

ALCHEMIX® PU 3821

Two Component, Low pressure Reaction Injection Moulding (RIM) Flexible Polyurethane System; Hardness 38 – 42 Shore A

ALCHEMIX PU 3821 is a two component polyurethane system, which is designed for use in low pressure Reaction Injection Moulding (RIM) equipment. The system is ideal for rapid prototyping and limited production runs using metering machine, with or without vacuum. PU 3821 is a soft, flexible, highly elastomeric polyurethane system of 40 shore A.

Special Features

- Low viscosity
- Fast room temperature cure (20 – 25 °C)
- Fast demould (10 – 15 min)
- Highly flexible

Mix Ratio

	PU 3821A : PU 3821B
By Weight	100 : 50
By Volume	100 : 48

Product Data

Property	Units	PU 3821A	PU 3821B	Mix
Material	-	Polyol	Isocyanate	Polyurethane
Appearance	-	Black liquid	Straw colour liquid	Black material
Viscosity (25 °C)	mPa.s	1700 – 1800	22 – 30	600 – 800
Density (25 °C)	g/cm ³	1.00 – 1.04	1.04 – 1.08	1.02 – 1.06
Pot life (200g, 25 °C)	Seconds	-	-	50 – 60
Demould Time (5mm, 25 °C)	Minutes	-	-	10 – 15
Maximum Recommended Thickness	mm	-	-	25

Cured Properties

Properties	Standard	Units	Result (Full Cure)
Hardness	BS 2782: Part 3: Method 365B	Shore A	38 – 42
Linear Shrinkage	500 x 50 x10 mm	%	< 0.2%
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	3.3 – 3.5
Elongation at break	BS 2782: Part 3: Method 320B	%	450 – 500
Tear Strength	BS 903: Part A3	N/mm	7 – 8

Mould Preparation

Ensure that the mould is clean and dry and if the mould is made from metal or resin, use a release agent such as Release Agent R7. For flexible moulds, use ALCHEMIX RTV Silicone Rubber. Never use silicone release agents if the units are to be painted.

Resin Preparation

Stir the Part A container thoroughly in order to homogenise the resin. For best results, ensure the two components are at least 20 °C before mixing.

Mixing instructions

ALCHEMIX PU 3821 requires metering machinery to process the materials. Machines with either piston pumps or geared pumps can be used. Piston pumps should be set to the given mixing ratio. Regularly check that correct ratio is being dispensed from the machine by weighing out the output for both components separately. If the correct ratio is not being dispensed, check that:

1. The nozzle from which the materials are dispensed is not blocked.
2. There is no change on the pump settings (for geared machines).
3. Stock containers for both materials contain sufficient material.

Curing

Casting can generally be demoulded in 10 – 15 minutes at room temperature. The precise demould time will vary with the 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. If brittleness still occurs, check that the machine is dispensing at the correct ratio (see above).

Storage

The product should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 3821B 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, the product will have a shelf life of 6 months, from the date of production.

Packaging

ALCHEMIX PU 3821A is supplied in 5kg and 25kg containers.
ALCHEMIX PU 3821B is supplied in 2.5kg and 12.5kg 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 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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