

## EL199HP

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

### Application

- Ferrite Cores
- Inductance Coils
- Glass Reeds
- Load Cells

### Key Properties

- Low embedment stress
- High resistance to water
- Excellent insulation characteristics
- Low viscosity

### Description

- Basic Two-component polyurethane system
- Resin RL199HP
- Hardener HL199HP

Physical Data (approx. – values)	Colour	Specific Gravity	Viscosity (mPas) @ 25°C
Resin	Black	1.37	2500-3000
	Beige	1.37	2500-3000
	White	1.40	1500-3500
Hardener	Brown	1.19	120-170
Composite	Black	1.34	2100-2500
	Buff	1.35	2100-2500
	White	1.37	1000-2000

Cure Schedule (200g)	Working Life BK NC	Working Life WT	Gel Time BK NC	Gel Time WT	Light Handling	Full Cure
Temperature	(minutes)	(minutes)	(minutes)	(minutes)	(hours)	(hours)
RT*	25-40	20-40	70-100	40-120	12	72
40°C	10			-	6	48
60°C	-			-	3	24
80°C	-			-	2	18

\*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	Black	White	Beige
Mix ratio by weight	5.8:1	5.99:1	5.8:1
Mix ratio by volume	5.04:1	5.08:1	5.03:1

Typical Properties	Result	Unit
Engine Oil resistance (@ 80)**	Good	°C
Brake Fluid (@ 60)**	Good	°C
Gasoline +15% Methanol (@ 25)**	Ok	°C
Diesel + 10% Para-xylene (@ 25)**	Ok	°C
Windscreen washer fluid (@ 60)	Excellent	°C
Hardness	30-40	Shore A
Operating Temperature	-55 to +140	°C (application & geometry dependent)
Thermal Conductivity	0.18	W/mK
Tensile Strength	<1	MPa
Dielectric Strength	19	kV/mm
Elongation at Break	157	%
Shrinkage	Low	
Coefficient of Linear Expansion	80 – 100	ppm/°C
Permittivity	6.71	1KHz
Surface Resistivity	$2.1 \times 10^{11}$	$\Omega$
Volume Resistivity	$3.8 \times 10^{10}$	$\Omega\text{cm}$
Tg	-61	°C

\*\* Some swelling may occur on extended immersion

Approvals	
RoHS compliant	Yes
UL94 V-0	No
REACH (SVHC concentration)	Refer to SDS

### Packaging

EL199HP is available in Bulk, Twinpacks & Kits

### Availability

Available through distribution and sales@robnor.co.uk

Twinpacks Part Numbers	
EL199HP/BK/100	EL199HP/WT/250
EL199HP/BK/250	EL199HP/WT/500
EL199HP/BK/500	
EL199HP/BK/1000	

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 has been 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-resinlab.com](http://www.robnor-resinlab.com)

Bulk Materials Part Numbers	
RL199HP/BK/25KG	HL199HP/NC/1KG
RL199HP/NC/5KG	HL199HP/NC/5KG
RL199HP/WT/25KG	HL199HP/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, details provided by Fluid Research on request.

Kits and Sets Part Numbers	
EL199HP/BK/1KGKIT	EL199HP/BK/8KGSET
EL199HP/BK/5KGKIT	EL199HP/BK/18KGSET
EL199HP/WT/5KGKIT	EL199HP/WT/15KGSET

Kits and Sets are provided in separate containers to the correct ratio. In Kit form, pour the contents of the smaller container into the larger 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

12 months at 25°C - Specialty packaging may be less.

Bulk containers should be inverted every two to three weeks to reduce the accumulation of the fillers on the bottom of the containers. Isocyanates are sensitive to moisture and should be kept in their original container or in a volume tank under dry nitrogen blanketing. Many isocyanates are prone to dimerization, the formation of a white precipitate. Products with minor amounts of this precipitate normally cure to full properties.

Storage at 20 +/- 5°C (60°F to 86°F) is recommended to ensure full shelf life.

## Health and Safety

Please refer to RL/HL199HP Health and Safety data or our Technical Service Department for individual/specific advice.

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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 the intended application by proper evaluation and testing.

## Contact Details

Robnor Resinlab Limited  
31 Athena Avenue  
Elgin Industrial Estate  
Swindon  
SN2 8EJ  
United Kingdom

Tel: +44 (0) 1793 823741  
Fax: +44 (0) 1793 827033  
Email: [support@robnor.co.uk](mailto:support@robnor.co.uk)  
Buy Online: [www.robnor-resinlab.com](http://www.robnor-resinlab.com) (UK only)