

ALCHEMIX® EP 420

*Two Part Epoxy System
90 – 95 Shore D Hardness*

ALCHEMIX EP 420 is a two component, metal filled, room temperature curing epoxy resin for production of prefabricated support frames, vacuum forming tools and as a back-filling compound for high temperature applications.

Special Features

- Easily machined
- Low shrinkage
- Low Exotherm
- High temperature tolerance

Mix Ratio

By Weight **EP 420 : H420**
100 : 5

Product Data

| Property | Units | EP 420 | H420 | Mix |
|----------------------------|-------------------|--------------------------|------------------|---------------|
| Material | - | Metal filled epoxy resin | Formulated amine | Epoxy |
| Appearance | - | Grey liquid | Amber liquid | Grey liquid |
| Viscosity (25 °C) | mPa.s | 100000 – 200000 | 60 – 100 | 40000 – 60000 |
| Density (25 °C) | g/cm ³ | 3.25 – 3.45 | 0.93 – 0.98 | 2.90 – 3.10 |
| Pot Life (200g, 25 °C) | Minutes | - | - | 80 – 130 |
| Demould Time (200g, 25 °C) | Hours | - | - | 12 – 24 |

Cured Properties

| Properties | Standard | Units | Result (Full Cure) |
|-------------------------------|---------------------------------|---------|--------------------|
| Hardness (25°C) | BS 2782: Part 3: Method 365B | Shore D | 90 – 95 |
| Linear Shrinkage | 500 x 50 x10 mm | % | 0.10 |
| Tensile Strength | BS 2782: Part 3: Method 320A | MPa | 12.0 – 17.0 |
| Elongation at break | BS 2782: Part 3: Method 320A | % | 2.0 – 3.0 |
| Flexural Strength | BS 2782: Part 3: Method 335A | MPa | 35.0 – 40.0 |
| Flexural Modulus | BS 2782: Part 3: Method 335A | MPa | 4250 – 4750 |
| Maximum Operating Temperature | Alchemie STM 24 | °C | 90 |
| Machinability | - | - | Excellent |

Method of Use

Preparation

Ensure that both ALCHEMIX EP 420 and HARDENER H420 are between 15 – 25°C. Before use, mix ALCHEMIX EP 420 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 420 should be mixed with HARDENER H420 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, for example, 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 3 hours.

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.

Storage

ALCHEMIX EP 420 and HARDENER H420 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 420 / H420 will have a shelf life of 12 months, from the date of production.

Packaging

EP 420 is supplied in 10kg containers.
H420 is supplied in 500g 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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