

# Technical Data Sheet



<b>PRODUCT DESCRIPTION:</b>	<b>UR5041 Polyurethane Resin</b>	<b>DATE:</b>	<b>02/96</b>
<b>PRODUCT CODE:</b>	<b>UR5041</b>	<b>PAGES:</b>	<b>2</b>

## PRODUCT DESCRIPTION

**UR5041** is an ultra-high performance resin system based on urethane technology but using a polybutadiene polyol.

## MAIN FEATURES

- \* High Toughness and Tear Resistance
- \* Excellent Oxidation Resistance
- \* Low Moisture Sensitivity during Cure
- \* Low Water Absorption and High Resistance to Sea Water
- \* Good Adhesion to most Substrates
- \* Above Properties Retained at Low Temperatures (Down to -60°C)

The combination of properties make the **UR5041** system ideally suited for use in harsh marine environments both for coating and other applications.

**UR5041** can be supplied in both bulk or Resinpack form. Resinpacks are especially useful for resin applications which involve use on site. **UR5041** is a slower cure, longer usable life version of **UR5000**.

## PRODUCT USE

**UR5041** has been formulated to give little or no sedimentation if stored correctly (i.e. between 20 - 30°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:

3.62 : 1 by weight  
3.78 : 1 by volume

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.

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 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 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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### TYPICAL PROPERTIES OF SYSTEM

Density of Resin	1.17 g/ml
Colour of Resin	Black
Density of Hardener	1.22 g/ml
Colour of Hardener	Orange
Density of Mixed System	1.18 g/ml
Colour of Mixed System	Black
Viscosity of Resin	93 poise
Viscosity of Hardener	0.55 poise
Viscosity of Mixed System	25 poise
Usable Life*	~20 minutes
Gel Time*	~60 minutes
Tack Free Cure Time*	~8 hours
Cure Time (minimum)	36 hours

\*Dependant upon quantity and temperature. These figures are typical of 150g mass @ 23°C.

### TYPICAL CURED PROPERTIES

Shore A Hardness	~85
Elongation at Break	200%
Tensile Strength	10 MPa
Tear Strength	35 MPa
Volume Resistivity	$4 \times 10^{15}$
Dielectric Strength	20 kV/mm
Permittivity (20°C @ 50 Hz)	3.1
Loss Tangent 20°C @ 50 Hz)	0.015

### 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 material should be stored as close to 25° C as possible to minimise crystallisation of the hardener. Serious deterioration of the hardener will rapidly occur at temperatures below 15°C.

The main hazard of the **UR5041** 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) or do anything likely to introduce a large number of fine droplets into the atmosphere.

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