

Description

ALCHEMIX EP 5245 is a fast curing epoxy resin specially designed for use in applications requiring a strong, durable coating where low colour and high UV resistance are required. ALCHEMIX EP 5245 has excellent water resistance, chemical resistance, mechanical properties and excellent adhesion to a variety of substrates.

Features

- Low viscosity, easy to apply
- Fast cure
- Low tendency to yellow on exposure to UV
- Excellent mechanical properties
- Excellent chemical and water resistance
- Excellent adhesion

Mix Ratio (parts by weight)

	EP 5245	H5245
By Weight	100	50

Component Data

	Conditions	EP 5245	H5245
Description	-	Epoxy resin	Amine
Appearance	-	Colourless liquid	Colourless liquid
Viscosity	25°C	3400 – 4600 mPa.s	160 – 220 mPa.s
Density	25°C	1.14 – 1.19 gcm ⁻³	0.99 – 1.03 gcm ⁻³

Cure Data

	Conditions	Typical Value
Mixed Viscosity	25°C	800 – 1100 mPa.s
Mixed Density	25°C	1.08 – 1.13 gcm ⁻³
Pot Life	200g, 25°C	40 – 60 minutes
Cure Time	200g, 25°C	24 hours
Full Cure	25°C	7 days
Minimum Curing Temperature ¹	-	15 °C

	Conditions	Typical Value
Recommended Casting Thickness ¹	-	2 – 5 mm

¹ See "Cure & Post Cure" section.

Cured Properties

	Standard	Typical Value	
		Standard Cure ²	Post Cure ³
Hardness	ISO 868	82 – 87D	82 – 87 D
Tensile Strength	ISO 527	28 – 34 MPa	48 – 54 MPa
Elongation at Break	ISO 527	1.5 – 3.5 %	3.0 – 5.0 %
Tensile Modulus	ISO 527	1750 – 2050 MPa	1650 – 1950 MPa
Flexural Strength	ISO 178	62 – 68 MPa	87 – 93 MPa
Flexural Modulus	ISO 178	2550 – 2850 MPa	2300 – 2600 MPa
Glass Transition Temperature (T _g)	DMA	46 – 52°C	63 – 69 °C

² & ³ See "Cure and Post Cure" section below.

Preparation

Prior to use, ensure that the ALCHEMIX EP 5245 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 5245 is 2 – 5mm. Castings less than 2mm thick may not cure fully. The reaction generates heat, do not mix quantities larger than the recommended 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 material. The mixing and processing operations should be completed within the pot life of the system.

Cure and Post Cure

ALCHEMIX EP 5245 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 15°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 24 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.

It is not necessary, but if desired, a step wise post cure treatment can be used to maximise cured properties. 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 3 hours. The part should be fully supported during the post cure cycle to prevent any distortion. 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

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 5245 and HARDENER H5245 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 5245 and HARDENER H5245 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 5245 can crystallize, see "Preparation" section for more details.

Packaging

ALCHEMIX EP 5245 is supplied in 1kg, 5kg and 25kg containers. HARDENER H5245 is supplied in 1kg, 5kg and 25kg containers. Please contact Alchemie Ltd for bulk supply.

Further Information

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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