UR5118

Polyurethane Resin

DESCRIPTION

UR5118 is an ultra-high performance resin system, which offers very high protection in a range of harsh environments. It has low moisture sensitivity during cure and its low viscosity allows the resin to flow around complex geometries.

READ ENTIRE TECHNICAL BULLETIN BEFORE USING THIS PRODUCT

FEATURES AND BENEFITS

- Good electrical properties; used for encapsulating radio frequency transmitter devices
- High toughness and tear resistance; maintains flexibility down to -60 °C
- Low water absorption, high resistance to sea water; offers enhanced protection under harsh conditions
- Excellent oxidation resistance and very good adhesion to most substrates

APPROVALS

Standard	Status
RoHS Compliant (2015/863/EU)	Yes
UL Approval	No

PRODUCT INFORMATION

For available packaging sizes please visit:

electrolube.com

PHYSICAL PROPERTIES

Category	Results
Liquid Properties	
Base Material	Polyurethane
Color	
Part A – Resin	Black
Part B - Hardener	Brown
Density	
Part A - Resin (g/mL)	0.92
Part B - Hardener (g/mL)	1.22
Viscosity	
Part A (mPa s 23 °C)	3390
Part A (mPa s 40 °C)	1600
Part A (mPa s 60 °C)	780
Part B (mPa s 23 °C)	150
Mixed System Viscosity (mPa s 23 °C)	2300
Mixed System Viscosity (mPa s 40 °C)	1630
Mixed System Viscosity (mPa s 60 °C)	860
Mix Ratio	
Weight	2.77:1
Volume	3.66:1
Usable Life*	
20 °C	25 to 30 minutes
40 °C	12 to 17 minutes
60 °C	7 to 12 minutes
Gel Time*	
20 °C	40 to 45 minutes
40 °C	30 to 35 minutes
60 °C	12 to 17 minutes
Cure Time @ 23 °C	36 hours
Storage Conditions	Dry Conditions: Above 15 °C, Below 30 °C
Shelf Life	12 Months

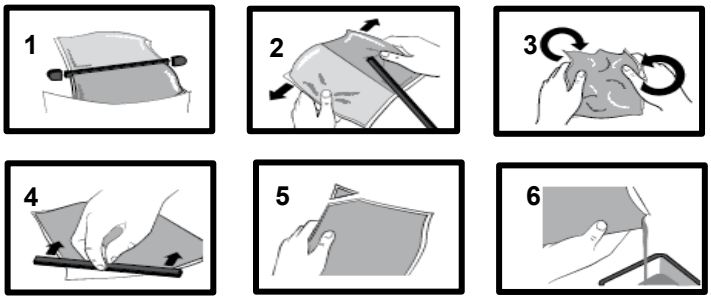
Category	Results
Exotherm (Measured on 100 mL sample, cylinder of diameter 49.4 mm @ 23 °C)	<35 °C
Shrinkage	< 1%
Cured System	
Color (Mixed System)	Black
Thermal Conductivity (W/m.K)	0.2
Cured Density (g/mL)	0.99
Temperature Range (°C)	-60 to 125
Max Temperature Range (Short Term (°C)/30 Mins) (Application and Geometry Dependent)	+130
Volume Resistivity (ohm-cm)	10^{18}
Dielectric Strength (kV/mm)	18
Shore Hardness (@ 23 °C)	A80
Shore A Hardness (@ 100 °C)	A40
Dissipation Factor	0.01
Dielectric Constant (50 to 150 °C @ 25Hz-1MHz)	3.1
Coefficient of Thermal Expansion (0 °C)	~150 ppm
Water Absorption	≤ 0.5%
Modulus (kPa s)	1000
Tensile Strength (psi)	~800
Tensile Elongation	~50%
Halides Content	4 ppm
Sulphur Content	≤ 1ppm

***** Dependent upon quantity and temperature; these figures are typical of 150g mass.

APPLICATION GUIDELINES – RESIN PACKS

Mixing Procedures

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 to show the mixing process.



APPLICATION GUIDELINES - BULK

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. 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 (250 mL) may be heat cured immediately.

Storage: When storing under very cold conditions, the hardener may crystallize. If this occurs, simply warm (40 °C) the container gently until all crystals have re-melted.

SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

CONTACT INFORMATION

To confirm this document is the most recent version, please contact
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE . Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588