



TECHNICAL BULLETIN
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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.

Email: aev@aev.co.uk
www.aev.co.uk

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



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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 | At 50Hz & 20°C | 104 v/μM |
| | 50μM film | 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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