

Technical Data Sheet Polyurethane Resin EL4200F

(Formerly development EL176/146/1)

Description

EL4200F is a two-part, flexible, room temperature curing polyurethane resin designed for the potting and encapsulation of LED arrays and lighting equipment. On curing, EL4200F forms an opalescent finish that masks the underlying components but still retains high light transmission. EL4200F has excellent outdoor weathering properties, due to the incorporation of both UV resistant base materials and the addition of UV stabilisers and antioxidants. EL4200F is a flexible version of EL420H.

Features

Excellent long term UV stability
Scratch and mark resistant
Non-toxic
High mechanical strength
Easy to mix and process

Specification

Property	Resin RL4200F	Hardener HL4200F	Mixed EL4200F
Colour	Clear	Clear	Opal
Specific Gravity g/ml	1.05	1.11	1.08
Viscosity m.Pa.s @ 25°C	60	500	400
Mix Ratio by Weight	0.99: 1		
Mix Ratio by Volume	1.00: 1		
	Usable life (minutes)	Gel time (minutes)	Tack Free (minutes)
150g @ 20°C	20	30	60
Cure Schedule	Temperature	Minimum Cure	Full Cure
	20°C	24 hours	48 hours
	40°C	12 hours	24 hours
	60°C	6 hours	12 hours

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.

Typical Properties

Water Absorption	0.87% (30 days @25°C)
Shore D Hardness	30
Operating Temperature**	- 55 to + 120°C (application & geometry dependent)
Thermal Conductivity	0.25 W/mK
Tensile Strength	16 MPa
Elongation at Break	5-10%
Compressive Yield Strength	20 mPa
Coefficient of Linear Expansion	60-80 pp/m°C
Volume Resistivity	< 13 Log ₁₀ ohmm
Surface Resistivity	< 14 Log ₁₀ ohm
Electric Strength	20 kV/mm
Refractive Index	1.47-1.48

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Buy On-line: www.resins-online.com

Packaging

EL4200F is available in:

Size

200ml Cartridges
5kg Set
10kg Set

Part Number

EL4200F/NC/200TC
EL4200F/NC/5KGSET
EL4200F/NC/10KGSET

Availability:

Available through sales@robnor.co.uk and www.resins-online.com

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 ~ 1 minute 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 Materials

Both resin and hardener are supplied in 5 kg, 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 and Robnor Resins produce a range of these machines, details that can be provided on request.

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

Material stored in the original unopened containers under cool dry condition between 15° and 25°C will have a shelf life of at least 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/HL4200F Health and Safety data or our Technical Service Department for individual/specific advice.

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