

## ALCHEMIX® PU 3825

*Two Component, Low pressure Reaction Injection Moulding (RIM)  
Simulates High Density Polyethylene, 75 – 80 Shore D*

ALCHEMIX PU 3825 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 machines, with or without vacuum. ALCHEMIX PU 3825 is a system which is formulated to simulate high density polyethylene.

### Special Features

- Low viscosity
- Fast room temperature cure
- Excellent impact resistance
- Low flexural modulus

### Mix Ratio

	<b>PU 3825A : PU 3825B</b>
<b>By Weight</b>	100 : 78
<b>By Volume</b>	100 : 67

### Product Data

Property	Units	PU 3825A	PU 3825B	Mix
<b>Material</b>	-	Polyol	Isocyanate	Polyurethane
<b>Appearance</b>	-	Black, Grey or White liquid	Brown liquid	Black, Grey or White liquid
<b>Viscosity (25 °C)</b>	mPa.s	800 – 1300	150 – 250	400 – 800
<b>Density (25 °C)</b>	g/cm <sup>3</sup>	1.00 – 1.05	1.16 – 1.21	1.06 – 1.11
<b>Pot life (200g, 25 °C)</b>	Seconds	-	-	50 – 60
<b>Demould Time (5mm, 25 °C)</b>	Minutes	-	-	20 – 25
<b>Maximum Recommended Thickness</b>	mm	-	-	25

## Cured Properties

Properties	Standard	Units	Result (Full Cure)
Hardness	BS 2782: Part 3: Method 365B	Shore D	75 – 80
Linear Shrinkage*	500 x 50 x 4 mm	mm/m	1.2
Tensile Strength	BS 2782: Part 3: Method 320B	MPa	18 – 22
Elongation at break	BS 2782: Part 3: Method 320B	%	4 – 6
Flexural Strength	BS 2782: Part 3: Method 335A	MPa	28 – 32
Flexural Modulus	BS 2782: Part 3: Method 335A	MPa	500 – 700

\* See "Shrinkage" section below.

## 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 3825 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.

For further information on processing ALCHEMIX PU 3825, or for recommended machinery suppliers, please contact Alchemie Ltd.

## **Curing**

Casting can generally be demoulded after 30 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).

## **Shrinkage**

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each casting, as factors such as mould 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 mould temperature and resin temperature can also have an effect. Post curing the part can also lead to a greater degree of shrinkage. Please contact Alchemie Ltd for more information.

## **Storage**

The product should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 3825B 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 3825A is supplied in 5kg and 25kg containers.  
ALCHEMIX PU 3825B is supplied in 4kg and 20kg containers.

(Please contact Alchemie Ltd for bulk supply)

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## **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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