

# ALCHEMIX<sup>®</sup> PU 7450

*Two Part Polyurethane System  
45 Shore A Hardness*

ALCHEMIX PU 7450 is a two-part low viscosity polyurethane resin system that cures to a soft glossy finish. The cured material can be removed easily for repair or observation of defective units. The minimal shrinkage, very low exotherm during cure, and high flexibility of the cured material ensures that the component is prevented from receiving stresses transferred from the resin even under extreme thermal cycling. Other features of this resin include the total water resistance, flexibility down to extremely low temperatures and UL levels of flame retardancy.

## Special Features

- Outstanding electrical properties
- Excellent water resistance
- Very low viscosity
- Low temperature flexibility

## Mix Ratio

	<b>PU 7450A : PU 7450B</b>
<b>By Weight</b>	100 : 12
<b>By Volume</b>	100 : 16

## Product Data

Property	Units	PU 7450A	PU 7450B	Mix
<b>Material</b>	-	Formulated Polyol	Isocyanate	Polyurethane
<b>Appearance</b>	-	Black Liquid	Brown Liquid	Black Liquid
<b>Viscosity (25°C)</b>	mPa.s	12000 – 18000	100 – 150	5000 – 10000
<b>Density (25°C)</b>	g/cm <sup>3</sup>	1.50 – 1.60	1.14 – 1.18	1.47 – 1.52
<b>Pot Life (200g, 25°C)</b>	Minutes	-	-	20 – 30
<b>Cure Time (200g, 25°C)</b>	Hours	-	-	16 – 24
<b>Full Cure (200g, 25°C)</b>	Days	-	-	3 – 7

## Preliminary Technical Data Sheet

### Cured Properties

Properties	Standard	Units	Typical Result (Full Cure)
Hardness	BS EN ISO 868	Shore A	42 – 48
Tensile Strength	BS EN ISO 37	MPa	0.6 – 0.8
Elongation at break	BS EN ISO 37	%	65 – 95
Tear Strength	BS EN ISO 34	kN/m	3.3 – 3.5
Thermal Conductivity (23°C)	NanoFlash LFA 447	W/m.K	0.35
Glass Transition Temperature	DMA	-	Flexible
Maximum Operating Temperature (continuous, 24 hours)	Alchemie STM 24	°C	125
Maximum Operating Temperature (short term, 1 hour)	Alchemie STM 24	°C	150
Minimum Operating Temperature (continuous, 24 hours)	Alchemie STM 24	°C	-60
Water Absorption (25°C, 7 days)	Alchemie STM 20	%	0.5
Flame Retardancy	Alchemie STM 22	-	Excellent

### Electrical Properties

Properties	Standard	Conditions	Units	Typical Result (Full Cure)
Electric Strength	IEC 60243-1	23°C	kV/cm	153
Dielectric Dissipation Factor	IEC 60250	100Hz, 1V, 23°C	-	0.47
Relative Permittivity	IEC 62050	100Hz, 1V, 23°C	-	7.23
Volume Resistivity	IEC 60093	500V, 23°C	Ω.cm	1.27 x 10 <sup>10</sup>

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### **Method of Use**

ALCHEMIX PU 7450 can be hand mixed or machine dispensed. Compatibility with mixing machine should be tested prior to large scale usage. ALCHEMIX PU 7450A and B should be mixed at the stated ratio; deviation from this ratio will reduce the physical properties of the material. Both components should be thoroughly mixed; incomplete mixing will give wet spots, and will reduce the physical properties of the cured system.

### **Storage**

ALCHEMIX PU 7450A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX PU 7450B 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 7450A and B will have a shelf life of 6 months, from the date of production.

### **Packaging**

ALCHEMIX PU 7450A is supplied in 25kg and 5kg containers.

ALCHEMIX PU 7450B is supplied in 5kg and 1kg containers.

ALCHEMIX PU 7450 can also be supplied in 500g or 1kg twinpacks for convenient mixing and dispensing.

(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 familiarize themselves with the relevant Technical and MSDS provided by Alchemie Ltd.

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### 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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