

ALCHEMIX® PU 3604

*Impact Resistant Polyurethane System
Unfilled, 100 : 100 Mixing Ratio*

ALCHEMIX PU 3604 is an unfilled, no odour, low viscosity two component polyurethane system to which mineral and metallic fillers can be added at variable ratios depending on the application and the required thickness of the casting. ALCHEMIX PU 3604 has excellent physical properties, most notably excellent impact resistance. ALCHEMIX PU 3604 is available as a standard cure speed version (7 – 9 minute pot life) or as a fast cure speed version (2 – 3 minute pot life). The product is pigmented black, but is available in other colours on request.

Special Features

- Excellent impact resistance
- Odourless
- Low viscosity

Mix Ratio

PU 3604A : PU 3604B
By Weight 100 : 100

Product Data

Property	Units	PU 3604FA	PU 3604A	PU 3604B
Material	-	Formulated Polyol	Formulated Polyol	Isocyanate
Appearance	-	Black liquid	Black, red or beige liquid	Pale yellow liquid
Viscosity (25 °C)	mPa.s	400 – 600	400 – 600	80 – 120
Density (25 °C)	g/cm ³	1.02 – 1.07	1.02 – 1.07	1.14 – 1.19
Mix Viscosity (25 °C)	mPa.s	250 – 350	250 – 350	-
Mix Density (25 °C)	g/cm ³	1.08 – 1.13	1.08 – 1.13	-

Technical Data Sheet



Product Data (Cure Speed)

Property	Units	PU 3604FA	PU 3604A	PU 3604B
Pot Life (200g, 25°C)	Minutes	2 – 3	7 – 9	-
Demould Time (200g, 20mm, 25°C)	Hours	TBC	2	-
Demould Time (100g, 5mm, 25°C)	Hours	TBC	4	-
Minimum Casting Thickness	mm	1	2	-

Cured Properties

Properties	Standard	Units	PU 3604F	PU 3604
Hardness	BS 2782: Part 3: Method 365B	Shore D	63 – 68	63 – 68
Linear Shrinkage	500 x 50 x10 mm	%	TBC	< 0.05%
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	TBC	10 – 15
Elongation at Break	BS 2782: Part 3: Method 320B	%	TBC	80 – 85
Maximum Operating Temperature	Alchemie STM	°C	100	100

Method of Use

Mould Preparation

Ensure that the mould is clean and dry and if the mould is made from metal, wood or resin, use a release agent such as R7. For flexible moulds, use Alchemix RTV silicone rubber. Condensation cure moulds can cause inhibition of the product, we recommend using addition cure silicone moulds. If the mould is wooden, ensure the wood is well sealed with varnish and/or wax based release agents such as R7.

Resin Preparation

Shake the Part A can thoroughly in order to homogenise the resin. For best results, ensure that the two components are at 20 – 25°C before mixing.

Mixing Instructions

When using unfilled, add the correct amount of Part B to the Part A and stir for 60 seconds. Pour carefully in one place into the mould in order to avoid air inclusion.

If using filled, we recommend using Alchemix A91 Aluminium Trihydroxide for general bulking out and shrinkage reduction, or Alchemix A83 Aluminium Powder for higher temperature applications. Large quantities of material, filled or unfilled, will always produce more exotherm and will gel quicker than smaller amounts.

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

Curing

The casting can generally be demoulded in 2 – 4 hours 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. To reduce the cure time, the mould can be pre-warmed to 40 – 60°C. It is not recommended to heat the liquid components.

Storage

ALCHEMIX PU 3604A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 3604B 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 3604A and B will have a shelf life of 6 months, from the date of production.

Packaging

ALCHEMIX PU 3604A is supplied in 1kg, 5kg and 25kg containers.
ALCHEMIX PU 3604B is supplied in 1kg, 5kg and 25kg containers.

(Please contact Alchemie Ltd for bulk supply)

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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