Encapsulation Resins

Technical Data Sheet



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UR5041 Polyurethane Resin

UR5041 is a two-part, ultra high performance resin system which features excellent resistance to sea water and low water absorption.

- Excellent resistance to sea water; ideal for marine environments
- Good low temperature performance; suitable for use down to -60°C
- High toughness and tear resistance; offers good physical protection
- Excellent oxidation resistance; high performance in a range of challenging environments

Approvals RoHS Compliant (2015/863/EU): Yes

UL Approval: No

Typical Properties

Liquid Properties: Base Material Polyurethane

Density Part A - Resin (g/ml) 1.17 Density Part B - Hardener (g/ml) 1.24 Part A Viscosity (mPa s @ 23°C) 9300 Part B Viscosity (mPa s @ 23ºC) 55 Mixed System Viscosity (mPa s @ 23°C) 2500 Mix Ratio (Weight) 3.64:1 Mix Ratio (Volume) 3.85:1 Usable Life (20°C) 20 mins Gel Time (23°C) 60 mins Cure Time (23 °C) 24 hours Cure Time (60 °C) 4 hours Colour Part A - Resin Black Colour Part B - Hardener Amber

Storage Conditions Dry Conditions: Above 15°C, Below 30°C

< 0.5%

Shelf Life 12 Months Exotherm (Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23°C) < 50°C

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Shrinkage

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

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Cured System:	Thermal Conductivity (W/m.K)	0.35
	Cured Density (g/ml)	1.18

Temperature Range (°C) -60 to +125

Max Temperature Range (Short Term (°C)/30 mins) +130 (Application and Geometry Dependent) Dielectric Strength (kV/mm) 20 10¹⁵ Volume Resistivity (ohm-cm) Shore Hardness A85 Colour (Mixed System) Black Flame Retardency No Loss Tangent @ 50 Hz 0.015 Permittivity @ 50 Hz 3.10

Comparative Tracking Index
Water Absorption (9.7mm thick disk, 51mm diameter)
10 days @ 20°C / 1 hour @ 100°C

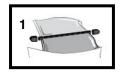
Not Measured
< 0.5% / < 1%

Elongation At Break 200%

Mixing Procedures

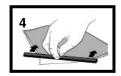
Resin Packs

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 three 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. There is also a YouTube video (Polyurethane Mixing Instructions) available on the Electrolube channel to show the mixing process.













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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 or use of the wrong mix ratio 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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