

## Technical Data Sheet

# ALCHEMIX<sup>®</sup> EP 521 – H15

*Laminating and Infusion Resin*  
*85 – 90 Shore D Hardness*

ALCHEMIX EP 521 is a low viscosity epoxy laminating system for laminating and infusion of carbon and glass fibres. The product has low initial viscosity, low shrinkage and excellent reproduction of detail. The long pot life of the product allows large parts to be produced.

### Special Features

- Low viscosity
- Easy to process
- Long working time
- Excellent mechanical properties

### Mix Ratio

**EP 521 : H15**  
**By Weight 100 : 25**

### Product Data

Property	Units	EP 521	H15	Mix
Material	-	Epoxy resin	Formulated amine	Epoxy
Appearance	-	Amber liquid	Amber liquid	Amber liquid
Viscosity (25°C)	mPa.s	600 – 1000	10 – 20	250 – 500
Density (25°C)	g/cm <sup>3</sup>	1.10 – 1.15	0.90 – 0.95	1.05 – 1.10
Pot life (200g, 25°C)	-	-	-	140 – 200
Demould Time (200g, 25°C)	Hours	-	-	24
Cure Time (200g, 25°C)	Days	-	-	7

## Technical Data Sheet

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### Cured Properties

Properties	Standard	Units	Result (Full Cure)
Hardness	BS 2782: Part 3: Method 365B	Shore D	85 – 90
Linear Shrinkage*	500 x 50 x 10 mm	%	0.20 – 0.30
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	55.0 – 60.0
Elongation at Break	BS 2782: Part 3: Method 320B	%	3.0 – 5.0
Flexural Strength	BS 2782: Part 3: Method 335A	MPa	110.0 – 115.0
Flexural Modulus	BS 2782: Part 3: Method 335A	MPa	2300 – 2600
Heat Distortion Temperature (HDT)	TMA	°C	105 – 110

\* See Shrinkage section below.

The above values refer to pure resin, properties of the laminate will differ and will depend on the reinforcements used.

### Method of Use

#### **Preparation**

Before use ensure that the resin, fibre or filler and gelcoat are compatible. Please read the relevant technical datasheet before use. Master surfaces should be clean, dry and treated with ALCHEMIX R7, ALCHEMIX R5 or other suitable release agent. Ensure that both components are between 20 – 25°C before use.

#### **Mixing and Application**

Thoroughly mix the resin and the hardener according to the indicated mixing ratio, avoiding air entrapment and make certain that the material at the bottom and sides of the container is well stirred into the centre. The two components should be mixed and applied within the pot life of the mixture.

#### **Cure and Post Cure**

Parts produced from EP 521 – H15 can generally be demoulded after 24 hours if cured at 20 – 25°C. To achieve full high temperature properties, a step wise post cure treatment is recommended. Allow the product to cure at room temperature for at least 24 hours, then heat to 40°C for 1 hour, followed by 60°C for 1 hour, followed by 80°C for 1 hour, followed by 100°C for 3 hours. To prevent any

## Technical Data Sheet

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distortion during the post cure cycle, the unit should be placed on a conformer. When post-curing is complete, let the unit cool down slowly to room temperature, preferably in the oven. Sudden change in temperature can cause distortion or warping. The product can be used without post cure or with partial post cure, but will not achieve full high temperature properties.

### ***Shrinkage***

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each laminate, as factors such as mould size and geometry can affect the degree of shrinkage. Generally speaking, large, thick castings will have a greater degree of shrinkage than small, thin castings. Other factors, such as mould temperature and resin temperature can also have an effect. Post curing the part can also lead to a greater degree of shrinkage. Please contact Alchemie Ltd for more information.

### **Storage**

ALCHEMIX EP 521 and HARDENER H15 should be stored in original, unopened containers between 15 and 25°C. KEEP THE PACKING TIGHTLY SEALED WHEN NOT IN USE.

If stored under the above conditions, ALCHEMIX EP 521 and HARDENER H15 will have a shelf life of 12 months, from the date of production.

### **Packaging**

ALCHEMIX EP 521 is supplied in 1kg, 5kg and 25kg containers.  
HARDENER H15 is supplied in 250g, 1.25kg and 6.25kg containers.

(Please contact Alchemie Ltd for bulk supply)

### **Further Information**

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

Our technical advice, whether verbal, or in writing is given in good faith, but without warranty – this also applies where proprietary rights of third parties are involved. It does not release you from the obligation to test the products supplied by us as to their suitability for the intended process and use.

Before using any of our products, users should familiarise themselves with the relevant Technical and MSDS provided by Alchemie Ltd.

## Technical Data Sheet

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### Alchemie Limited

Alchemie Ltd develops, formulate and distribute Epoxy Resins, Polyurethane Resins, Silicones, Model Boards and Sheet Wax for use in the following applications:

- Electrical encapsulation
- Rapid Prototyping
- Prototypes
- Casting
- Gel Coating
- Laminating
- Model Making
- Master Models
- Flexible and rigid mould making

We offer fast service, technical support, development expertise, innovative products, diverse knowledge and experience.

We are a well-established company, with a high level of investment and experience. We implement BS EN ISO 9001.

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