

Description

ALCHEMIX VC 3345 is a two component UV stable, water clear vacuum casting system designed specifically for use in gravity vacuum casting machines. ALCHEMIX VC 3345 has excellent mechanical and thermal properties, and can be used to simulate thermoplastics such as ABS.

Features

- Optically clear
- UV stable
- Easily pigmented
- High temperature resistance

Mix Ratio

	VC 3345A	VC 3345B
By Weight	100	140

Component Data

	Conditions	VC 3345A	VC 3345B
Description	-	Polyol	Isocyanate
Appearance	-	Colourless liquid	Colourless liquid
Viscosity	25°C	2000 – 2500 mPa.s	50 – 100 mPa.s
Density	25°C	1.04 – 1.09 gcm ⁻³	1.06 – 1.11 gcm ⁻³

Cure Data

	Conditions	Typical Value
Appearance	-	Colourless
Mixed Viscosity	25°C	250 – 350 mPa.s
Mixed Density	25°C	1.05 – 1.10 gcm ⁻³
Pot Life	200g, 25°C	6 mins 30 – 8 mins 30
Demould Time ¹	70°C	45 mins
Maximum Casting Thickness	-	5 mm

¹ See "Curing and Post Cure" section below.

Cured Properties

	Standard	Typical Value	
		Standard Cure ²	Post Cure ³
Hardness	ISO 868	85 – 90 D	85 – 90 D
Linear Shrinkage ⁴	500 x 50 x 3 mm	< 0.2 %	< 0.5 %
Tensile Strength	ISO 527	65 – 70 MPa	70 – 75 MPa
Elongation at Break	ISO 527	5 – 7 %	6 – 8 %
Tensile Modulus	ISO 527	1750 – 1950 MPa	1650 – 1850 MPa
Flexural Strength	ISO 178	90 – 95 MPa	90 – 95 MPa
Flexural Modulus	ISO 178	2100 – 2300 MPa	1900 – 2100 MPa
Glass Transition Temperature (T _g)	DMA	78 – 84 °C	104 – 110 °C

² & ³ See "Curing and Post Cure" section below.

⁴ See "Shrinkage" section below.

Processing Data

	Recommended Value
Part A Temperature	25°C
Part B Temperature	25°C
Mould Temperature	70°C
Cure Temperature	70°C
Vacuum time	8 minutes
Mixing time ⁵	60 – 180 seconds
Cure Time ⁶	45 minutes

⁵ See "Processing Instructions" section below.

⁶ See "Curing and Post Cure" section below.

Mould Preparation

For best results, use ALCHEMIX RTV 240 silicone rubber. Before use, ensure that the mould is clean. Heat the mould in an oven to 70°C; this may take several hours if the mould is very large. Splitting the tool will speed up the warming process. Using a release agent can prolong the life of the

mould, but may affect the surface finish of the cured product. We do not recommend the use of condensation cured silicone rubber with this product.

Resin Preparation

Open both A and B containers and examine for any signs of crystallization. If crystallization has occurred, place the container in an oven at 50 – 60°C for approximately 2 hours, gently shaking the container every 30 minutes. Both components should be heated to 25°C before use. If using pigments, add the pigment to the part A. We suggest using a maximum of 3% pigment.

Processing Instructions

ALCHEMIX VC 3345 should be processed in a gravity vacuum casting machine. Weigh the part A into the larger mixing cup and the part B into the smaller cup. Allow an additional amount of part B to account for the cup loss. Degas for 8 minutes, whilst slowly mixing the part A. After degassing, pour the part B into the part A whilst mixing. Mix the two components for a minimum of 60 seconds. It may be necessary to mix for up to 3 minutes, until the mixed material becomes clear. When mixing is complete pour the mixed material into the mould. When material can be seen exiting from the risers break the vacuum.

Curing and Post Cure

Immediately after casting, place the mould in an oven at 70°C for 45 minutes. Curing time, especially in thin sections, will depend on mould temperature. The warmer the mould, the quicker the cure. Larger castings may require a shorter curing time, smaller castings may require a longer curing time. Demould immediately, do not leave in the mould for prolonged periods of time (more than 90 minutes).

To achieve optimum properties, a post cure is recommended. A typical post cure schedule would be a step wise heat treatment of 1 hour at 80°C, 1 hour at 100°C, followed by 1 hour at 120°C. The part should be fully supported during the post cure cycle to prevent any distortion. When post-curing is complete, allow the part to cool down slowly to room temperature, preferably in the oven. Sudden change in temperature can cause distortion or warping.

Shrinkage

The shrinkage value above is quoted as a guide only. Shrinkage will vary with each mould design, 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 3345A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX VC 3345B 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, ALCHEMIX VC 3345A and B will have a shelf life of 3 months, from the date of production.

Packaging

ALCHEMIX VC 3345A is supplied in 715g kits.
ALCHEMIX VC 3345B is supplied in 1kg kits.
Please contact Alchemie Ltd for bulk supply.

Further Information

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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 Data Sheet (TDS) and Safety Data Sheets (SDS) provided by Alchemie Ltd.

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