ELECTROLUBE
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PROVISIONAL TDS

UR5645
Polyurethane Resin

UR5645 is a tough two-part polyurethane encapsulation resin which has primarily been developed for encapsulation of electrical components exposed to extreme conditions.

- Wide operating temperature range; maximum continuous operating temperature of 150°C
- Excellent chemical resistance to acids, alkalis and fuels
- Very high resistance to water immersion over long periods of time
- Low viscosity; aids quick and efficient potting processes

Approvals	**RoHS Compliant (2015/863/EU):**	**Yes**
	UL Approval:	**No**

Typical Properties

Liquid Properties:	Base Material	Polyurethane
	Density Part A - Resin (g/ml)	0.97
	Density Part B - Hardener (g/ml)	1.24
	Part A Viscosity (mPa s @ 23ºC)	750
	Part B Viscosity (mPa s @ 23ºC)	50
	Mixed System Viscosity (mPa s @ 23ºC)	650
	Mix Ratio (Weight)	2.42 : 1
	Mix Ratio (Volume)	3.10: 1
	Usable Life (20°C)	20 mins
	Gel Time (23°C)	35 mins
	Cure Time (23°C)	24 hours
	Cure Time (60°C)	4 hours
	Colour Part A - Resin	Black
	Colour Part B - Hardener	Dark brown
	Storage Conditions	Dry Conditions: Above 15°C, Below 30°C
	Shelf Life	12 months
	Shrinkage	<1%
	Bio-Sourced Content	63%
Cured System:	Cured Density (g/ml)	1.04
	Temperature Range (°C)	-50 to +150
	Maximum Temperature (°C) (Short term 30 mins) (Application and Geometry Dependent)	160
	Shore Hardness @ 25°C	A90
	Colour (Mixed System)	Black
	Thermal Conductivity (W/m.K)	0.30

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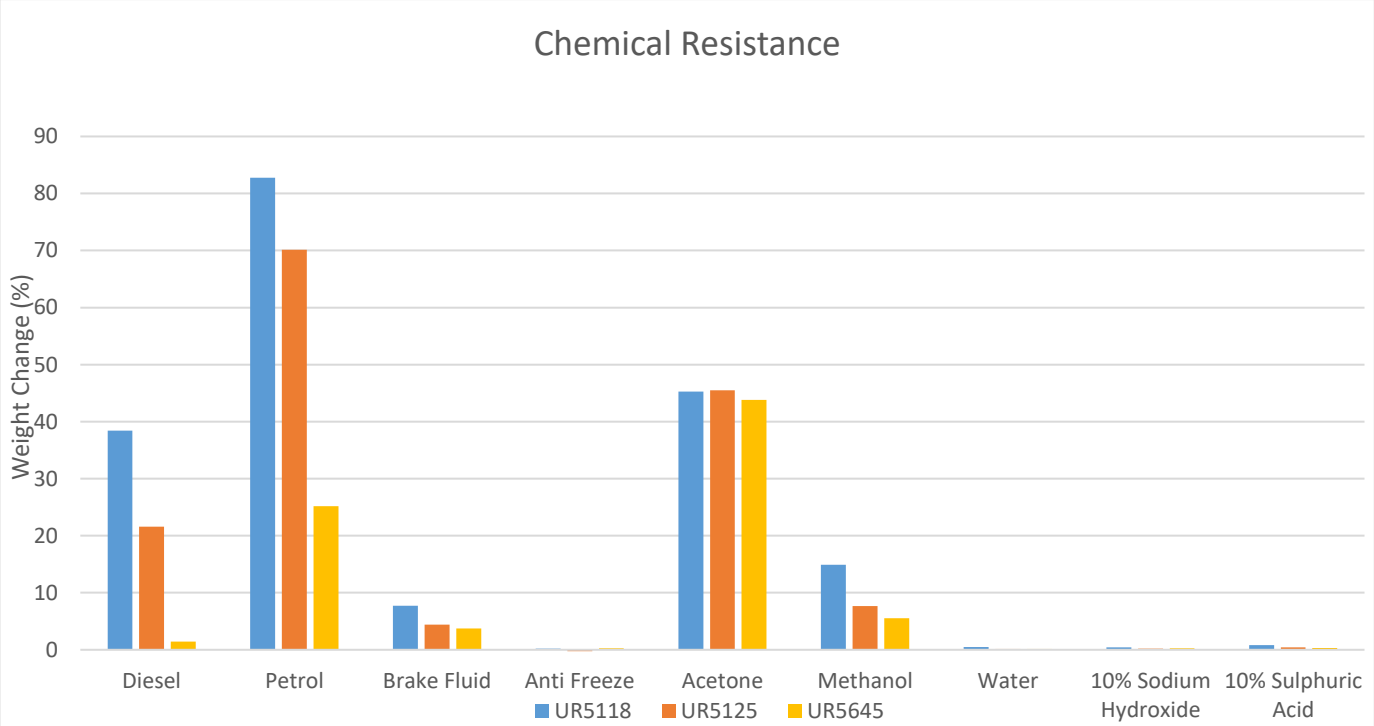
Surface Resistivity (Ω)	10^{15}
Volume Resistivity (Ω cm)	10^{14}
Water Absorption (10mm thick disk, 51mm dia.) 10 days @ 20°C/1 hour @ 100°C	0.05/0.1
Tensile Strength (Nmm^{-2})	3.8
Youngs Modulus (MPa)	11.4
Elongation to Break (%)	58



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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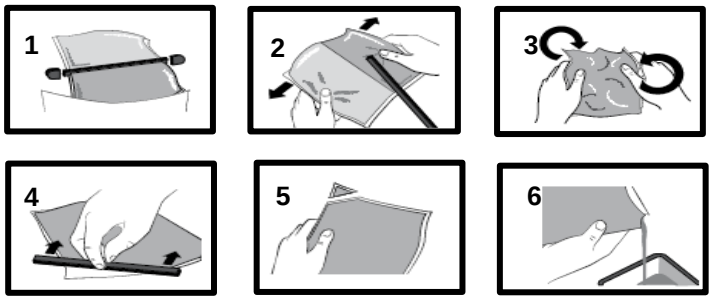

Bulk Mixing
When mixing, care must be taken to avoid the introduction of excessive amounts of air. Automatic mixing equipment is available which will not only mix both the resin and hardener accurately in the correct ratio but do this without introducing air. Containers of Part A (Resin) and Part B (Hardener) 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

Revision 0: October 2019

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