



PRODUCT INFORMATION

**ULTIFIL 2001 – 810STB**

2 PART EPOXIDE

BLACK

HIGH THERMAL CONDUCTIVITY

FLAME RETARDANT UL94 VO (File No. E174454)

WORKING TEMPERATURE IN SYSTEMS UP TO CLASS H



**ULTIFIL 2001-810STB**

**Ultifil 2001–810STB** is a highly filled, black, two-component epoxide resin system. The system is designed to give good thermal conductivity and excellent electrical characteristics at elevated temperatures up to class H whilst achieving a low mixed viscosity for easy processing. The resin has excellent electrical properties together with superior thermal shock resistance. The material is recognised for flame retardant to UL94VO.

APPLICATION

UF810STB is suitable for high temperature applications where cost effective flame retardancy and thermal endurance are required. e.g. stator potting, magnets and other bulk casting applications. Suitable for working in UL OBJS2 systems at 180°C File No. 321249

SPECIFICATION

PROPERTIES OF THE BASE -

Viscosity @ 25°C	poise	290 – 350
Density	g/ml	1.84 – 1.90
Appearance		Black liquid.

PROPERTIES OF THE HARDENER -

Viscosity @ 25°C	poise	0.2
Density	g/ml	0.96
Appearance		Clear

**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.

Email: [aev@aev.co.uk](mailto:aev@aev.co.uk)  
[www.aev.co.uk](http://www.aev.co.uk)

AEV Limited,  
Marion Street, Birkenhead,  
Wirral. U.K CH41 6LT  
Tel: ++ 44 (0) 151 647 3322  
Fax: ++ 44 (0) 151 647 3377



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PROPERTIES OF THE MIXTURE -

Mix ratio base: hardener		19.8: 1 pbw
		10: 1 pbv
Viscosity @ 25°C	poise	40 – 50
	@ 40°C poise	30
	@ 50°C poise	20
Specific gravity	g/ml	1.76 – 1.82
Gel Time @ 25°C	minute	160 - 230
Usable life 500 grams mass		45 min at room temp. 28 min at 40°C 14 min at 50°C
Exotherm Temperature 500gm mass		77°C at 40°C 89°C at 50°C

**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. The stirring process should scrape the bottom and the sides of the container and be sufficient to ensure there are no dead areas of unmixed material but should also be a relatively slow process stirring in a horizontal circular motion so that minimal air is included into the mix. If time permits this initial stir is made easier if the base component only is heated to 30-40°C and stirred some hour before the 2 components are mixed. Use of still warm base component will reduce the usable life of the mixture. The base and hardener can be measured out by weight, volume or by using all of the pre-weighed kit, but it should be noted the usable life of the mixture decreases as the weight of the mixture increases. Ensure the base and hardener are mixed thoroughly using the scraping minimal air inclusion method described previously. This mixing process can take up to 4-5 minutes, and it is recommended that, if the usable life allows, extra time is spent mixing at this stage where failure to mix is most frequent.

When curing the material in larger quantities there is the risk of a heat generating reaction this can lead to components reaching high temperatures and undesirable internal stresses within the system. The extent of the heat generated depends, the temperature, the heat sink of the system and the quantity of the resin.

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**CURE SCHEDULE**

500 grams mass	hard	24 hrs	at room temp.
	Full	72 hrs	at room temp.
Elevated temperature cure (recommended)		4 hrs	at 60°C
		2 hrs	at 80°C

**PROPERTIES OF CURED COMPOUND –**

Shore D hardness	DIN 53505	88
Thermal Class	ASTMD2307	180°C (20k Hrs)
Limiting oxygen index		35%
Deflection temperature	BS2782	48°C
Coefficient of linear thermal expansion	DIN 53752 alpha1	45x10 <sup>-6</sup> K <sup>-1</sup>
	alpha2	102x10 <sup>-6</sup> K <sup>-1</sup>
Elongation at Break	ISO 527	1 %
Tensile strength	ISO 527	55 N/mm <sup>2</sup>
Thermal Conductivity	ISO 8894-1	1.0 W/M/K
Dielectric strength	IEC 243-1	200 kV/cm.
Dielectric constant	IEC 250	5.4 50Hz
Volume resistivity	IEC 93	>10 <sup>13</sup> ohm/cm
Flame retardancy File NoE174454	UL94	VO 3mm
Water absorption	ISO 62	0.18 %
Tracking index	IEC112	>600 V

**STORAGE**

24 months shelf life, stored between 10°C and 30°C.  
Filled epoxide systems can have a tendency to settle.  
Ensure the base is stirred before mixing.

**PACKAGING**

5 kg, 1 kg kits

**HEALTH & SAFETY**

See relevant Material Safety Data Sheet.

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