ALCHEMIX® VC 3351

Two Part Vacuum Casting System
Water Clear, UV Stable

ALCHEMIX VC 3351 is a two component UV stable, water clear vacuum casting system designed specifically for use in gravity vacuum casting machines. ALCHEMIX VC 3351 has excellent mechanical properties and can be used to simulate thermoplastics such polycarbonate, shock resistant PMMA and ABS. A slow version ALCHEMIX VC 3351S, is also available.

Special Features

- Optically clear
- UV stable
- Low viscosity
- Easily pigmented

Mix Ratio

	VC 3351A	:	VC 3351B
By Weight	100	:	120

Product Data

Property	Units	VC 3351A	VC 3351B	Mix
Appearance	-	Clear liquid	Clear liquid	Clear liquid
Viscosity (25°C)	mPa.s	300 – 500	100 – 150	100 – 350
Density (25°C)	g/cm^3	1.25 – 1.30	1.08 – 1.13	1.16 – 1.21
Pot Life (200g, 25°C)	Minutes	-	-	8 – 10
Demould Time (70°C)	Minutes	-	-	45 – 60
Maximum Casting Thickness	mm	-	-	TBC

*See “Curing” section.

Physical Properties

Properties	Standard	Units	Result (3hr 80°C Post Cure)
Hardness	BS EN ISO 868	Shore D	75 – 80
Linear Shrinkage	500 x 50 x 5 mm	%	TBC
Tensile Strength	BS EN ISO 527	MPa	60 – 64
Elongation at Break	BS EN ISO 527	%	4.5 – 5.5
Tensile Modulus	BS EN ISO 527	MPa	1500 – 1800
Flexural Strength	BS EN ISO 178	MPa	95 – 100
Flexural Modulus	BS EN ISO 178	MPa	2150 – 2450

Temperature Resistance

Cure Schedule	Standard	Units	Glass Transition Temperature (T_g)
Vacuum Cast Cure (60 minutes at 70°C)	DMA	°C	51 – 55
3 hours at 80°C	DMA	°C	70 – 74
16 hours at 100°C	DMA	°C	86 – 90

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 240 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 25°C before use. If using pigments, add the pigment to the part A. We suggest using 1 – 3% pigment.

Mixing/casting

Weigh ALCHEMIX VC 3351A into cup A and ALCHEMIX VC 3351B into cup B. When making the first mix allow an additional amount of A to account for the cup loss. Degas for 8 minutes, whilst slowly mixing cup B. After degassing, pour cup A into cup B while mixing. Mix the A and B components for 60 to 90 seconds. 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 10 mm depth.

To achieve optimum properties, a post cure is recommended. A typical post cure schedule would be to heat the material for 3 hours at 80°C. To achieve maximum thermal performance an extended post cure of 16 hours at 100°C is advised. 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

VC 3351A and B should be stored in original, unopened containers between 20 and 25°C. VC 3351B 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, VC 3351A and B will have a shelf life of 3 months, from the date of production.

Packaging

VC 3351A is supplied in 835g and 4.175kg containers.
VC 3351B is supplied in 1kg and 5kg 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.

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