

# EL110H

A two-part flexible polyurethane that offers excellent water resistance and electrical insulation characteristics.

Application	Key Properties
<ul style="list-style-type: none"> <li>High frequency, high voltage applications</li> </ul>	<ul style="list-style-type: none"> <li>Low viscosity</li> <li>Excellent resistance to seawater and aqueous based cleaning chemicals</li> <li>Excellent toughness and abrasion resistance</li> </ul>

Description
<ul style="list-style-type: none"> <li>Basic Two-component polyurethane system</li> <li>Resin RL110H</li> <li>Hardener HL110H</li> </ul>

Physical Data (approx. – values)	Colour	Specific Gravity	Viscosity (mPas) @ 25°C
Resin	Black Grey Yellow Green	0.92 0.94 0.93 0.92	1000 - 4000
Hardener	Brown	1.23	200-300
Composite	Black Grey Yellow Green	0.97 0.99 0.98 0.97	800-1500

Cure Schedule (150ml)	Working Life (minutes)	Gel Time (minutes)	Light Handling (hours)	Full Cure (hours)
Temperature				
RT*	10-15	20-30	24	168
60°C	-	-	6	48
80°C	-	-	4	24

\*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	Green	Grey	Yellow
Mix ratio by weight	3.68:1	3.68:1	3.83	3.68:1
Mix ratio by volume	4.91:1	4.91:1	4.99:1	4.88:1

Typical Properties	Result	Unit
Water Absorption (24hr @ 25°C)	0.05	%
Hardness	63-73	Shore A
Operating Temperature	- 75 to + 125	°C (application & geometry dependent)
Thermal Conductivity	<0.2	W/m.k
Tensile Strength	1.4	MPa
Elongation at Break	49	%
Compressive Yield Strength	<10	MPa
Peak Exotherm (50g mass)	50	°C
Coefficient of Linear Expansion	100-150	µm/m/°C
Volume Resistivity	$1.2 \times 10^{15}$ - $1.4 \times 10^{15}$	ohm.cm
Surface Resistivity	$1.35 \times 10^{14}$ – $1.55 \times 10^{14}$	ohm
Electric Strength	20	kV/mm
Tg	- 82	°C
Loss Tangent	(20°C @) 0.015 (20°C @) 0.09 (20°C @) 0.07	50Hz 1kHz 1MHz
Permittivity	(20°C @) 3.3 (20°C @) 3.1 (20°C @) 3.0	50Hz 1kHz 1MHz

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

## Packaging

EL110H is available in Bulk, Twinpacks & Kits

## Availability

Available through sales@robnor.co.uk

### Twinpacks Part Numbers

EL110H/BK/100	EL110H/BK/300
EL110H/BK/150	EL110H/BK/500
EL110H/BK/250	EL110H/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 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-resinlab.com](http://www.robnor-resinlab.com)

### Bulk Materials Part Numbers

RL110H/BK/5KG	HL110H/NC/5KG
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Both resin and hardener are supplied in 5kg, 25kg, 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

EL110H/BK/5KGKIT	
EL110H/BK/21KGKIT	

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 can soak for several 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/HL110H Health and Safety data or our Technical Service Department for individual/specific advice.

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The results and information above do 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

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