Technical Data Sheet

ALCHEMIX® VC 3385 / VC 3385x

Two Part, Flame Retardant Vacuum Casting System
85 – 90 Shore D Hardness

ALCHEMIX VC 3385 is a polyurethane vacuum casting resin with excellent mechanical properties which produces products with high impact resistance and elasticity. ALCHEMIX VC 3385 is a fire retardant material and is specifically designed for use in gravity vacuum casting machines. The product is approved to UL94 V-0.

Special Features

- Flame retardant (UL94 V-0)
- Low viscosity
- Excellent physical properties

Mix Ratio

	VC 3385A :	VC 3385B
By Weight	100 :	120

Product Data

Property	Units	VC 3385A	VC 3385B	Mix
Material	-	Polyol blend	Isocyanate	Polyurethane
Appearance	-	Straw coloured liquid	Straw coloured liquid	Straw coloured liquid
Viscosity (25℃)	mPa.s	500 – 1000	200 – 400	350 – 850
Density (25℃)	g/cm^3	1.17 – 1.22	1.18 – 1.23	1.17 – 1.23
Pot life (200g, 25℃)	Minutes	-	-	7 – 8
Demould Time (70℃)	Minutes	-	-	45 – 60
Maximum Casting Thickness	mm	-	-	15

Cured Properties

Property	Standard	Units	Result (Vac Cast Cure)
Hardness (25℃)	BS EN ISO 868	Shore D	85 – 90
Linear Shrinkage*	500 x 50 x 3mm	%	< 0.2
Tensile Strength	BS EN ISO 527	MPa	80 – 85
Tensile Modulus	BS EN ISO 527	MPa	1500 – 1900
Elongation at Break	BS EN ISO 527	%	6.0 – 8.0
Flexural Strength	BS EN ISO 178	MPa	105 – 115
Flexural Modulus	BS EN ISO 178	MPa	2250 – 2750
Flame Retardancy	UL94 3mm thickness	-	V-0 *(File: E213605)*

** See "Shrinkage" section below.*

Property	Cure	Test Method	Units	Result
Heat Distortion Temperature (HDT)	Standard vacuum casting	TMA	℃	65 – 75
Glass Transition Temperature (Tg)	Standard vacuum casting	DMA	℃	79 – 83
Glass Transition Temperature (Tg)	Post cure (100℃**)	DMA	℃	97 – 101

*** See "Curing" section below.*

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 3385A into cup A and ALCHEMIX VC 3385B into cup B. When making the first mix allow an additional amount of A to account for the cup loss. Degas for 5 – 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 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 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.

A post cure can be applied to the product to improve the temperature resistance. Allow the product to cure at room temperature for 24 hours and then heat for 1 hour at 60℃, 1 hour at 80℃, followed by 3 hours at 100℃. 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. Post curing the product can lead to increased shrinkage.

Shrinkage

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each casting, as factors such as mould size and geometry can affect the degree of shrinkage. Generally speaking, large, thick castings will have a greater degree of shrinkage than small, thin castings. Other factors, such as mould temperature and resin temperature can also have an effect. Post curing the part can also lead to a greater degree of shrinkage. Please contact Alchemie Ltd for more information

Storage

ALCHEMIX VC 3385A and B should be stored in original, unopened containers between 20 and 25℃. ALCHEMIX VC 3385B 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 3385A and B will have a shelf life of 6 months, from the date of production.

Packaging

VC 3385A is supplied in 835g and 4.175kg containers.
VC 3385B is supplied in 1kg and 5kg 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.