

## ALCHEMIX EP 4517 – H4517

*Highly Thermally Conductive & Highly Flame Retardant Epoxy Resin  
85 – 90 Shore D Hardness*

ALCHEMIX EP 4517 – H4517 is a two part, ambient temperature cure, liquid epoxy system; exhibiting outstanding thermal dissipation and electrical characteristics. This system has remarkably low mixed viscosity and when cured shows good electrical properties even at elevated temperatures.

### Special Features

- Low viscosity
- Excellent surface finish
- High thermal conductivity
- Flame retardant
- RoHS Compliant

### Mix Ratio

	<b>EP 4517 : H4517</b>
<b>By Weight</b>	100 : 12
<b>By Volume</b>	100 : 23

### Product Data

Property	Units	EP 4517	H4517	Mix
<b>Material</b>	-	Epoxy resin	Formulated amine	Epoxy
<b>Appearance</b>	-	Pink or Grey Viscous liquid	Amber liquid	Pink or Grey liquid
<b>Viscosity (25°C)</b>	mPa.s	8000 – 12000	20 – 40	700 – 900
<b>Density (25°C)</b>	g/cm <sup>3</sup>	1.80 – 2.00	0.95 – 1.00	1.60 – 1.80
<b>Pot Life (200g, 25°C)</b>	Minutes	-	-	90 – 130
<b>Cure Time (200g, 25°C)</b>	Hours	-	-	24 may be longer in cold conditions
<b>Full Cure (25°C)</b>	Days	-	-	7

## Cured Properties

Properties	Standard	Units	Result (Post Cure)
Hardness	BS 2782: Part 3: Method 365B	Shore D	85 – 90
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	23 – 28
Elongation at Break	BS 2782: Part 3: Method 320B	%	1.0 – 2.0
Flexural Modulus	BS 2782: Part 3: Method 335A	MPa	4000 – 4400
Flexural Strength	BS 2782: Part 3: Method 335A	MPa	52 – 58
Compressive Strength	BS 2782: Part 3: Method 345A	MPa	100 – 120
Thermal Conductivity	Alchemie STM	W/m.K	1.2
Coefficient of Thermal Expansion	TMA (30 – 100°C)	/ °C	60 x 10 <sup>-6</sup>
Heat Deflection Temperature	TMA	°C	85 – 90
Maximum Operating Temperature	Alchemie STM 24	°C	110
Minimum Operating Temperature	Alchemie STM 24	°C	-20
Linear Shrinkage	500 x 50 x10 mm	%	<0.2

## Method of Use

### **Mould Preparation**

Mould surfaces should be treated with ALCHEMIX R7 or suitable release agent. Porous materials should be well sealed.

### **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. In a thoroughly mixed resin, the colour will be uniform; there will be no streaks of unmixed resin or hardener. After mixing, pour into the potting vessel from one end or along the wall of the vessel within the pot life of the system. Let it cure as mentioned above.

## **Post Cure**

ALCHEMIX EP 4517 is formulated to cure at room temperature, but the product can be post cured to ensure the full properties are met. To do this we recommend the following schedule: 1 hour at 40°C, 1 hour at 60°C, 1 hour at 80°C and 1 hour at 100°C followed by 3 hours at 120°C before being allowed to cool naturally to room temperature.

## **Storage**

ALCHEMIX EP 4517 and HARDENER H4517 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 4517 and HARDENER H4517 will have a shelf life of 12 months, from the date of production.

## **Packaging**

ALCHEMIX EP 4517 is supplied in 5kg and 25kg containers.  
HARDENER H4517 is supplied in 600g and 3kg containers.  
The system can also be supplied as 500g or 1kg twinpacks.

(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.

## Alchemie Limited

Alchemie Ltd develop, 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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