

Description

ALCHEMIX PU 3720 is a machine-mixed polyurethane paste system that is particularly suitable for the manufacture of design / styling models, master models or parts requiring high strength combined with low density. The product is thixotropic and cures quickly, allowing the rapid build-up of layers and the printing of parts with overhanging sections. The cured material can be easily machined or worked with hand tools to give a smooth surface finish. Printing parts using ALCHEMIX PU 3720 gives a significant reduction in waste when compared to traditional methods.

Features

- Machine mixed and dispensed
- Lightweight
- Fast cure
- Thixotropic / non-sag
- Can be printed with an overhang angle (approx. 20°)
- Less waste than traditional methods

Mix Ratio

	PU 3720A	PU 3720B
By Weight	100	100
By Volume	100	100

Component Data

	Conditions	PU 3720A	PU 3720B
Description	-	Polyol	Isocyanate
Appearance	-	White paste	Blue paste
Viscosity	25°C	Thixotropic paste	Thixotropic paste
Density	25°C	0.69 – 0.79 gcm ⁻³	0.69 – 0.79 gcm ⁻³

Cure Data

	Conditions	Typical Value
Appearance	-	Blue
Mixed Viscosity	25°C	Thixotropic paste
Mixed Density	25°C	0.69 – 0.79 gcm ⁻³

Cure Data (continued)

	Conditions	Typical Value
Pot Life	200g, 25°C	8 – 10 minutes
Cure Time ¹	200g, 50mm, 25°C	90 minutes
	500g, 90mm, 25°C	60 minutes

¹ See "Curing" section below.

Cured Properties

	Standard	Typical Value
Hardness	ISO 868	70 – 75 D
Cured Density ²	-	0.80 gcm ⁻³
Linear Shrinkage ³	500 x 50 x 10mm	< 0.1 %
Tensile Strength	ISO 527	12.0 – 14.0 MPa
Elongation at Break	ISO 527	0.8 – 1.8 %
Tensile Modulus	ISO 527	1250 – 1450 MPa
Flexural Strength	ISO 178	18 – 22 MPa
Flexural Modulus	ISO 178	1400 – 1600 MPa
Glass Transition Temperature (T _g)	DMA	52 – 56 °C
Heat Deflection Temperature (HDT)	Alchemie STM	70 – 75 °C

² See "Processing Instructions" section below.

³ See "Shrinkage" section below.

Resin Preparation

Check both components before use, ensure that each component is homogenised. Ensure the two components are at 20 – 25°C before use.

Processing Instructions

ALCHEMIX PU 3720 is designed to be processed using a suitable mixing and dispensing machine using drum pumps

fitted with follower plates and mixed via the means of a static mixer nozzle. The mixed material should be streak free and of uniform colour. Incomplete mixing or an incorrect mixing ratio will significantly reduce the physical properties of the system and may result in incomplete or no cure. We recommend carrying out regular ratio checks to ensure that the correct quantities are being dispensed. The mixed material should be used within the stated process time. The typical cured density can be affected by processing conditions and casting geometry. For further information on processing ALCHEMIX PU 3720, or for recommended machinery suppliers, please contact Alchemie Ltd.

Curing

The exact cure time will depend on the size and geometry of the part and should be determined by customer testing. Thinner parts will take longer to cure than thicker parts. When casting thin wall sections, ensure that the substrates and resin components are at least 20 – 25°C to facilitate a full cure. Incomplete cure can result in slight distortions or deformations of the components if forces are applied.

Shrinkage

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each design, as factors such as 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. Please contact Alchemie Ltd for more information.

Storage

ALCHEMIX PU 3720A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 3720B may crystallise partially or completely if not stored at above 20°C. Like all polyurethanes, both components are moisture sensitive. Moisture absorption will cause excessive aeration in cast parts. KEEP THE PACKING TIGHTLY SEALED WHEN NOT IN USE. If stored under the above conditions, ALCHEMIX PU 3720A and B will have a shelf life of 3 months, from the date of production.

Packaging

ALCHEMIX PU 3720A is supplied in 200 litre kits.
ALCHEMIX PU 3720B is supplied in 200 litre kits.
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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