

*Qualities that Bond*TECHNICAL BULLETIN
TECHNICAL BULLETIN**PRODUCT INFORMATION****ULTIMEG 2002L**

SINGLE COMPONENT

HEAT CURE EPOXY

DIP AND V.P.I APPLICATION

LOW VISCOSITY

SOLVENTLESS

"0" V.O.C

CLASS H (180°C)

UL FILE NUMBER E220579**ULTIMEG 2002L SOLVENTLESS IMPREGNATING EPOXY RESIN****GENERAL DESCRIPTION**

ULTIMEG 2002L is a solventless, single component, epoxy impregnating resin, which gives 100% filled windings with exceptional high bond strengths at all operating temperatures up to Class H (180°C). The especially low viscosity of the resin allows penetration into windings even when applied by dipping processes. Alternately when the material is applied by VPI methods in highly taped systems it gives excellent penetration with good retention and lower secondary drainage characteristics. The cured product exhibits excellent mechanical and electrical properties throughout its working temperature range together with a high level of performance in its resistance to chemicals and moisture. Other benefits featured are good heat transfer characteristics, no flash point, and excellent tank stability.

APPLICATION

A general purpose, zero VOC resin designed for dipping and vacuum pressure impregnation of transformers, chokes, relays and fields, together with most types of electrical motors. Suitable for vacuum pressure impregnation of wound cores. The resin has excellent chemical resistance and is suitable for equipment used in chemical plants, offshore and marine locations, and other difficult environments.

SPECIFICATION

VISCOSITY	Brookfield viscometer @ 25°C	3.5 – 5.5 poise
GEL TIME	10 grms @ 165°C	5-10 mins
SPECIFIC GRAVITY	@ 21°C	1.10 - 1.14
SHELF LIFE	@ 20°C	12 months

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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PROCESSING

METHOD	Dip, Roll and Vacuum pressure impregnation
VISCOSITY	1. As supplied 2. If a lower viscosity is required the material can be warmed to 30-40°C. DO NOT HEAT ABOVE 40°C (see workshop practice).

WORKSHOP PRACTICE

Impregnation at a lower viscosity might be required to give penetration for some winding designs.

This is undertaken by applying the resin at 30-40°C. CARE SHOULD BE TAKEN during this process to only heat small quantities of the resin gently to 40°C. Processing at 40°C will make the system is less thermally stable.

After processing with preheated components, ideally the resin should be cooled to 16 - 18°C. This is the best holding temperature for the bulk and drum stock.

AEV offer a tank monitoring service to ensure the material is kept in the requisite condition.

If good tank practices are observed tank stability will be satisfactorily maintained by replenishing the volume of resin in the tank every 12-18months.

Poor tank maintenance and failure to replenish the resin in the tank can result in premature aging of the material and in the worst-case gelation or exotherm.

For difficult to impregnate components typical requirements for vacuum and pressure are 0.5-20 mbar and 1-6 bar respectively.

On long term storage if temperature drop below 10°C there is a minimal risk of crystallization (material thickens and has a granular nature. If suspected gently warm with stirring to 40°C. TAKE CARE AS ABOVE).

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CURE SCHEDULE

Cure times are dependant on component size and design, together with the oven efficiency. The figures given are typical.

TIME (hours)	12-16	6-8	3-4	1-2
TEMPERATURE (°C)	130	140	150	165

To maximise properties a cure of 24 hours @ 150°C or an additional post cure of 8 hours at 180°C is recommended.

PROPERTIES OF CURED RESIN

BOND STRENGTH	ASTM D2519	20°C	26kg
		150°C	5.4kg
THERMAL ENDURANCE	UL1446	File No.E220579 20,000 hours	180°C
DIELECTRIC STRENGTH	IEC243 50µM film	At 50Hz & 20°C	104 v/µM
		At 50Hz & 150°C	50 v/µM
		24hr water immersion	75 v/µM
VOLUME RESISTIVITY	IEC 93	20°C.	>14log Ohm Cm
DIELECTRIC CONSTANT	IEC250	At 50Hz	4.0
COMPARITIVE TRACKING INDEX	IEC112	Proof test	>550V
THERMAL CONDUCTIVITY	VDE0304		0.2W/mK
SHORE D-HARDNESS	DIN53505		87

HEALTH AND SAFETY

Refer to Material Safety Data Sheet available.

PACKAGING

5kg, 25kg, 220kg

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