

EL225D

A low viscosity, semi-rigid polyurethane resin system exhibiting high electrical strength, toughness and adhesion

Application

- Encapsulation of delicate components
- Encapsulating, potting and moulding both surface and subsea electrical and electronic units
- A wide range of applications

Key Properties

- High electrical insulating characteristics
- Low viscosity
- High adhesion and toughness
- High chemical resistance

Description

- Basic Two-component polyurethane system
- Resin RL225D
- Hardener HL225D

| Physical Data (approx. – values) | RL225D | HL225D | EL225D |
|----------------------------------|-----------|---------|-----------|
| Colour | Black | Brown | Black |
| Specific Gravity | 1.06 | 1.23 | 1.11 |
| Viscosity (mPas) @ 25°C | 2000-2500 | 200-300 | 1500-2500 |

| Cure Schedule (150g) | Working Life | Gel Time | Light Handling | Full Cure |
|----------------------|--------------|-----------|----------------|-----------|
| Temperature | (minutes) | (minutes) | (hours) | (hours) |
| RT | 25-30 | 50-65 | 24 | 48 |
| 60°C | - | - | 8 | 24 |
| 80°C | - | - | 4 | 12 |

*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 2.4:1

Mix ratio by volume 2.8:1

| Typical Properties | Result | Unit |
|-----------------------------------|----------------------|---------------------------------------|
| Peak Exotherm (50g @ 20°C) | 35.5 | °C |
| Shrinkage (volume) | 0.7 | % |
| Thermal conductivity | 0.119 | W/mK |
| Operating temperature range | -50 to +120 | °C (application & geometry dependent) |
| Maximum service temperature | 130 | °C (short term exposure) |
| Dielectric strength | 25 | kV/mm |
| Volume Resistivity | 6.2×10^{14} | ohm.cm |
| Hardness | 50-60 | Shore D |
| Flame retardant | No | |
| Loss Tangent | 0.05 | 50 Hz |
| Permittivity | 3.6 | 50 Hz |
| Comparative tracking index | >600 | V |
| Water absorption (24hr @ 25°C) | 0.08 | % |
| Elongation at break | 120 | % |
| Tensile strength | 19 | mPa |
| Compressive strength | 140 | mPa |
| Co-efficient of thermal expansion | 75 – 100 | ppm/°C |
| Surface Resistivity | 4.2×10^{12} | ohm |
| Dielectric constant | 4.8 | 100 Hz |
| Dissipation factor | 0.023 | 1 MHZ |
| Tg | + 32 | °C |

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

Packaging

EL225D is available in Bulk, Twinpacks & Kits

Availability

Available through sales@robnor.co.uk

| Twinpacks - Part Numbers | |
|--------------------------|-----------------|
| EL225D/BK /100 | EL225D/BK /300 |
| EL225D/BK/150 | EL225D/BK /1000 |
| EL225D/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

| Bulk Materials - Part Numbers | |
|-------------------------------|----------------|
| RL225D /BK/25KG | HL225D /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 | |
|------------------------------|--|
| EL225D/BK/4.5KGKIT | |

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/HL225D Health and Safety data or our Technical Service Department for individual/specific advice.

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Contact Details

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