Technical Data Sheet

ALCHEMIX® VC 3391

Two Part Polyurethane Vacuum Casting System
83 – 88 Shore D Hardness

ALCHEMIX VC 3391 is a very low viscosity, rigid, polyurethane vacuum casting system formulated for use in gravity vacuum casting machines. ALCHEMIX VC 3391 has excellent physical properties and fast demould time, this vacuum casting system cures in translucent solid and can be pigmented if desired. A slower version Alchemix VC 3391S is also available for the applications where longer working time is required such as complicated and large parts. This product simulates to thermoplastics such as ABS and to some extent polystyrene in cured state.

Special Features

- Very low viscosity
- Fast curing / quick demould (30 – 40 min @ 70℃)
- Excellent mechanical properties
- Translucent, pigmentable material

Mix Ratio

	VC 3391A :	VC 3391B
By Weight	100 :	110

Product Data

Property	Units	VC 3391A	VC 3391B	Mix
Material	-	Polyol blend	Isocyanate	Polyurethane
Appearance	-	Translucent white liquid	Clear Liquid	Translucent white liquid
Viscosity (25℃)	mPa.s	300 – 360	200 – 300	260 – 340
Density (25℃)	g/cm^3	1.00 – 1.05	1.18 – 1.23	1.09 – 1.14
Pot life (200g, 40℃)	Minutes	-	-	2 – 3
Pot life (200g, 25℃)	Minutes	-	-	4 – 5
Demould Time (70℃)	Minutes	-	-	30 – 40 (depending upon thickness)
Casting Thickness	mm	-	-	15 (Max)

Cured Properties

Properties	Standard	Units	Result (7 Day Cure)
Hardness	BS EN ISO 868	Shore D	83 – 88
Linear Shrinkage	500 x 50 x10 mm	%	0.20 – 0.30
Tensile Strength	BS EN ISO 527	MPa	65 – 75
Elongation at Break	BS EN ISO 527	%	7 – 12
Flexural Strength	BS EN ISO 178	MPa	75 – 85
Flexural Modulus	BS EN ISO 178	MPa	2300 – 2600
Glass Transition Temperature	TMA	℃	68 – 72

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 3391A into cup A and ALCHEMIX VC 3391B into cup B. When making the first mix allow an additional amount of A to account for the cup loss. Degas for at least 5 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 30 – 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.

Storage

ALCHEMIX VC 3391A and B should be stored in original, unopened containers between 20 and 25℃. ALCHEMIX VC 3391B 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 3391 A and B will have a shelf life of 4 months, from the date of production.

Packaging

VC 3391A is supplied in 909g containers.
VC 3391B 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.