



TECHNICAL BULLETIN

PRODUCT INFORMATION

ULTIFIL 3000-050NS



2 PART POLYURETHANE
SEMI RIGID
FLAME RETARDANT TO UL94 VO
UL RECOGNISED
BLACK
LONG POTLIFE
POTENTIAL WORKING TEMPERATURE UP TO CLASS B

ULTIFIL 3000-050NS FLAME RETARDANT POLYURETHANE INFILL COMPOUND

GENERAL DESCRIPTION

Ultifil 3000-050NS is a black, semi rigid, UL recognised two-part polyurethane infill compound. The material has a low mixed viscosity and has a slower gelation period for hand mixing or larger volume processes. The cured product is recognised as suitable for use in UL systems requiring UL94 flame retardancy to a VO rating, 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 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.

SPECIFICATION

PROPERTIES OF THE COMPONENTS		BASE	HARDENER
Viscosity @ 25°C	poise	45 - 55	1 - 2
Specific gravity		1.52 - 1.55	1.20 - 1.26
Appearance		Black	Brown

PROPERTIES OF THE MIXTURE -

Mix ratio base: hardener	4.77:1 pbw 3.95:1 pbv
Viscosity @ 25°C	poise 20 - 25
Specific gravity	1.44 - 1.48
Gel time 100grms @ 25°C	80-120 mins
Usable life 500 grams mass	60 mins at room temp.

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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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 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 allocations 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	16 hrs at room temp.
full	72 hrs at room temp.

PACKAGING

4 x 7.35kg	base + 6.15 kg hardener
29 kg	base + 6.15 kg hardener
5 x 29 kg	base + 30.75 kg hardener
1kg	Link Packs
5.77kg	Kit

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PROPERTIES OF CURED COMPOUND

Shore D hardness	DIN 53505	75	
Flammability File number E174454	UL94	V0	
Tensile strength	ISO527	27	mPa
Elongation at break	ISO527	22%	
Deflection temperature	DIN 53458	42	°C
Thermal Conductivity	ISO 8894-1	0.32	W/M/K
Coefficient of linear thermal expansion	DIN 53752	110	$\times 10^{-6} \text{K}^{-1}$
Water absorption	ISO 62	0.18%	
Dielectric strength	IEC 243	206	Kv/cm.
Dielectric constant	IEC 250	4.6	50Hz
Dissipation factor	IEC 250	0.07	50Hz
Volume resistivity Log10 ohm	IEC 93	>14	Ω/cm
Tracking index	IEC112	>600	V
Impact strength	ISO 179	4.5	N/mm

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.

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