Technical Data Sheet
May 2020

EL171H

A semi-rigid, room temperature curing, flame retardant polyurethane resin system

Application

- Encapsulation of transformers
- Cable joints
- Wide range of substrates
- Low to medium voltage electrical and electronic applications

Key Properties

- UL94 V-0 @ 6mm
- Excellent adhesion
- High thermal conductivity
- Economical

Description

- Basic Two-component polyurethane system
- Resin RL171H
- Hardener HL171H

Physical Data (approx. – values)	**Resin**	**Hardener**	**Composite**
Colour	Black Beige	Amber	Black Beige
Specific Gravity	1.75	1.23	1.67
Viscosity (mPas) @ 25°C	15000-18000	200	5000-10000

Cure Schedule (300g)	**Working Life**	**Gel Time**	**Light Handling**	**Full Cure**
Temperature	(minutes)	(minutes)	(hours)	(hours)
RT*	10-20	45-85	24	48
60°C	-	-	2	4
80°C	-	-	1	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 8.4:1
Mix ratio by volume 5.9:1

Typical Properties	**Result**	**Unit**
Operating Temperature	-40 - +125	°C (application & geometry dependent)
Flammability Black @ 6mm Beige	Approved Meets requirements	UL94 V-0
Peak Exotherm (250g @ 20°C)	40	°C
Shrinkage	0.5	%
Volume Resistivity	1.2×10^{12}	ohm.cm
Surface Resistivity	$12 - 14^{10}$	ohm
Dielectric Strength	16	kV/mm
Permittivity ($\in$)	4.6	50Hz
Loss Tangent (Tanδ)	0.04	50Hz
Hardness	85-95	Shore A
Heat Deflection Temperature	Flexible	
Water absorption (30 days @25°C)	0.54	%
Thermal Conductivity	0.75	W/mK
Thermal expansion	60-80	
Coefficient of Linear Expansion	60 - 80	ppm/°C
Elongation at break	~30	%
Comparative tracking index	>600	V
Tg	- 10	°C

Approvals	
RoHS compliant	Yes
UL94 V-0	E76072
REACH (SVHC concentration)	Refer to SDS

Packaging

EL171H is available in Bulk, Twinpacks Sets & Kits

Availability

Available through distribution and sales@robnor.co.uk

Twinpacks - Part Numbers	
EL171H/BK/100	EL171H/BK/500
EL171H/BK/250	EL171H/BK/1000
EL171H/NC/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 are 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

Bulk Materials - Part Numbers	
RL171H/BK/5KG	HL171H/NC/1KG
RL171H/NC/25KG	HL171H/NC/5KG
RL171H/BK/250KG	HL171H/NC/25KG
RL171H/BK/325KG	HL171H/NC/250KG
RL171H/BK/1680KG	

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	
EL171H/BK/5KGKIT	

Kits and Sets are provided in separate containers to the correct ratio.
In Kit form, pour 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

18 months at 25 °C Specialty packaging may be less.

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.

Some systems are prone to settling due to high filler content and should be inverted every two to three weeks to reduce the accumulation of the fillers on the bottom of the containers.
Inventory should be rotated on a FIFO (first in, first out) basis.

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

Health and Safety

Please refer to RL/HL171H Health and Safety data or our Technical Service Department for individual/specific advice.

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