

EL420AT

A thixotropic two-part polyurethane adhesive

Application

- Bonding and sealing window panels
- Optical instruments
- High quality castings

Key Properties

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

Description

- Basic Two-component polyurethane system
- Resin RL420AT
- Hardener HL420AT

Physical Data (approx. – values)	Resin	Hardener	Mixed
Colour	Translucent	Water Clear	Translucent
Specific Gravity	1.11	1.13	1.12
Viscosity (mPas) @ 25°C	Thixotropic	2500	Semi- thixotropic

Cure Schedule (200g)	Working Life	Gel Time	Light Handling	Full Cure
Temperature	(minutes)	(minutes)	(hours)	(hours)
10°C	3	6	24	24 @ 25°C
20°C	2-4	2½-6	6	2 @ 60°C
30°C	1	1	3	1 @ 80°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.

Processing

Mix ratio by weight 0.99:1

Mix ratio by volume 1:1

Typical Properties	Result	Unit
Water Absorption (30 days @25°C)	1.17	%
Hardness	85-95	Shore A
Thixotropy	7-10	mm
Operating Temperature range	- 60 to + 105	°C (application & geometry dependent)
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	1.3 x 10 ¹⁰	ohm-cm
Surface Resistivity	1.4 x 10 ¹⁰	ohm
Electric Strength	20	kV/mm
Refractive Index	1.47-1.48	

Approvals

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

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

Packaging

EL420AT is available in Bulk, Kits, Sets, Twinpacks and cartridges

Availability

Through sales@robnor.co.uk distribution, and www.robnor-resinlab.com

Cartridge Mixing Part Numbers

EL420AT/NC/050TC	
EL420AT/NC/200TC	

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 Part Numbers

Available on request	
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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 has been 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 Material Part Numbers

RL420AT/NC/5KG	HL420AT/NC/5KG
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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

EL420AT/NC/2KGGKIT	
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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

24 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/HL420AT 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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