GELCOAT EP 4062

Description

GELCOAT EP 4062 is a two component, aluminium filled, epoxy gelcoat. GELCOAT EP 4062 is designed for use in pre-preg carbon fibre tooling, RTM tools, RIM tools, PU moulding tools, vacuum forming moulds, negatives, applications requiring high heat and chemical resistance and negatives where very fine surface finishes are required.

Features

- Excellent chemical resistance (styrene, methyl methacrylate)
- High heat distortion temperature
- Easy application on vertical surfaces
- Aluminium like polishable finish

Mix Ratio

	EP 4062	H4062
By Weight	100	15

Component Data

	Conditions	EP 4062	H4062
Description	-	Epoxy resin	Amine
Appearance	-	Grey paste	Amber liquid
Viscosity	25°C	100,000 – 200,000 mPa.s	100 – 160 mPa.s
Density	25°C	1.45 – 1.65 gcm^{-3}	0.92 – 0.97 gcm^{-3}

Cure Data

	Conditions	Typical Value
Appearance	-	Grey
Mixed Viscosity	25°C	22,000 – 30,000 mPa.s
Mixed Density	25°C	1.09 – 1.14 gcm^{-3}
Pot Life	200g, 25°C	50 – 80 minutes
Tack Free Time	1mm, 25°C	60 – 120 minutes
Cure Time	200g, 25°C	24 hours

Cured Properties

	Standard	Typical Value (Post Cure)
Hardness	ISO 868	80 – 85 Shore D
Tensile Strength	ISO 527	33 – 37 MPa
Elongation at Break	ISO 527	1.0 – 3.0 %
Tensile Modulus	ISO 527	2100 – 2400 MPa
Flexural Strength	ISO 178	70 – 75 MPa
Flexural Modulus	ISO 178	3000 – 3300 MPa
Heat Distortion Temperature (HDT)	TMA	150 – 160 °C
Glass Transition Temperature	DMA	160 – 165 °C
Max Operating Temperature for Pre-Preg Tools	Alchemie STM	125

Preparation

Prior to use, ensure that GELCOAT EP 4062 is compatible with the laminating resin or backfilling resin.

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. Mould surfaces should be treated with ALCHEMIX R7 or suitable release agent. Porous materials should be well sealed.

Stir the EP component thoroughly in order to homogenise the resin. Ensure the two components are at between 20 – 25°C before use. Processing at lower temperatures will result in slower or incomplete cure.

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. The mixing and processing operations should be completed within the pot life of the

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system. The reaction generates heat, do not leave large quantities (more than 10mm thick) to cure.

The mixed material should be evenly applied to the mould by brush, in 0.5mm thick layers. A minimum of two layers should be applied, with a combined thickness of less than 2.5mm. To ensure that each coat adheres, wait until the first coat has gelled to a tack free state before applying successive coats. The gelcoat is tack free if, when a finger is lightly drawn across the surface, no material sticks to it, but if firmly pressed, a mark will remain on the surface. The tack free stage is critical in the gelcoating process and will vary between different gelcoats and different conditions. If the tack free stage is missed then it is likely that de-lamination between the gelcoat layers or the gelcoat and backing resin may result.

Laminating

ALCHEMIX EP 574 high HDT epoxy laminating resin or ALCHEMIX EP 4350 high HDT laminating paste are recommended for use with GELCOAT EP 4062.

If laminating with ALCHEMIX EP 574, we recommend using chopped strand (glass) mat as the reinforcement. Woven cloth, either glass or carbon fibre, is not recommended. Laminating should begin when the gelcoat has reached a tack free state (see above).

If using ALCHEMIX EP 4350, a coupling coat should be used. We recommend using either ALCHEMIX EP 4062C or ALCHEMIX EP 574 with one layer of chopped strand mat. Full technical data is available for these products. Please contact Alchemie Ltd for more information.

Curing and Post Cure

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, followed by 120°C for 3 hours. The part should be fully supported during the post cure cycle to prevent any distortion. When post-curing is complete, allow the part to cool down slowly to room temperature, preferably in the oven. Sudden change in temperature can cause distortion or warping.

The product can be used without post cure or with partial post cure, but will not achieve full high temperature properties. The product can be post cured at higher temperatures (up to 160°C), however, care should be taken if using the product at these temperatures as any air voids from the laminating process can cause bubbling or delamination between the layers.

Storage

GELCOAT EP 4062 and HARDENER H4062 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 4062 and HARDENER H4062 will have a shelf life of 12 months, from the date of production.

Packaging

GELCOAT EP 4062 is supplied in 1kg, 5kg and 20kg containers. HARDENER H4062 is supplied in 150g, 750g and 3kg 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 Data Sheet (TDS) and Safety Data Sheets (SDS) provided by Alchemie Ltd.

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