



## ALCHEMIX<sup>®</sup> EP 490

*Two Part Epoxy System  
80 – 90 Shore D Hardness*

ALCHEMIX EP 490 is a room temperature curing, two component mineral filled epoxy resin system. ALCHEMIX EP 490 is formulated for production of master moulds, models and prototypes, and for use as a back filling compound. The system has a choice of hardeners. ALCHEMIX EP 490 is also available pigmented white.

### **Special Features**

- Excellent reproduction of detail
- Suitable for full or face casting
- Room temperature cure
- Cure rate can be determined by choice of hardener
- Low exotherm and low shrinkage. Suitable for large castings (H91)
- Excellent impact resistance (H88)
- Easily pigmented
- Abrasion and corrosion resistant
- Good machining characteristics when cured

### **Applications**

- Jigs and fixtures
- Master models
- Copy milling
- Working models for the ceramics industry
- Construction of foundry patterns
- Can be used for a wide variety of applications

### **Mix Ratio**

	<b>EP 490</b>	<b>: H490</b>	<b>H88</b>	<b>H91</b>
<b>By Weight</b>	100	: 11		
	100	:	16	
	100	:		25

# Technical Data Sheet



## Product Data

Property	Units	EP 490	H490	H88	H91
<b>Material</b>	-	Filled epoxy resin	Formulated amine	Formulated amine	Formulated amine
<b>Appearance</b>	-	White liquid	Yellow liquid	Yellow liquid	Brown liquid
<b>Viscosity (25 °C)</b>	mPa.s	35000 – 65000	40 – 60	60 – 100	140 – 240
<b>Density (25 °C)</b>	g/cm <sup>3</sup>	1.50 – 1.60	0.96 – 1.01	0.96 – 1.01	0.92 – 0.97
<b>Mix Viscosity (25 °C)</b>	mPa.s	-	10000 – 14000	3000 – 5000	4500 – 6500
<b>Mix Density (25 °C)</b>	g/cm <sup>3</sup>	-	1.40 – 1.50	1.39 – 1.49	1.32 – 1.42
<b>Pot Life (200g, 25 °C)</b>	Minutes Hours	-	20 – 30 minutes	80 – 120 minutes	2 – 3 hours
<b>Demould Time (200g, 25 °C)</b>	Hours	-	8 – 12	14 – 20	24
<b>Maximum Casting Thickness</b>	mm	-	10	50	80

## Cured Properties

Properties	Standard	Units	EP 490 / H490	EP 490 / H88	EP 490 / H91
<b>Hardness (25 °C)</b>	BS 2782: Part 3: Method 365B	Shore D	85 – 90	85 – 90	80 – 85
<b>Linear Shrinkage</b>	500 x 50 x 10 mm	%	0.03 – 0.07	0.03 – 0.07	0.03 – 0.07
<b>Flexural Strength</b>	BS 2782: Part 3: Method 335A	MPa	55 – 60	36 – 41	30 – 35
<b>Flexural Modulus</b>	BS 2782: Part 3: Method 335A	MPa	4600 – 5000	3500 – 3900	2300 – 2700
<b>Coefficient of Thermal Expansion</b>	TMA	°C <sup>-1</sup>	30 – 35 x 10 <sup>-6</sup>	33 – 38 x 10 <sup>-6</sup>	45 – 50 x 10 <sup>-6</sup>
<b>Glass Transition Temperature</b>	TMA	°C	85 – 90	60 – 65	55 – 60
<b>Machinability/ Sandability</b>	-	-	Good	Good	Good
<b>Abrasion Resistance</b>	-	-	Good	Good	Good

All values quoted refer to fully post cured material

## **Method of Use**

### ***Preparation***

Ensure that both ALCHEMIX EP 490 and HARDENERS H490, H88 and H91 are between 15 – 25°C. Before use, mix ALCHEMIX EP 490 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 490 should be mixed with HARDENER H490, H88 or H91 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 the choice of hardener. Thin sections may take 24 hours before they can be demoulded. Using HARDENER H91 will increase the demould time when compared to using HARDENER H490. 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. Then allow the product to slowly return to room temperature.

## **Storage**

ALCHEMIX EP 490 and HARDENERS H490, H88 and H91 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 490 / H490 / H88 / H91 will have a shelf life of 12 months, from the date of production.

## **Packaging**

EP 490 is supplied in 8kg containers.

H490 is supplied in 880g containers.

H88 is supplied in 5kg containers.

H91 is supplied in 5kg 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.

## 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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