

## EL600F

A low viscosity, fast curing polyurethane resin system

### Application

- Encapsulating
- Potting
- Moulding
- Casting

### Key Properties

- Fast curing
- High electrical insulating characteristics
- Low viscosity
- Convenient mix ratio
- Does not contain halogens or heavy metals

### Description

- Basic Two-component polyurethane system
- Resin RL600F
- Hardener HL600F

Physical Data (approx. – values)	Colour	Specific Gravity	Viscosity (mPas) @ 25°C
Resin	Black	1.56	10000-12000
	White	1.59	8000-10000
Hardener	Brown	1.23	200
Composite	Black	1.48	4000-6000
	Off-White	1.50	6000-8000

Cure Schedule (150g)	Working Life - WT	Working Life - BK	Gel Time WT	Gel Time BK	Light Handling	Full Cure
Temperature	(minutes)	(minutes)	(minutes)	(minutes)	(hours)	(hours)
RT*	3-4	3½-4½	5-8	7-9	16	168
40°C	-				4	16
60°C	-				2	6

\*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
Mix ratio by weight	3.84:1	3.85:1
Mix ratio by volume	3.02:1	2.98:1

Typical Properties	Result	Unit
Peak Exotherm	104	°C
Shrinkage	0.5	%
Water absorption (24hrs @ 23°C)	0.12	%
Water absorption (168hrs @ 23°C)	0.37	%
Flame retardant	Yes	Not certified
Hardness	75-85	Shore D
Tensile Strength	40	MPa
Compressive strength	110	MPa
Thermal conductivity	0.8	W/m. K
Co-efficient of thermal expansion	60 - 80	ppm/°C
Operating temperature range	-40 to +140	°C (application & geometry dependent)
Short term exposure limit	180	°C (application & geometry dependent)
Volume Resistivity	1.6 x 13 <sup>12</sup>	ohm.cm
Surface Resistivity	1.6 x 13 <sup>10</sup>	ohm
Electric strength	19	kV/mm
Dielectric constant	4.2	100 Hz
Dielectric constant	3.9	1 kHz
Dielectric constant	3.8	10 kHz
Tg	-20	°C

### Approvals

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

## Chemical Resistance

	Duration	Weight increase (%)	Hardness	Colour Change	Swelling
<b>Engine Oil @ 80°C</b>	1 week	0.065	D80	None	None
	2 weeks	-0.049	D77	None	None
	4 weeks	-0.023	D77	None	None
	10 weeks	0.113	D77	None	None
<b>Brakes Fluid @ 80°C</b>	1 week	1.28	D75	Mottled surface	None
	2 weeks	1.99	D74	Mottled surface	None
	4 weeks	2.68	D74	Mottled surface	None
	10 weeks	4.45	D70	Mottled surface	None
<b>Battery Acid @ 25°C</b>	1 week	0.16	D78	None	None
	2 weeks	0.29	D78	None	None
	4 weeks	0.40	D78	None	None
	10 weeks	0.74	D78	None	None
<b>Diesel @ 25°C</b>	1 week	0.023	D81	None	None
	2 weeks	0.044	D80	None	None
	4 weeks	0.118	D80	None	None
	10 weeks	0.206	D80	None	None
<b>Petrol @ 25°C</b>	1 week	0.009	D77	None	None
	2 weeks	0.033	D77	None	None
	4 weeks	0.118	D77	None	None
	10 weeks	0.242	D77	None	None

## Packaging

EL600F is available in Bulk, Twinpacks & kits

## Availability

Available through distribution and sales@robnor.co.uk

### Twinpacks - Part Numbers

EL600F/BK/050	EL600F/WT/150
EL600F/BK/100	EL600F/WT/250
EL600F/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-resinlab.com](http://www.robnor-resinlab.com)

### Bulk Materials - Part Numbers

RL600F/BK/5KG	HL600F/NC/5KG
RL600F/BK/250KG	HL600F/NC/25KG
RL600F/WT/5KG	HL600F/NC/250KG
RL600F/WT/20KG	

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

EL600F/BK/5KGKIT	EL600F/BK/30KGSET
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Kits and Sets are provided in separate containers to the correct ratio.

In Kit form, pour the contents of the small 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/HL600F 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

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