

## Description

ALCHEMIX EP 5244 is a water clear, UV resistant epoxy resin system suitable for large castings. The variable ratio allows the hardness to be modified so that rigid and flexible castings can be produced.

## Features

- Low tendency to yellow on exposure to UV
- Variable hardness (rigid and semi flexible)
- Large castings can be produced
- Low viscosity, easy to apply

## Mix Ratio (parts by weight)

	EP 5244	H5244
Rigid	100	40
Flexible	100	100

## Component Data

	Conditions	EP 5244	H5244
Description	-	Epoxy resin	Amine
Appearance	-	Colourless liquid	Colourless liquid
Viscosity	25°C	400 – 600 mPa.s	60 – 80 mPa.s
Density	25°C	1.07 – 1.12 gcm <sup>-3</sup>	0.95 – 1.00 gcm <sup>-3</sup>

## Cure Data

	Conditions	Typical Value	
		Rigid (100 : 40)	Flexible (100 : 100)
Mixed Viscosity	25°C	140 – 220 mPa.s	140 – 220 mPa.s
Mixed Density	25°C	1.03 – 1.08 gcm <sup>-3</sup>	1.01 – 1.06 gcm <sup>-3</sup>
Pot Life	200g, 25°C	> 8 hours	> 8 hours
Gel Time	100g, 40°C	480 minutes	TBC
	100g, 60°C	110 minutes	TBC

	Conditions	Typical Value	
		Rigid (100 : 40)	Flexible (100 : 100)
Cure Time	200g, 25°C	48 hours	48 hours
Full Cure	25°C	7 days	7 days
Minimum Curing Temperature	-	18 °C	18 °C
Casting Thickness <sup>1</sup>	-	10 – 50 mm	10 – 50 mm

<sup>1</sup> See "Casting Sizes and Quantities" section below.

## Cured Properties

	Standard	Typical Value	
		Rigid (100 : 40)	Flexible (100 : 100)
Hardness	ISO 868	80 D	52 A1 40 A15
Linear Shrinkage <sup>2</sup>	500 x 50 x 10mm	TBC	TBC
Tensile Strength	ISO 527	33 – 39 MPa	TBC
Elongation at Break	ISO 527	1.2 – 3.2 %	TBC
Tensile Modulus	ISO 527	1300 – 1700 MPa	TBC
Flexural Strength	ISO 178	55 – 61 MPa	N/A
Flexural Modulus	ISO 178	1600 – 2000 MPa	N/A
Glass Transition Temperature (Tg) <sup>3</sup>	DMA	48 – 52 °C	N/A

<sup>2</sup> See "Shrinkage" section below.

<sup>3</sup> Tg will depend on exotherm generated during the reaction.

## Preparation

Prior to use, ensure that the ALCHEMIX EP 5244 is compatible with the items being encapsulated and the substrates, reinforcements or fillers being used. Inspect both components for any signs of crystallization. Crystallization can cause the liquid to become cloudy or viscous, and in extreme cases, the

product could become solid. If either component has crystallized, heat to 40°C using sufficient extraction to remove any fumes. Shake the containers periodically until the product becomes a clear liquid. Allow the product to cool to room temperature before use. Do not apply resin if the ambient or substrate temperature is less than minimum curing temperature, see "Cure Data" section.

Ensure that substrates are clean and dry, and free from any contamination. Ensure that any mixing equipment is clean and dry and free from contamination.

## Casting Sizes and Quantities

The recommended casting thickness for ALCHEMIX EP 5244 is 10 – 50mm. Castings less than 10mm thick may not cure fully. Castings of greater than 50mm can be achieved if the overall casting volume is small. Volumes of less than 2 litres can be cast up to 100mm thick. The reaction generates heat, do not mix quantities larger than the recommend casting thickness. Please contact Alchemie Ltd for more information.

## Processing Instructions

Thoroughly mix the resin and the hardener according to the indicated mixing ratio, avoiding air entrapment and ensuring that the material at the bottom and sides of the container is well stirred into the centre. Vacuuming the mixed material will help produce a void free cured part. The mixing and processing operations should be completed within the pot life of the system.

## Curing

ALCHEMIX EP 5244 is designed to be used and cured at room temperature. The cure rate is affected by temperature, the product must be cast at temperatures greater than 18°C. Curing at lower temperatures will result in slow, or incomplete cure. Incomplete cure could occur if cast in thin section. The exact cure time will depend on the size and geometry of the casting and should be determined by customer testing. Thinner castings will take longer to cure than thicker castings, but generally, the product can be demoulded after 48 hours at 25°C. Incomplete cure can result in slight distortions or deformations of the components if forces are applied. If the product is softer than expected, allow more time to cure, or heat gently at 30 – 40°C.

## Shrinkage

Shrinkage will vary with each casting design, as factors such as casting 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 substrate temperature and resin temperature can also have an effect.

## Storage

ALCHEMIX EP 5244 and HARDENER H5244 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 5244 and HARDENER H5244 will have a shelf life of 12 months, from the date of production.

If stored at lower temperatures for prolonged periods of time, ALCHEMIX EP 5244 can crystallize, see "Preparation" section for more details.

## Packaging

ALCHEMIX EP 5244 is supplied in 1kg, 5kg and 25kg containers. HARDENER H5244 is supplied in 1kg, 5kg and 25kg containers. Please contact Alchemie Ltd for bulk supply.

## Further Information

This is a Preliminary Data Sheet, product data may be revised at a later date following further testing. 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 Data Sheet (TDS) and Safety Data Sheets (SDS) provided by Alchemie Ltd.

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