

# Technical Data Sheet

---

## ALCHEMIX<sup>®</sup> VC 3300

*Three Component Polyurethane Vacuum Casting System  
35 – 95 Shore A*

ALCHEMIX VC 3300 is a three component, flexible, polyurethane vacuum casting system. By altering the ratio of the three components, the hardness of the cured rubber can be selected. Very soft elastomers of 35 Shore A through to tough, semi flexible elastomers of 95 Shore A can be achieved. The system is specifically designed for use in gravity vacuum casting machines.

---

### Special Features

- Variable hardness (35 – 95 Shore A)
- Excellent tear strength
- Excellent elongation
- Strong on demould
- Easily pigmentable

### Mix Ratio (By Weight)

Hardness* (Shore A)	35	40	45	50	55	60	65	70	75	80	85	90	95
VC 3300A-35	100	94	87	80	74	67	60	52	44	33	22	11	0
VC 3300A-95	0	6	13	20	26	33	40	48	56	67	78	89	100
VC 3300B	18	19.5	22	24.5	26.5	29.5	32	35	38.5	43.5	48.5	54.5	60.5

\* Hardness can be affected by many factors such as reaction temperature, cup loss, products storage conditions, etc. The values listed are typical values only, they should not be considered as a specification. We would generally expect the hardness to be within 5 Shore A of the stated value.

---

# Technical Data Sheet

## Unmixed Product Data

Property	Units	VC 3300A-35	VC 3300A-95	VC 3300B
Material	-	Polyol	Polyol	Isocyanate
Appearance	-	Off-white liquid	Off-white liquid	Straw coloured liquid
Viscosity (25°C)	mPa.s	500 – 700	750 – 950	200 – 400
Density (25°C)	g/cm <sup>3</sup>	1.00 – 1.05	1.00 – 1.05	1.18 – 1.23

## Mixed Product Data

Property	Units	35A	45A	55A	65A	75A	85A	95A
Appearance	-	Off-white liquid						
Density (25°C)	g/cm <sup>3</sup>	1.02 – 1.07	1.02 – 1.07	1.03 – 1.08	1.03 – 1.08	1.04 – 1.09	1.04 – 1.09	1.05 – 1.10
Mix Viscosity (25°C)	mPa.s	450 – 650	480 – 680	520 – 720	560 – 760	600 – 800	650 – 850	700 – 900
Pot life (200g, 40°C)	Minutes	2 minutes – 2 minutes 30						
Demould Time (70°C)	Minutes	45 – 60 (depending on thickness)						
Maximum Casting Thickness	mm	15						

# Technical Data Sheet

## Cured Properties

Properties	Standard	Units	Result (Full Cure)						
			35	45	55	65	75	85	95
Hardness*	BS EN ISO 868	Shore A	35	45	55	65	75	85	95
Tensile Strength	BS EN ISO 37	MPa	1.5 – 3.5	3.0 – 5.0	4.0 – 6.0	6.0 – 8.0	7.5 – 9.5	9.5 – 11.5	9.5 – 11.5
Elongation at Break	BS EN ISO 37	%	900 – 1100	1100 – 1300	700 – 800	500 – 600	400 – 500	300 – 400	200 – 300
Tear Strength	BS EN ISO 34	kN/m	7 – 11	13 – 17	17 – 23	22 – 28	36 – 42	55 – 61	74 – 80
Maximum Operating Temperature**	Short Term (< 1 hour)	°C	100	100	100	100	120	120	120
	Long Term (24 hours)	°C	60	60	60	60	80	80	80
Linear Shrinkage	500 x 50 x10 mm	%	0.20 – 0.40						
Appearance	-	-	Translucent / white flexible solid.						

\* Hardness can be affected by many factors such as reaction temperature, cup loss, products storage conditions, etc. The values listed are typical values only, they should not be considered as a specification. We would generally expect the hardness to be within 5 Shore A of the stated value.

\*\* Maximum operating temperature is application specific, we recommend customers carry out full testing to determine suitability.

# Technical Data Sheet

---

## **Mould Preparation**

Carefully clean the mould, then spray silicone release agent onto the surface. Ensure that the surface is dry before coupling the mould parts. Heat the mould in an oven to 60 – 70°C; this may take several hours if the mould is very large. Splitting the tool will speed up the warming process. We do not recommend the use of condensation cured silicone rubber with this product. For best results, use ALCHEMIX RTV 250 silicone rubber.

## **Resin Preparation**

Open both A and B containers and examine for any signs of crystallization, place in the oven at 45 – 60°C if any crystals are observed. Both components should be heated to 40°C before use. If using pigments, add the pigment to the part A. We suggest using 1 – 3% pigment.

## **Mixing/casting**

Weigh the appropriate amounts of ALCHEMIX VC 3300A-35 and ALCHEMIX VC 3300A-95 into cup B and the appropriate amount of ALCHEMIX VC 3300B into cup A. When making the first mix allow an additional amount of A to account for the cup loss. Degas for at least 10 minutes, whilst slowly mixing cup B. After degassing, pour cup A into cup B while mixing. Mix the A and B components for 45 seconds, this will ensure thorough mixing of the components. When mixing is complete pour into the mould. When material can be seen exiting from the risers break the vacuum.

## **Curing**

Place the mould in an oven at 70°C for 45 – 60 minutes immediately after casting. Curing time, especially in thin sections, will depend on mould temperature. The warmer the mould, the quicker the cure. We do not recommend this resin to be cast to more than 15 mm depth.

# Technical Data Sheet

---

## **Storage**

ALCHEMIX VC 3300A-35, VC 3300A-95 and VC 3300B should be stored in original, unopened containers between 25 and 30°C. ALCHEMIX VC 3300A-35, VC 3300A-95 and VC 3300B may crystallize partially or completely if not stored at above 25°C.

Like all polyurethanes, all 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 VC 3300A-35, VC 3300A-95 and VC 3300B will have a shelf life of 6 months, from the date of production.

## **Packaging**

VC 3300A-35 is supplied in 1kg containers.

VC 3300A-95 is supplied in 1kg containers.

VC 3300B is supplied in 1kg containers.

## **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 this product users should familiarize themselves with the relevant MSDS provided by Alchemie Ltd.

# Technical Data Sheet

---

## 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.

**Alchemie® and Alchemix® are registered Trademarks of Alchemie Ltd, Warwick Road, Kineton, Warwick, England, CV35 0HU, England, United Kingdom. Ph: +44 (0)1926 641600; FAX: +44 (0)1926 641698**