

Technical Data Sheet

ALCHEMIX® PU 3675

Fast Cast Polyurethane System
Unfilled, 100 : 100 Mixing Ratio

ALCHEMIX PU 3675 is a low viscosity, two component polyurethane system which can be used to produce patterns, moulds, models and prototypes with excellent fine detail replication. ALCHEMIX PU 3675 can be filled with mineral or metallic fillers for reduced shrinkage, and has rapid demould times even when cast in thin sections.

Special Features

- Extremely rapid demould
- Ultra low viscosity
- Good thermal resistance

Mix Ratio

PU 3675A : PU 3675B
By Weight 100 : 100

Product Data

Property	Units	PU 3675A	PU 3675B	Mix
Material	-	Formulated Polyol	Isocyanate	Polyurethane
Appearance	-	Cream liquid	Straw coloured liquid	Cream liquid
Viscosity (25 °C)	mPa.s	60 – 100	30 – 50	60 – 100
Density (25 °C)	g/cm ³	0.97 – 1.02	1.09 – 1.13	1.03 – 1.08
Pot Life (200g, 25 °C)	Minutes	-	-	2 min 15 – 2 min 45
Demould Time (50g, 10mm, 25 °C)	Minutes	-	-	10 – 15
Demould Time (20g, 2mm, 25 °C)	Minutes	-	-	20 – 25

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Cured Properties

Properties	Standard	Units	PU 3675 (Unfilled)	PU 3675 (150% A91)
Hardness	BS EN ISO 868	Shore D	70 – 75	77 – 82
Linear Shrinkage	500 x 50 x 5 mm	%	< 0.2	< 0.15
Tensile Strength	BS EN ISO 527	MPa	30 – 35	14 – 18
Elongation at Break	BS EN ISO 527	%	5.0 – 7.0	1.0 – 2.5
Tensile Modulus	BS EN ISO 527	MPa	800 – 1000	2100 – 2500
Flexural Strength	BS EN ISO 178	MPa	42 – 47	24 – 28
Flexural Modulus	BS EN ISO 178	MPa	800 – 1000	2100 – 2500
Heat Distortion Temperature (HDT)	TMA	°C	87 – 92	87 – 92
Glass Transition Temperature (Tg)	DMA	°C	115 – 120	115 – 120

Method of Use

Mould Preparation

Ensure that the mould is clean and dry. If the mould is made from wood, metal or resin, use a release agent such as R7. For flexible moulds, use Alchemix RTV silicone rubber. If the mould is made from wood, ensure the wood is well sealed with varnish and/or wax based release agents such as R7. Never use silicone release agents if the units are to be painted.

Resin Preparation

Shake the Part A can thoroughly in order to homogenise the resin. For best results, make sure the two components are at least 20 °C before mixing.

Mixing Instructions

When using unfilled, add the correct amount of Part B to the Part A and stir for 30 seconds. Pour carefully in one place into the mould in order to avoid air inclusion.

If using filled, we recommend the use up to 150% filler. Use ALCHEMIX A91 Aluminium Trihydroxide for general bulking out and shrinkage reduction, or ALCHEMIX A83 Aluminium Powder for higher temperature applications. Large

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quantities of material, filled or unfilled, will always produce more exotherm and will gel quicker than smaller amounts.

If aiming to use 150% filler in a 200g mix, weigh out 100g of part A and mix in 150g filler. Then weigh out 100g of B and mix in 150g filler. Then mix the two components.

Curing

The casting can generally be demoulded in 10 – 25 minutes at room temperature. The precise demould time will vary with casting thickness, as thin section units will cure slower than thicker section units. When casting thin wall sections, ensure that the mould and resins are at least 20 – 25°C to facilitate a good cure and reduce the risk of brittleness. The product is designed to be used at room temperature, but a post cure may improve the properties of the final product. A typical post cure schedule would be 3 hours at 80°C.

Storage

ALCHEMIX PU 3675A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 3675B 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 3675A and B will have a shelf life of 6 months, from the date of production.

Packaging

ALCHEMIX PU 3675A is supplied in 1kg, 5kg and 25kg containers.
ALCHEMIX PU 3675B is supplied in 1kg, 5kg and 25kg containers.

(Please contact Alchemie Ltd for bulk supply)

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Further Information

All data listed relates to typical values. This data should not be considered a product specification.

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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