

EL116F

A low viscosity, semi-rigid polyurethane resin system

Application

- Encapsulation of delicate components

Key Properties

- Low viscosity
- Long pot life
- Low embedment stress
- Easy to use and process

Description

- Basic Two-component polyurethane system
- Resin RL116F
- Hardener HL116F

Physical Data (approx. – values)	Resin	Hardener	Mixed
Colour	Grey	Brown	Grey
Specific Gravity	1.5	1.23	1.47
Viscosity (mPas) @ 25°C	8000	210	5000

Cure Schedule (150ml)	Working Life	Gel Time	Light Handling	Full Cure
Temperature	(minutes)	(minutes)	(hours)	(hours)
RT*	25	120	24	168
60°C	-	-	4	4
80°C	-	-	2	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 7.8:1

Mix ratio by volume 6.5:1

Typical Properties	Result	Unit
Peak Exotherm (150ml @ 20°C)	60	°C
Shrinkage (Volume)	0.6	%
Thermal Conductivity	0.6	W/mK
Operating Temperature	-40 to + 125	°C
Tensile Strength	~ 8	MPa
Dielectric Strength	16	kV/mm
Volume Resistivity	1.2 x 10 ¹²	ohm-cm
Hardness	80 - 70	Shore A
Heat Deflection	Flexible	
Flame Retardant	No	
Loss Tangent	0.04	50 Hz
Permittivity	3.9	50 Hz
Comparative Tracking Index	>600	V
Water absorption (30 days @ 25°C)	1.36	%
Elongation at Break	~ 50	%
Compressive Yield Strength	< 10	MPa
Tear Resistance	Medium	
Coefficient of Linear Expansion	50 – 75	ppm/°C
Surface Resistivity	13 – 15 ₁₀	ohm

Approvals

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

Packaging

EL116F is available in Bulk, Twinpacks & Kits

Availability

Available through distribution and sales@robnor.co.uk

Twinpacks Part Numbers

EL116F/GY/100	EL116F/GY/500
EL116F/GY/250	EL116F/GY/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

Bulk Materials Part Numbers

RL116F/GY/5KG	HL116F/NC/1KG
RL116F/GY/25KG	HL116F/NC/5KG

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

EL116F/GY/5KGGIT	Sets available on request
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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

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/HL116F 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.

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