# Technical Data Sheet

# ALCHEMIX® VC 3360S

*Two Part, High Temperature Polyurethane Vacuum Casting System*
*85 – 90 Shore D Hardness*

ALCHEMIX VC 3360S is a high temperature, polyurethane vacuum casting resin designed to simulate thermoplastics such Nylon and glass filled Nylon. ALCHEMIX VC 3360S has high flexural modulus, excellent physical properties and fast demould time. The system is specifically designed for use in gravity vacuum casting machines. A fast version, ALCHEMIX VC 3360, is also available.

## ***Special Features***

- High heat resistance
- Extremely rigid
- Very strong on demould
- Rapid demould
- Easily pigmentable

## ***Mix Ratio***

| | VC 3360SA : | VC 3360SB |
|---|---|---|
| **By Weight** | 100 : | 120 |

## ***Product Data***

| Property | Units | VC 3360SA | VC 3360SB | Mix |
|---|---|---|---|---|
| **Material** | - | Polyol blend | Isocyanate | Polyurethane |
| **Appearance** | - | Straw coloured liquid | Straw coloured liquid | Straw coloured |
| **Viscosity (25℃)** | mPa.s | 900 – 1300 | 200 – 400 | 600 - 900 |
| **Density (25℃)** | g/cm$^3$ | 1.04 – 1.09 | 1.18 – 1.23 | 1.11 – 1.16 |
| **Pot life (200g, 40℃)** | Minutes | - | - | 5 – 6 |
| **Demould Time (70℃)** | Minutes | - | - | 45 – 60 (depending on thickness) |
| **Maximum Casting Thickness** | mm | - | - | 15 |

***Cured Properties***

| Properties | Standard | Units | Result (Full Post Cure) |
|---|---|---|---|
| **Hardness** | BS EN ISO 868 | Shore D | 85 – 90 |
| **Linear Shrinkage** | 500 x 50 x10 mm | % | 0.20 – 0.40 |
| **Tensile Strength** | BS EN ISO 527 | MPa | 73 – 75 |
| **Elongation at Break** | BS EN ISO 527 | % | 10 – 12 |
| **Flexural Modulus** | BS EN ISO 178 | MPa | 2900 – 3100 |
| **Glass Transition Temperature** | TMA | ℃ | 82 – 87 |

***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℃; 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℃ if any crystals are observed. Both components should be heated to 40℃ before use. If using pigments, add the pigment to the part A. We suggest using 1 – 3% pigment.

***Mixing/casting***

Weigh ALCHEMIX VC 3360SA into cup A and ALCHEMIX VC 3360SB 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 45 – 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℃ for 20 – 40 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 Cure*

To achieve full high temperature properties, a step wise post cure treatment is recommended. Heat to 70℃ for 1 hour, followed by 80℃ for 2 hours, followed by 110℃ for 2 hours. Then allow the product to slowly return to room temperature. The product can be used without post cure or with partial post cure, but will not achieve full high temperature properties.

## *Storage*

ALCHEMIX VC 3360SA and B should be stored in original, unopened containers between 20 and 25℃. ALCHEMIX VC 3360SB may crystallize partially or completely if not stored at above 20℃. 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 3360SA and SB will have a shelf life of 6 months, from the date of production.

## *Packaging*

VC 3360SA is supplied in 835g containers.
VC 3360SB 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.

***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.