

## EL199C

A flame retardant, high performance, low viscosity, polyurethane resin system

### Application

- Encapsulation of delicate components

### Key Properties

- Non-toxic
- Low embedment stress
- High resistance to water
- Excellent insulation characteristics
- Flame retardant

### Description

- Basic Two-component polyurethane system
- Resin RL199C
- Hardener HL199C

Physical Data (approx. – values)	Resin	Hardener	Mixed
Colour	Black	Brown	Black
Specific Gravity	1.52	1.03	1.48
Viscosity (mPas) @ 25°C	9000	300	5500

### Cure Schedule (150ml sample)

Temperature	Working Life (minutes)	Gel Time (minutes)	Light Handling (hours)	Full Cure (hours)
RT*	20	120	24	168
60°C	-	-	4	4
80°C	-	-	2	2

\*RT is defined as 20-25°C

The above 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 – Contact our technical service department for advice.

### Processing

Mix ratio by weight 17.0:1  
Mix ratio by volume 16.2:1

### Approvals

RoHS compliant	Yes
UL94-V0	No
REACH (SVHC concentration)	0%

### Typical Properties

Test	Result	Unit
Peak exotherm (250g @ 25°C)	35	°C
Shrinkage (volume)	0.2	%
Thermal Conductivity	0.62	W/mK
Operating Temperature	-55 to +125	°C (application & geometry dependant)
Dielectric Strength	14	kV/mm
Volume Resistivity	9 <sup>10</sup>	ohm.cm
Hardness	40	Shore A
Heat deflection	Flexible	
Flammability	Approvable to	UL94-V0
Loss Tangent	0.02	50Hz
Permittivity	3.5	50 Hz
Comparative tracking index	>600	v
Water Absorption (30 days @25°C)	0.52	%
Elongation at Break	150	%
Tensile Strength	< 2	mPa
Coefficient of Linear Expansion	75 – 125	ppm/°C
Surface Resistivity	11.5 - 13.5 <sup>10</sup>	ohm

## Packaging & Part Numbers

EL199C is available in Bulk, Twinpacks & Kits

## Availability

Available through distribution and sales@robnor.co.uk

## Cartridge Mixing Part Numbers

Not available	
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It is essential for best results that the cartridge is 'balanced' before use to ensure correct mixing. Loading the cartridge into the gun before attaching the mixer element and pumping the gun to push a small amount of the contents forward will achieve this. Wipe the excess from the cartridge tip and add the static mixer. The cartridge is now ready for use.

## Twinpacks Part Numbers

EL199C/BK/050	EL199C/BK/500
EL199C/BK/100	EL199C/BK/1000
EL199C/BK/250	

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 ~ 2 minutes due to the viscosity; but pay special attention to the corners. Twinpacks are ideal for small to medium production runs, prototyping and on-site 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 Materials Part Numbers

RL199C/BK/5KG	HL199C/NC/1KG
RL199C/NC/5KG	HL199C/NC/5KG
RL199C/BK/25KG	HL199C/NC/25KG

Both resin and hardener are supplied in 5kg, 25kg and 200ltr drums and fully evacuated and ready for use.

Care should be taken to ensure when mixing the resins air is not entrained in the mixture. If this is unavoidable the mixed resin and hardener should be re-evacuated before dispensing. The bulk resin and hardener materials can be dispensed from suitable dispensing machinery and Robnor Resins produce a range of these machines, details that can be provided on request.

## Kits and Sets Part Numbers

EL199C/BK/1KGKIT	
EL199C/BK/12KGKIT	

Kits and Sets are provided in separate containers to the correct ratio.

In Kit form, 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. 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

Material stored in the original unopened containers under cool dry condition between 15° and 25°C will have a shelf life of at least two years.

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/HL199C Health and Safety data or our Technical Service Department for individual/specific advice.

## Copyright & Warranty - Robnor Resins Limited

The results and information above does not constitute a specification and is given in good faith and without warranty. The information is derived from test/or extrapolations believed to be reliable and is quoted for guidance only. The product is offered for evaluation on the understanding the customer satisfies himself that the product is suitable for his intended by proper evaluation and testing.

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