ALCHEMIX® PU 3615S

Two Component Rigid Polyurethane Foam System
80 kgm^{-3} Free Rise Density

ALCHEMIX PU 3615S is a two component polyurethane foam system, that when mixed gives a medium density rigid foam. ALCHEMIX PU 3615S can be used for a variety of applications such as structural infill of hollow components .The foam is durable and has excellent physical properties. Typical free rise density is between 80 – 88 kgm^{-3}.

Mix Ratio

	PU 3615SA :	PU 3615SB
By Weight	100 :	95
By Volume	100 :	83.4

Product Data

Property	Units	PU 3615SA	PU 3615SB	Mix
Material	-	Formulated polyol blend.	Isocyanate	polyurethane
Appearance	-	Clear yellow liquid	Brown liquid	Yellow rigid foam
Viscosity (25℃)	mPa.s	550 – 750	180 – 240	-
Density (25C)	g/cm^3	1.05 – 1.10	1.20 – 1.25	-
Cream Time (100g, 25℃)	minutes & seconds	-	-	1 min 20 – 1 min 40
Thread Formation Time (100g, 25℃)	minutes & seconds	-	-	5 min – 5 min 40
Rise Time (100g, 25℃)	minutes & seconds	-	-	8 min – 8 min 40
Exotherm (100g, 25℃)	℃	-	-	TBC
Demould Time (15mm, 25℃)	minutes	-	-	TBC
Demould Time (50mm, 25℃)	minutes	-	-	TBC

Cured Properties

Properties	Units	Result (Full Cure)
Free Rise Density	kgm^{-3}	80 – 88
Thermal Conductivity	$W.mK^{-1}$	0.033

Method of Use

Calculating Shot size

To calculate how much ALCHEMIX PU 3615S is required to fill the cavity, known as the "shot size", first calculate the volume of the cavity (in m^3). The amount of foam required is then calculated as follows:

Amount of PU 3615S (kg) = Desired Density (kgm^{-3}) $\times$ Cavity Volume (m^3)

ALCHEMIX PU 3615S has a free rise density of approximately 80 kgm^{-3}, but for best results the foam should be overpacked to give a minimum moulded density of approximately 100 kgm^{-3}.

Preparation

ALCHEMIX PU 3615SA and SB components should be processed at a temperature of 18 – 25℃, using the product at temperatures lower than 18℃ will give inferior physical properties. The cavity to be filled should be at 25℃. The cavity should be dry and free from contamination such as grease, dust or dirt. It is important to allow some small bleed holes in the cavity to allow any gas generated to escape.

Mixing and Pouring

Once the mould has been prepared, accurately weigh out the required quantity of ALCHEMIX PU 3615SA into a clean mixing vessel. Weigh the required amount of ALCHEMIX PU 3615SB into the mix vessel and immediately mix the two components until they are homogenized. The mixed material should be cream/ brown in colour and should be streak free. Poor mixing will result in poor quality foam. Immediately pour the mixed material into the cavity. It is important that the mixing/ pouring operation is completed before the cream time of the foam (10 seconds).

Full Cure

ALCHEMIX PU 3615S is a fast curing system, the foam can be cut after a minimum of 2 hours, full cure will take up to 72 hours. It should be noted that reaction times and cure time are affected by factors such as liquid temperature, cavity temperature, room temperature and cavity volume and shape. For this reason, trials should be carried out to determine the minimum cure time for each individual system.

Trials

When using ALCHEMIX PU 3615S for the first time, or when using new cavity shapes or volumes, trials must be carried out to determine the appropriate shot size.

Storage

ALCHEMIX PU 3615SA and SB should be stored in original, unopened containers between 20 and 25℃. ALCHEMIX PU 3615SB may crystallise 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 PU 3615SA and SB will have a shelf life of 6 months, from the date of production.

Packaging

ALCHEMIX PU 3615SA is supplied in 5kg containers.
ALCHEMIX PU 3615SB is supplied in 4.75kg containers.

Further Information

Please contact our Technical Department for any further advice on the use of this product. 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.

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