

UR5528 Polyurethane Resin

Product Code: UR5528 (Former 006/208/1)

PRODUCT DESCRIPTION

The **UR5528** system extends conventional urethane technology into new territory as far as two part encapsulation and cable jointing compounds are concerned. **Electrolube** have taken special urethane technology, used in high performance marine and other coatings, and modified this to enable use for thick cure systems. This has resulted in systems offering adhesion to water resistance vastly improved over those from conventional urethane systems.

UR5528 is a hard and tough resilient casting resin, exhibiting excellent adhesion qualities to substrates such as PVC, ceramics etc. It has a low viscosity enabling a bubble free product to be obtained. Castings made with this resin have excellent resistance to acids, alkalis and other aqueous materials. **UR5528** shows marked susceptibility to moisture while curing. **UR5528** may be supplied in bulk or Resinpack form. A variety of colours is available to suit customer requirements - the standard colour is black.

PRODUCT USE

UR5528 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:

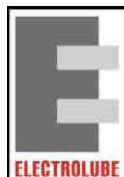
2.37 : 1 by Weight
2.87 : 1 by Volume

If in Resinpack form, resin and hardener are mixed by removing the clip (grip each end of the pack and pull gently) and moving the contents around inside the pack until thoroughly mixed. Take special care to

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push unmixed material from the corners. Mixing normally takes from 2 to 4 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 can be used as a simple dispenser.

PROPERTIES OF SYSTEM

Density of Resin	1.02 g/ml
Density of Hardener	1.22 g/ml
Density of Mixed System	1.07 g/ml
Viscosity of Resin	35 poise
Viscosity of Hardener	1.5 poise
Viscosity of Mixed System	20 poise
Usable Life *	20 minutes
Gel Time *	35 minutes
Tack Free Cure Time *	90 minutes
Initial Cure Time *	24 hours
Full Cure Time *	72 hours
Cure Time (@ 60°C)	5 Hours
Shore D Hardness	57
Coefficient of Expansion	60 ppm (approx.)

* 150g mass @ 23°C

PROPERTIES OF CURED SYSTEM

Mechanical Data

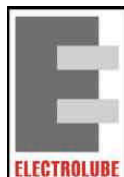
Tensile Strength	14.2 N/mm ²
Elongation at Break	104 %
Tear Resistance	52 kN/m

Chemical Resistance Data

Resin resistance to distilled water @100°C (size 120 x 15 x 10mm)	
Immersion Period (in days)	% Weight Change
1	+1.0
2	+1.5

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5	+1.5
6	+2.0
9	+2.0

Resin resistance to distilled water at ambient temperature	
Immersion Period (in days)	% Weight Change
3	+0.5
30	+0.5
180	+1.1

Water Vapour Permeability	2.25 g.cm per cm ² .H.mbar
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UR5528 also exhibits very good resistance to acids, alkalis and most mild solvents.

Electrical and Physical Properties

Dielectric Strength (kV/mm)
(Specimen 95 mm diameter by 1 mm thickness)

Dry	25
4 Days at 80% R.H	25
24 Hours in Water	23

Surface Resistance (ohms)

Dry	4×10^{14}
4 Days at 8% R.H	5×10^{13}
24 Hours in Water	2×10^{14}

Volume Resistivity (ohm.cm)

Dry	5×10^{14}
4 Days at 80% R.H	9×10^{14}
24 Hours in Water	2×10^{15}

Dielectric Constant (Dry)

At 50 Hz	3.5
At 800 Hz	3.4
At 1 Mhz	3.3
At 3 Ghz	2.9

Dissipation Factor, Tan Delta (Dry)

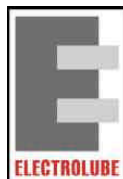
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At 50 Hz	0.027
At 800 Hz	0.014
At 1 Mhz	0.011
At 3 Ghz	0.007
Thermal Conductivity (118mm dia x 5mm)	0.245 W/m.K

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.

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 have a shelf life of at least 12 months.

The main hazard of the **UR5528** 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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