Technical Data Sheet

ALCHEMIX® VC 3392

Two Part Polyurethane Vacuum Casting System
High Strength, Excellent Impact Resistance

ALCHEMIX VC 3392 is a high temperature, polyurethane vacuum casting resin designed to simulate thermoplastics such as ABS. ALCHEMIX VC 3392 has high temperature resistance, excellent physical properties and fast demould time. The system is specifically designed for use in gravity vacuum casting machines.

Special Features

- High temperature resistance
- Excellent impact resistance
- Excellent resistance to petrol
- Rapid demould
- Easily pigmentable

Mix Ratio

	VC 3392A	**:**	**VC 3392B**
By Weight	100	:	120

Product Data

Property	**Units**	**VC 3392A**	**VC 3392B**	**Mix**
Material	-	Polyol blend	Isocyanate	Polyurethane
Appearance	-	Amber or black liquid	Clear liquid	Amber or black liquid
Viscosity (25°C)	mPa.s	400 – 600	900 – 1500	600 – 800
Density (25°C)	g/cm^3	1.10 – 1.15	1.14 – 1.18	1.12 – 1.17
Pot Life (200g, 25°C)	Minutes	-	-	6 – 9
Demould Time (200g, 25°C)	Minutes	-	-	45 – 60 (depending on thickness)
Maximum Casting Thickness	mm	-	-	15

Cured Properties

Properties	Standard	Units	Typical Value (Post Cure)
Hardness	BS EN ISO 868	Shore D	80 – 85
Linear Shrinkage (Standard VC Cure)	500 x 50 x 5mm	%	0.4 – 0.6
Linear Shrinkage (Post Cure)	500 x 50 x 5mm	%	0.8 – 1.0
Tensile Strength	BS EN ISO 527	MPa	53 – 58
Elongation at Break	BS EN ISO 527	%	7 – 9
Tensile Modulus	BS EN ISO 527	MPa	1200 – 1400
Flexural Strength	BS EN ISO 178	MPa	60 – 65
Flexural Modulus	BS EN ISO 178	MPa	1100 – 1300
Glass Transition Temperature (Tg)	DMA	°C	137 – 142

Mould Preparation

Ensure that the mould is completely clean and free from contamination. 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. The product is not UV stable, pale colours may show signs of discolouration over time.

Mixing/casting

Weigh ALCHEMIX VC 3392A into cup A and ALCHEMIX VC 3392B into cup B. 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 60 seconds, this will ensure thorough mixing of the components. When mixing is complete pour the mixed material 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.

Post-Curing

In order to achieve the maximum heat resistance, the following post cure cycle should be carried out. Allow the product to cure at room temperature for 24 hours and then heat for 1 hour at 60°C, 1 hour at 80°C, 1 hour at 100°C, followed by 3 hours at 130°C.

To prevent any distortion during the post cure cycle, the unit should be placed on a conformer. When post-curing is complete, let the unit cool down slowly to room temperature, preferably in the oven. Sudden change in temperature can cause distortion or warping.

Storage

ALCHEMIX VC 3392A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX VC 3392B may crystallize 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 VC 3392A and B will have a shelf life of 6 months, from the date of production.

Packaging

VC 3392A is supplied in 835g containers.
VC 3392B is supplied in 1kg 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.