

## TECHNICAL DATASHEET

### EL171C

#### Description

EL171C is a halogen free, flame retardant, semirigid potting resin used in light to medium voltage electrical applications. It is specifically designed for the cost-effective encapsulation of electrical units and cable joints. EL171C offers excellent adhesion and good water resistance. The standard colour is black but other colours are available on request.

#### Features

- Room temperature cure
- Low cure exotherm
- High impact resistance
- Non-toxic
- Good electrical insulation characteristics

#### Specification

Property	Resin	Hardener	Mixed
Colour	Black or Grey	Brown	Black or Grey
Specific Gravity g/ml	1.72 ± 0.02	1.24 ± 0.02	1.65 ± 0.02
Viscosity m.Pa.s @ 25°C	10000 - 15500	200 - 250	5000 - 9000
Mix Ratio by Weight	8.5: 1		—
Mix Ratio by Volume	6.0: 1		—
Gel Time	30 Minutes (No Flow)		

#### Cure Schedule

24 hours

Allow a minimum of 24 hrs for light duty and a minimum of 6 days for resin to achieve maximum properties (ambient temperature)

#### Typical Properties

Water Absorption	< 0.2% (24hrs @ 23°C)	
Flammability	Flame Retardant	
Shore D Hardness	1:45 - 15:40	
Heat Deflection Temperature	Flexible	
Operating Temperature	- 40 to + 100°C	(application & geometry dependent)
Thermal Conductivity	0.42 W/mK	
Tensile Strength	5.3 mPa	
Compressive Yield Strength	< 10 mPa	
Coefficient of Linear Expansion	75-100 ppm/°C	
Volume Resistivity	11 - 13 Log <sub>10</sub> ohmm	
Surface Resistivity	12 - 14 Log <sub>10</sub> ohmm	
Electric Strength	> 16 MV/m	
Permittivity (ε)	3.2 @ 1KHz	
Loss Tangent (Tanδ)	0.04 @ 1KHz	

The above cure times are typical values and will vary depending on the cured mass and application. Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm. Experimentation and testing is suggested to avoid side effects.

For maximum properties a post cure may be required- call Robnor Technical Service Department for advice

### **Twinpacks**

Twinpacks are pre-weighed resin and hardener components contained in a tough flexible film, separated by a removable clip and rail. Once the clip and rail is removed the resin and hardener is thoroughly mixed within the bag and is immediately ready for use. Mixing will normally take ~ 1 minute for EL71C due to the low viscosity; but pay special attention to the corners. Twinpacks are ideal for small to medium production runs, prototyping and onsite or field use. The twinpack weight/volume may also be tailored to a specific size on request.

For further details please visit [www.robnor.co.uk](http://www.robnor.co.uk)

### **Bulk Material**

EL171C is a filled system and formulated to avoid sedimentation. If sediment is found after storage, this must be re-dispersed in the original container before being used. Failure to do so may result in defective product. Long term sedimentation will be aggravated by storage above 25°C and should be avoided. Light sediment may be re-dispersed by carefully warming (to avoid distortion of the clip and rail) and kneading the pack; or if in bulk or kit form gently mixing with a paddle or spatula. In bulk or kit form evacuation may be necessary for best results. Avoid breathing vapours produced by this process.

### **Kits**

In kit form, resin and hardener are provided in separate containers to the correct ratio. In most cases, pour the hardener into the larger resin container and use it as a mixing vessel. Stir well using an appropriate mixer until homogeneous.

Note: Incomplete mixing will be characterised by erratic or partially incomplete cure even after extended time periods.

### **Cleaning**

All equipment contaminated with mixed material should be cleaned before the material has hardened. Robnor Resins TS130 is a suitable non-flammable cleaning agent, although other solvents may be found suitable. TS130 will also remove cured material provided it is allowed to soak for a number of hours.

### **Storage and Shelf Life**

Twinpacks stored in cool dry condition between 15° and 25°C will have a shelf life of at least one year. Bulk material stored in the original unopened containers will also have a shelf life of one year. Once used the containers must be kept sealed to prevent effects from water, air or contaminants.

### **Health and Safety**

Polyurethane resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic. It is therefore strongly recommended that skin and eye contact is avoided by the using of appropriate personal protective equipment; such as gloves, safety glasses or goggles and overalls. Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity. Under normal working conditions a good source of ventilation is adequate, however if the material is heated, or where vapour levels are likely to exceed the occupational exposure limits appropriate respiratory protection must be worn. Local exhaust ventilation (LEV) may be required especially for curing ovens or where large volumes of material are curing. The above is given as a guide only; please refer to RL/HL171C Health and Safety data or our Technical Service Department for individual/specific advice.

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