Qualities that Bond

TECHNICAL BULLETIN

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PRODUCT INFORMATION
ULTIFIL 3000-041#
2 PART POLYURETHANE
RIGID WITH RESILIENCE
UL RECOGNISED File No.E174454
FLAME RETARDANT TO UL94 VO
NO HALOGEN, ANTIMONY
BLACK
POTENTIAL WORKING TEMPERATURE UP TO CLASS B

ULTIFIL 3000-041#FLAME RETARDANT POLYURETHANE INFILL COMPOUND

GENERAL DESCRIPTION

Ultifil 3000-041# is a rigid, two part polyurethane infill compound with UL recognition for thermal index and flame retardancy. The material has a low mixed viscosity and is available in a range of gel time versions allowing users to tailor processing to individual needs. The material is designed to give low smoke levels and less corrosive emissions during the initial period of a fire. The system also features good adhesion to cases with minimum pressure on inserts, together with excellent moisture resistance, electrical and mechanical properties.

APPLICATION

For the encapsulation, sealing and potting of electronic and electrical components, specifically designed for the centre fill on toroidal transformers.

SPECIFICATION

PROPERTIES OF THE COMPONENTS		BASE	HARDENER
Viscosity @ 25°C	poise	55 - 70	1 - 2
Specific gravity		1.55-1.59	1.20 - 1.26
Appearance		Black	Brown

PROPERTIES OF THE MIXTURE -		
Mix ratio base: hardener		4.4:1 pbw 3.5:1 pbv
Viscosity @ 25°C	poise	20- 27
Specific gravity		1.48-1.52
Usable life 1000 grams mass		4-5min
Gel time 100grams at 25°C		25-35min

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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 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 ensures 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	3-4 hrs	at room temp.
Full	72 hrs	at room temp.

PACKAGING

5.4kg kit
4 x 6.75kg base + 6.15 kg hardener
27 kg base + 6.15 kg hardener
5 x 27 kg base + 30.75 kg hardener
250kg drms

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PROPERTIES OF CURED COMPOUND

Shore D hardness	DIN 53505	85	
Flammability File number E174454	UL94	V0	
Relative thermal index 100,000 hrs E174454	UL746b	115	°C
Thermal classification 20,000hrs	IEC216	130	°C
Tensile strength	ISO527	32	mPa
Elongation at break	ISO527	8%	
Deflection temperature	DIN 53458	48	°C
Thermal Conductivity	ISO 8894-1	0.45	W/M/K
Coefficient of linear thermal expansion	DIN 53752	95	$x10^{-6}K^{-1}$
Water absorption	ISO 62	0.18%	
Dielectric strength	IEC 243	189	Kv/cm.
Dielectric constant	IEC 250	4.5	50Hz
Dissipation factor	IEC 250	0.05	50Hz
Volume resistivity Log10 ohm	IEC 93	>14	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.

HEALTH & SAFETY

See relevant Material Safety Data Sheet.

AEV Plc Issue no. 6 Date: 20.05.06

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