Robnor Adhesive

Technical Data Sheet
EL420AR
(Two-Component Polyurethane System)

Description
EL420AR is a two-part, room temperature curing polyurethane resin adhesive formulated for toughness, impact strength and weather resistant properties.
EL420AR is used in the bonding and sealing of window panels, optical instruments and high quality castings.
EL420AR has excellent outdoor weathering properties, due to the incorporation of both UV resistant base materials and the addition of UV stabilisers and antioxidants.

Features

Excellent long term UV stability
Excellent adhesion to ABS
Scratch and mar resistant
Non-toxic
Meets requirements of WEEE & RoHS
Easy to mix and process

Specification

Property	**Resin RL420AR**	**Hardener HL420AR**	**Mixed EL420AR**
Colour	Water white	Water white	Water white
Specific Gravity g/ml	1.17	1.13	1.15
Viscosity m.Pa.s @ 25°C	1500	2500	2000
Mix Ratio by Weight	1.0: 1		
Mix Ratio by Volume	1.0: 1		

Cure Schedule Temperature	**Working Life** (minutes *)	**Light Handling** (hours *)	**Full Cure** (hours *)	**Post Cure** (**)
10°C	6	12	48	3 days @ 25°C
20°C	5	6	24	4 hours @ 60°C
30°C	3	3	12	2 hours @ 80°C

*2mm cross sectional area
**For maximum properties

Cure time will depend on cross sectional area, ambient conditions and mixing method. 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	1.17% (30 days @25°C)
Shore A Hardness	75
Operating Temperature range	- 60 to + 100°C
Thermal Conductivity	< 0.3 W/mK
Tensile Strength	7 MPa
Elongation at Break	100%
Compressive Yield Strength	< 10 mPa
Coefficient of Linear Expansion	100-150 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

Lap shear adhesion

Aluminium to Aluminium	6.2 MPa	ABS to ABS [1]	6.8 MPa
Copper to Copper	5.4 Mpa	Nylon 6 to Nylon 6	3.0 MPa
Stainless Steel	6.5 MPa	Acrylic to Acrylic	3.9 MPa

[1] Substrate failure

Robnor Resins Limited, Hunts Rise, South Marston Park, Swindon, Wiltshire, SN3 4TE, United Kingdom
Tel: +44 (0) 1793 823741 Fax: +44 (0) 1793 827033.
Email: sales@robnor.co.uk **Web:** www.robnor.co.uk

Packaging	Part number
50g Twin Cartridge	EL420AR/NC/050 TC
200g Twin Cartridge	EL420AR/NC/200 TC

Availability:
Available through **sales@robnor.co.uk,** distribution and **www.resins-online.com**

Cartridge Mixing
It is essential for best results that the cartridge is 'balanced' before use to ensure correct mixing.
Loading the cartridge into the gun before attaching the mixer element and pumping the gun to push a small amount of the contents forward will achieve this. Wipe the excess from the cartridge tip and add the static mixer.
The cartridge is now ready for use.

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 ~ 2 minutes for EL420AR 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 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 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 two years.
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/HL420AR Health and Safety data or our Technical Service Department for individual/specific advice.