UR5118
Polyurethane Resin

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.

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

Typical Properties

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

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

	Exotherm (Measured on 100ml sample in a cylinder of diameter 49.4mm @ 23ºC)	< 35ºC
	Shrinkage	< 1%

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

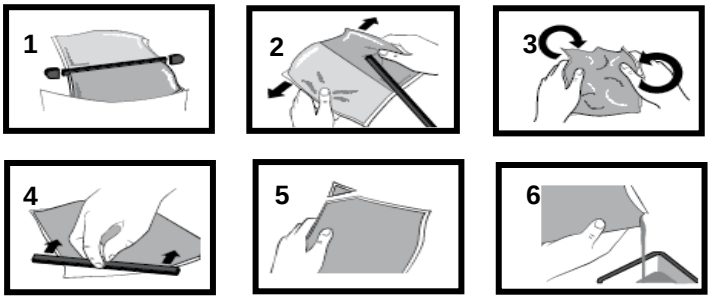
Cured System:	Thermal Conductivity (W/m.K)	0.2
	Cured Density (g/ml)	0.99
	Temperature Range (°C)	-60 to +125
	Max Temperature Range (Short Term (°C)/30 mins) (Application and Geometry Dependent)	+130
	Dielectric Strength (kV/mm)	18
	Volume Resistivity (ohm-cm)	10^{15}
	Shore Hardness (@ 20°C)	A80
	Shore A Hardness (@ 100°C)	A40
	Colour (Mixed System)	Black
	Flame Retardancy	No
	Dissipation Factor	0.01
	Dielectric Constant (50°C-150°C @ 25Hz-1MHz)	3.1
	Coefficient of Thermal Expansion (0ºC)	~150 ppm
	Water Absorption	≤ 0.5%
	Modulus (kPa s)	1000
	Tensile Strength (psi)	~800
	Tensile Elongation	~50%
	Halides Content	4 ppm
	Sulphur Content	≤ 1ppm

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.

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



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

Revision 4: Mar 2019

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