



TECHNICAL DATASHEET

EL110H

Description

EL110H is a two-part flexible polyurethane that offers excellent water resistance and electrical insulation characteristics.

It is particularly suited to high frequency, high voltage applications due to the unique nature of the resultant cured polymer.

EL110H also provides excellent resistance to thermal and mechanical shock and may be used in applications to -55°C . Adhesion is good to a wide variety of materials and may be enhanced further by the use of pre-treatment (contact Robnor Technical department for details).

The standard colour is black but other colours available on request.

Features

Non-toxic
Low viscosity
Excellent resistance to seawater and aqueous based cleaning chemicals
Good toughness and abrasion resistance

Specification

Property	Resin	Hardener	Mixed
Colour	Black	Brown	Black
Specific Gravity g/ml	0.92	1.24	0.97
Viscosity m.Pa.s @ 21°C	1000 - 4000	200 - 250	1500
Mix Ratio by Weight	3.68: 1		
Mix Ratio by Volume	4.99: 1		
Usable Life	12 minutes (150g @ 25°C)		
Gel Time	20 minutes (150g @ 25°C)		
Cure Schedule			
	Minimum Cure	Full Cure	
	24 hours @ 25°C	1 week @ 25°C	
	3 hours @ 60°C	6 hours @ 60°C	
	2 hours @ 80°C	4 hours @ 80°C	

Typical Properties

Water Absorption	0.6% (30 days @ 25°C)	
Shore A Hardness	68 ± 5	
Operating Temperature	-55 to $+125^{\circ}\text{C}$	(application and geometry dependant)
Thermal Conductivity	$< 0.3 \text{ W/mK}$	
Tensile Strength	3.5 mPa	
Elongation at Break	150%	
Compressive Yield Strength	$< 10\text{mPa}$	
Peak Exotherm (250g @ RT)	$75^{\circ}\text{C} = 6$ minutes	
Coefficient of Linear Expansion	100 – 150 ppm/ $^{\circ}\text{C}$	
Volume Resistivity	12 - 14 $\text{Log}_{10}\text{ohmm}$	
Surface Resistivity	13.5 - 15.5 $\text{Log}_{10}\text{ohm}$	
Electric Strength	20	

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 - 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 ~ 2 minutes for EL110H due to the low 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

Bulk Material

EL110H is a filled system and formulated to avoid sedimentation.

However, 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/HL110H Health and Safety data or our Technical Service Department for individual/specific advice.

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Robnor Resins Limited Hunts Rise South Marston Park Swindon, SN3 4TE

Tel No: 01 793 823 741 Fax No: 01 793 827 033 e-mail: support@robnor.co.uk