UR5528
Polyurethane Resin

UR5528 is a two-part potting and encapsulating compound with excellent water resistance properties making it suitable for a wide range of applications where water or moisture ingress may be a concern.

- Excellent adhesion to a wide variety of substrates; versatile in use
- Low viscosity; aids quick and efficient potting processes
- Excellent resistance to acids, alkalis and other aqueous materials; ideal for harsh environments
- Durable with a high degree of toughness; good physical protection

Approvals	**RoHS-2 Compliant (2011/65/EU):**	**Yes**
	UL Approval:	**No**

Typical Properties

Liquid Properties:	Base Material	Polyurethane
	Density Part A - Resin (g/ml)	1.02
	Density Part B - Hardener (g/ml)	1.24
	Part A Viscosity (mPa s @ 23ºC)	3500
	Part B Viscosity (mPa s @ 23ºC)	150
	Mixed System Viscosity (mPa s @ 23ºC)	2000
	Mix Ratio (Weight)	2.37:1
	Mix Ratio (Volume)	2.87:1
	Usable Life (20°C)	20 mins
	Gel Time (23°C)	35 mins
	Cure Time (23 °C)	24 hours
	Cure Time (60 °C)	5 hours
	Colour Part A - Resin	Black
	Colour Part B - Hardener	Amber
	Storage Conditions	Dry Conditions: Above 15ºC, Below 35ºC
	Shelf Life	12 months
	Exotherm (Measured on 100ml sample; cylinder of diameter 49.4mm @ 23ºC)	< 35ºC
	Shrinkage	< 1%

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Ashby Park, Coalfield Way,
Ashby de la Zouch,
Leicestershire LE65 1JR
T +44 (0)1530 419 600
F +44 (0)1530 416 640
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Cured System:	Thermal Conductivity (W/m.K)	0.245
	Cured Density (g/ml)	1.07
	Temperature Range (°C)	-50 to +125
	Max Temperature Range (Short Term (°C)/30 mins) (Application and Geometry Dependent)	+130
	Dielectric Strength (kV/mm)	25 (extra data – see below)
	Volume Resistivity (ohm-cm)	10^{14} (extra data – see below)
	Shore Hardness	D57
	Colour (Mixed System)	Black
	Flame Retardancy	No
	Loss Tangent @ 50 Hz	0.027
	Permittivity @ 50 Hz	3.50 (extra data – see below)
	Comparative Tracking Index	Not Measured
	Water Absorption	See below
	Tensile Strength (N/mm^2)	14.2
	Tear Strength (kN/m)	52
	Elongation At Break	104%

Chemical Resistance Data

Resin resistance to distilled water @ 100°C (size 120 x 15 x 10mm)

Immersion Period (days)	% Weight Change
1	+1.0
2	+1.5
5	+1.5
6	+2.0
9	+2.0

Resin resistance to distilled water at ambient temperature

Immersion Period (days)	% Weight Change
3	+0.5
30	+0.5
180	+1.1

Water Vapour Permeability: 2.25 g.cm per cm^2.H.mbar

Electrical and Physical Properties

(Specimen 95 mm diameter by 1 mm thickness)

Dielectric Strength (kV/mm)	
Dry	25
4 Days at 80% RH	25
24 Hours in Water	23

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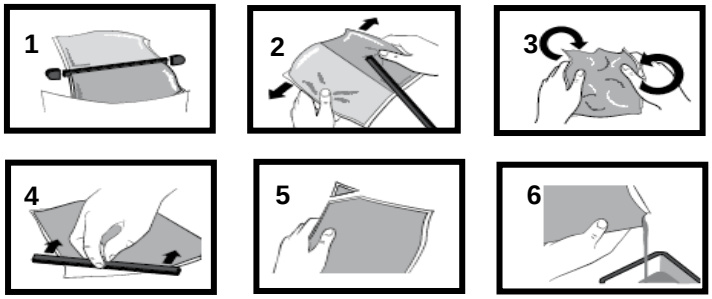
Surface Resistance (ohms)	
Dry	4×10^{14}
4 Days at 80% RH	5×10^{13}
24 Hours in Water	2×10^{14}
Volume Resistivity (ohm.cm)	
Dry	5×10^{14}
4 Days at 80% RH	9×10^{14}
24 Hours in Water	2×10^{15}
Permittivity (Dry)	
At 50 Hz	3.5
At 800 Hz	3.4
At 1 Mhz	3.3
At 3 Ghz	2.9
Dissipation Factor, Tan Delta (Dry)	
At 50 Hz	0.027
At 800 Hz	0.014
At 1 Mhz	0.011
At 3 Ghz	0.007

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.



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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.

Additional Information

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

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