

## ALCHEMIX® EP 4905

*Two Part Epoxy System  
85 – 90 Shore D Hardness*

ALCHEMIX EP 4905 is a room temperature curing, two component mineral filled epoxy resin system. ALCHEMIX EP 4905 has excellent detail replication and dimensional tolerance, making it ideal for a variety of casting applications.

### Special Features

- Excellent reproduction of detail
- Easily polished
- Low viscosity
- Low Shrinkage

### Mix Ratio

**EP 4905 : H4905**  
By Weight                      100 : 11

### Product Data

Property	Units	EP 4905	H4905	Mix
Material	-	Epoxy resin	Formulated amine	Epoxy
Appearance	-	Cream mineral filled liquid	Brown liquid	Cream Liquid
Viscosity (25 °C)	mPa.s	20,000 – 30,000	50 – 70	12,000 – 16,000
Density (25 °C)	g/cm <sup>3</sup>	1.68 – 1.73	0.93 – 0.98	1.60 – 1.65
Pot Life (200g, 25 °C)	Hours	-	-	3 – 4
Cure Time (200g, 25 °C)	Hours	-	-	24 May be longer in cold conditions
Full Cure (25 °C)	Days	-	-	7
Maximum Casting Thickness	mm	-	-	75

## Cured Properties

Properties	Standard	Units	Result (Post Cured)
Hardness (25°C)	BS 2782: Part 3: Method 365B	Shore D	85 – 90
Linear Shrinkage	500 x 50 x10 mm	%	0.06*
Tensile Strength	BS 2782: Part 3: Method 320A	MPa	20 – 25
Elongation at break	BS 2782: Part 3: Method 320A	%	0.8 – 1.2
Flexural Strength	BS 2782: Part 3: Method 335A	MPa	40 – 45
Flexural Modulus	BS 2782: Part 3: Method 335A	MPa	5400 – 5800
Coefficient of Thermal Expansion	TMA	°C <sup>-1</sup>	10.7 x 10 <sup>-5</sup>
Glass Transition Temperature	TMA	°C	50 – 60
Machinability/ Sandability	-	-	Excellent

\*Typical values stated. See shrinkage section below

## Method of Use

### **Preparation**

Ensure that both ALCHEMIX EP 4905 and H4905 are between 15 – 25°C. Before use, mix ALCHEMIX EP 4905 thoroughly in order to homogenise the fillers.

Mould surfaces should be clean, dry and treated with ALCHEMIX R7, ALCHEMIX R5 or other suitable release agent. Porous materials should be well sealed. Polish if necessary, to obtain the desired surface finish. Where deep sections occur (more than 75 mm), we recommend coring out the mould using tapered wood cores with edges and corners rounded off and covered in tin foil and treated with release agent. Cores should be at no more than 13 cm centres and a minimum of 35 mm off working resin face. Cores must be removed after curing.

### **Mixing Instructions**

ALCHEMIX EP 4905 should be mixed with HARDENER H4905 according to the indicated mixing ratio. Both components should be thoroughly mixed, care should be taken to avoid air entrapment and make certain that material at bottom and sides of container is thoroughly stirred into centre. After thorough mixing, the material should be poured into the mould. To avoid air entrapment, pour the

material slowly, and into one place in the mould. Mixing and pouring must be completed within the stated pot life.

Where fine detail is to be reproduced, we advise that the mixed product is first brushed onto the surface using a stippling action. The remainder of the material can then be cast into the mould.

## ***Curing and Post Curing***

Demould times will vary with the thickness of casting and thin sections may take 24 hours before they can be demoulded. 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 1 hour.

To prevent any distortion during the post cure cycle, the unit should be fully supported during the process. 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.

## **Shrinkage**

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each casting, 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 4905 and HARDENER H4905 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 4905 and H4905 will have a shelf life of 12 months, from the date of production.

## **Packaging**

EP 4905 is supplied in 6kg containers.  
H4905 is supplied in 660g containers.

---

## **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.

**Alchemie® and Alchemix® are registered Trademarks of Alchemie Ltd, Warwick Road, Kineton, Warwick, England, CV35 0HU, England, United Kingdom. Ph: +44 (0)1926 641600; FAX: +44 (0)1926 641698**