



TECHNICAL BULLETIN
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PRODUCT INFORMATION

ULTIFIL 3000-020

2 PART POLYURETHANE
FLEXIBLE
LOW VISCOSITY
FLAME RETARDANT TO UL94 VO
NO HALOGEN
ROHS COMPLIANT
BLACK
CLASS B

ULTIFIL 3000 020 TWO-PART POLYURETHANE IN-FILL COMPOUND

GENERAL DESCRIPTION

Ultifil 3000-020 is a flexible, two-part polyurethane infill compound with excellent tear resistance. The material has a very low mixed viscosity and a long pot life to allow maximum encapsulation of inserts without voids. The material has flame retardancy to UL94 VO and is designed to give lower smoke levels and less corrosive emission during the initial period of a fire. The system also features good adhesion to cases with exceptionally low pressure on inserts, together with excellent moisture resistance, electrical and mechanical properties.

APPLICATION

For the encapsulation, sealing and potting of electronic and electrical components.

SPECIFICATION

PROPERTIES OF THE COMPONENTS	BASE	HARDENER
Viscosity @ 25°C poise	23-28	1 - 2
Specific gravity	1.48 - 1.52	1.20 - 1.26
Appearance	Black	Brown

NOTE: Due to the introduction of improvements from time to time the right is reserved to supply products that may differ slightly from those illustrated or described in this publication.

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PROPERTIES OF THE MIXTURE -

Mix ratio base: hardener	4.88:1 pbw
	4:1 pbv
Viscosity @ 25°C poise	12-16
Specific gravity	1.43 - 1.47
Usable life 500 grams mass	60 mins at room temp.

WORKSHOP PRACTICE

Most problems occur with 2 part systems due to the failure to mix correctly. The following procedure is recommended:

Stir the base component prior to mixing to ensure any settled filler is included. Where plastic lined returnable kegs are being used the stirring process should be restricted so as to not puncture the plastic bag. If time permits this initial stir is made easier if the base component only is heated to 30-40°C and stirred some hours before the 2 components are mixed. Use of still warm base component will reduce the usable life of the mixture.

This system is best mixed through a suitable mixing machine, but it can be mixed by hand. For hand mixing the components should be measured out by weight or volume, but it should be noted the usable life of the mixture decreases as the weight of the mix increases.

When hand mixing shorter gel time versions ensure the base and hardener are mixed thoroughly which can take up to 4-5 minutes. This leaves little time to pour the reacting mixture into moulds, it is therefore recommended sufficiently small allocates are mixed so the high wastage is avoided.

Water contamination of components, cases or the compound will cause problems of foaming on potted components. When using polyurethane compounds WATER CONTAMINATION SHOULD BE AVOIDED.

CURE SCHEDULE

500 grams mass hard	18 hrs	at room temp.
full	72 hrs	at room temp.

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PROPERTIES OF CURED COMPOUND (provisional)

Shore D hardness	DIN 53505	50-60	
Flammability	UL94	V0	
Tensile strength	ISO527	12	mPa
Elongation at break	ISO527	80%	
Deflection temperature	DIN 53458	<ambient	°C
Thermal Conductivity	ISO 8894-1	0.32	W/M/K
Coefficient of linear thermal expansion	DIN 53752	135	$\times 10^{-6}K^{-1}$
Water absorption	ISO 62	0.18%	
Dielectric strength	IEC 243	190	Kv/cm.
Dielectric constant	IEC 250	5.3	50Hz
Volume resistivity Log10 ohm	IEC 93	>13	Ω/cm
Tracking index	IEC112	>600	V

STORAGE

Between 5°C and 30°C in sealed containers. Avoid contamination with moisture. Shelf-life 12 months.

PACKAGING

- 5.88kg kits
- 5 x 6kg base + 6.15 kg hardener
- 30kg base + 6.15 kg hardener
- 5 x 30kg base + 30.75 kg hardener

HEALTH & SAFETY

See relevant Material Safety Data Sheet.

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