at a minimum temperature of 20°C and a maximum of 30°C. Care must be taken to ensure the aluminium laminate outers of Resinpacks are not damaged or removed. Bulk material should be preserved in the original unopened containers. Crystallisation of the hardener can occur on prolonged storage, especially at temperatures below 20°C. If significant amounts of crystallisation have occurred then it is preferable to warm the Resinpacks (to a maximum of 45°C) or bulk hardener (to a maximum of 60°C with the lid slightly slacked off ensuring that any contamination is removed) until the hardener is almost clear. Avoid exposure to any vapours produced in this heating process.

The main hazard of the UR5083 system is associated with the 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)** in open containers or do anything likely to introduce a large number of fine droplets into the atmosphere.

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