ALCHEMIX VC 3385

Description

ALCHEMIX VC 3385 is a polyurethane vacuum casting resin with fire retardant properties. ALCHEMIX VC 3385 is specifically designed for use in gravity vacuum casting machines. The product is approved to UL94 V-0 and FAR25.853

Features

- Flame retardant to UL94 V-0 & FAR25.853
- Low viscosity
- Excellent physical properties

Mix Ratio

	VC 3385A	VC 3385B
By Weight	100	120

Component Data

	Conditions	VC 3385A	VC 3385B
Description	-	Polyol	Isocyanate
Appearance	-	Straw coloured liquid	Straw coloured liquid
Viscosity	25°C	500 – 1000 mPa.s	200 – 400 mPa.s
Density	25°C	1.17 – 1.22 gcm^{-3}	1.18 – 1.23 gcm^{-3}

Cure Data

	Conditions	Typical Value
Appearance	-	Straw coloured
Mixed Viscosity	25°C	350 – 850 mPa.s
Mixed Density	25°C	1.17 – 1.23 gcm^{-3}
Pot Life	200g, 25°C	7 – 8 minutes
Demould Time[1]	70°C	45 – 60 minutes
Maximum Casting Thickness	-	15 mm

[1] See "Curing and Post Cure" section below.

Cured Properties

	Standard	Typical Value (Standard Cure[2])
Hardness	ISO 868	85 – 90 D
Linear Shrinkage[3]	500 x 50 x 3 mm	< 0.2 %
Tensile Strength	ISO 527	80 – 85 MPa
Elongation at Break	ISO 527	6.0 – 8.0%
Tensile Modulus	ISO 527	1500 – 1900 MPa
Flexural Strength	ISO 178	105 – 115 MPa
Flexural Modulus	ISO 178	2250 – 2750 MPa
Heat Distortion Temperature (HDT)	TMA Standard cure[2]	65 – 75 °C
Glass Transition Temperature (Tg)	DMA Standard cure[2]	79 – 83 °C
	DMA 100°C post cure[2]	97 – 101 °C
Flame Retardancy	UL94	V-0 (3mm thickness) File: E213605
	FAR 25.853 (a) App. F Pt. I(a)(1)(i)&(b)(4) 60 seconds, Vertical	Pass (2mm thickness)

[2] See "Curing and Post Cure" section below.
[3] See "Shrinkage" section below.

Processing Data[4]

	Recommended Value
Part A Temperature	40°C
Part B Temperature	40°C
Mould Temperature	70°C
Cure Temperature	70°C
Vacuum time	5 – 10 minutes
Mixing time	45 seconds
Cure Time[5]	45 – 60 minutes

[4] See "Processing Instructions" section below.
[5] See "Curing and Post Cure" section below.

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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 40°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 3385 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 5 – 10 minutes, whilst slowly mixing the part A. After degassing, pour the part B into the part A whilst mixing. Mix the two components for 45 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 and Post Cure

Immediately after casting, place the mould in an oven at 70°C for 45 – 60 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. To achieve optimum properties, a post cure is recommended. A typical post cure schedule would to allow the part to cure for 24 hours at room temperature and then follow a step wise heat treatment of 1 hour at 60°C, 1 hour at 80°C, followed by 3 hours at 100°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 3385A and B should be stored in original, unopened containers between 20 and 25°C. ALCHEMIX VC 3385B 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 3385A and B will have a shelf life of 6 months, from the date of production.

Packaging

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