

PROVISIONAL TDS

UR5644 Polyurethane Resin

UR5644 is a two-part, semi-rigid hazy flame retardant polyurethane resin ideal for use in protective applications. Due to a carefully selected blend of components an extremely durable, low viscosity system is achieved which can be used for a wide variety of applications.

- Hazy translucent white; ideal for dispersing light in LED applications
- Excellent resistance to yellowing; good resistance to UV light
- Good scratch and mark resistance; good for cosmetic appearance
- Good resistance to weather, acids and alkalis, water and mould growth; suitable for a range of environments

Approvals **RoHS-2 Compliant (2011/65/EU):** **Yes**
UL Approval: **Meets UL94 V-0**

Typical Properties

Liquid Properties:	Base Material	Polyurethane
	Density Part A - Resin (g/ml)	1.14
	Density Part B - Hardener (g/ml)	1.13
	Part A Viscosity (mPa s @ 23°C)	300
	Part B Viscosity (mPa s @ 23°C)	4500
	Mixed System Viscosity (mPa s @ 23°C)	1000
	Mix Ratio (Weight)	0.75 : 1
	Mix Ratio (Volume)	0.75 : 1
	Usable Life (20°C)	12 mins
	Gel Time (23°C)	25 mins
	Cure Time (23 °C)	24 hours
	Cure Time (60 °C)	4 hours
	Colour Part A - Resin	Hazy white
	Colour Part B - Hardener	Clear
	Storage Conditions	Dry Conditions: Above 15°C, Below 35°C
	Shelf Life	9 months
	Exotherm	<70°C
	<small>(Measured on a 100ml sample in a cylinder of diameter 49.4mm @ 23°C)</small>	
	Shrinkage	<1%

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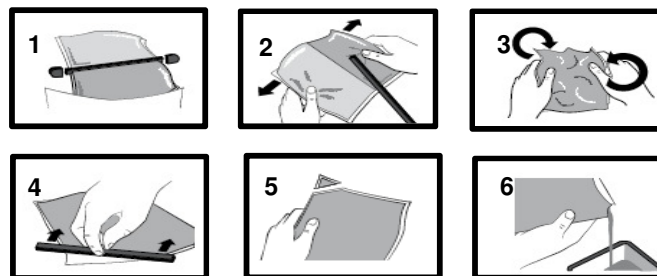
Ashby Park, Coalfield Way,
Ashby de la Zouch,
Leicestershire LE65 1JR
T +44 (0)1530 419 600
F +44 (0)1530 416 640
BS EN ISO 9001:2008
Certificate No. FM 32082

Cured System:	Thermal Conductivity (W/m.K)	0.30
	Cured Density (g/ml)	1.13
	Temperature Range (°C)	-40 to +120
	Max Temperature Range (Short Term (°C)/30mins) (Application and Geometry Dependent)	+130
	Dielectric Strength (kV/mm)	10
	Volume Resistivity (ohm-cm)	10 ¹⁴
	Shore Hardness @ 25°C	A60
	Colour (Mixed System)	Hazy white
	Flame Retardancy	Meets UL94 V-0
	Comparative Tracking Index	Not Measured
	Water Absorption (9.7mm thick disk, 51mm diameter) 10 days @ 20°C/ 1 hour @ 100°C	2.0%/ 2.3%
	Elongation at Break	80%
	Tensile Modulus (MPa)	1.7

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. It is recommended to heat cure very small volumes (<50ml) at 40°C.
- Storage:** When storing under 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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