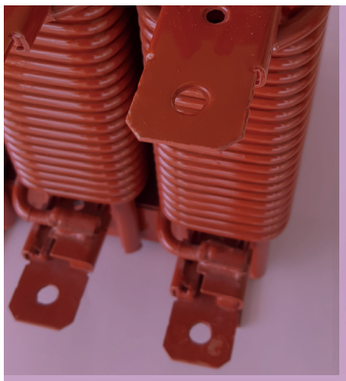
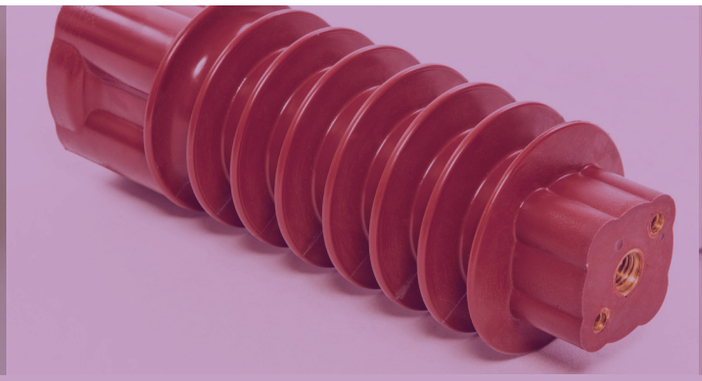
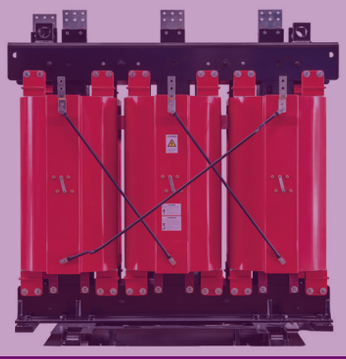
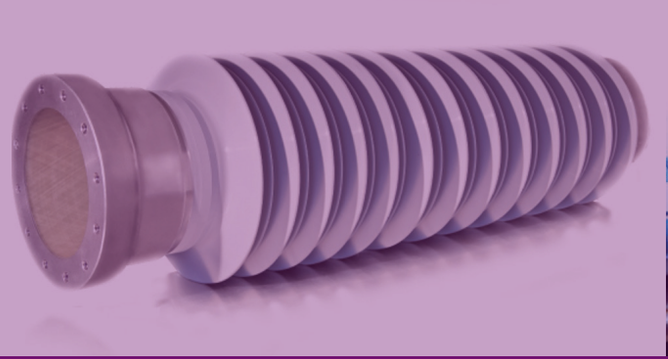
Member of isovolta GROUP

# AEV RANGE OF PRODUCTS

## Electrical Insulating Varnishes & Resins

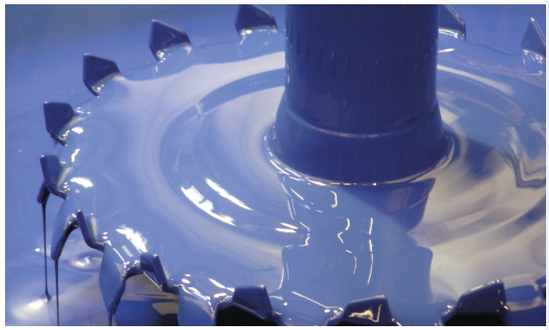

# Guide To Selection

ULTIMEG®
ULTIFIL®
VILEPOX®

Qualities that Bond

State-of-the-art production processes
Innovative products
International production facilities

# Producer of electrical insulating varnishes, resins and compounds to satisfy all global customer requirements

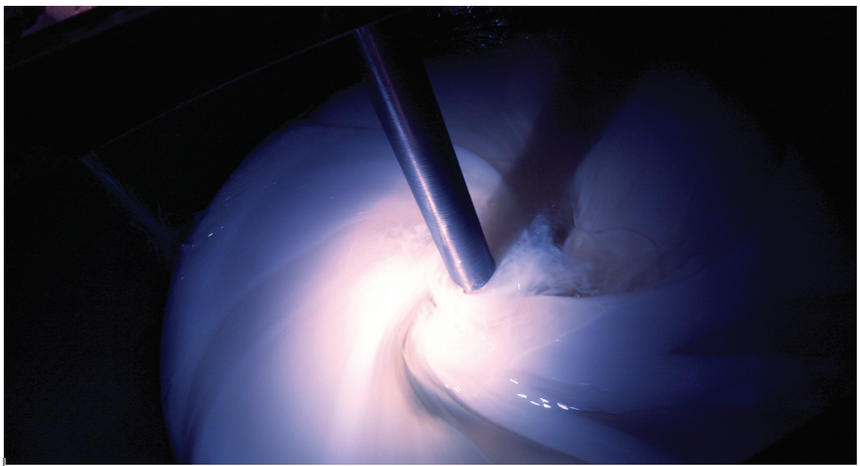



**The AEV group, now a member of Isovolta AG, is a leading international manufacturer of electrical insulating resins, varnishes and compounds used in the production of electrical and electronic components around the world.**

Our products are used in the manufacture of a wide range of electrical machines and electronics, from domestic appliances to industrial products for the defence, energy and transport industries. The current product range is the result of years of research and development by a highly skilled and dedicated team. Each product has been chemically engineered to deliver advanced performance in its unique application, balanced with responsible sourcing and environmental considerations.

The AEV brand will continue to grow and thrive under the Isovolta umbrella. 16 production and sales locations in 11 countries, holding laboratories and testing facilities rely on many years of experience in the synthesis and conversion of raw materials into highly reliable, intelligent materials. Material and technology know-how, flexibility and innovative spirit determine product development and characterise the partnership with customers.

**16 locations, 1270 employees, dedicated to your success!**



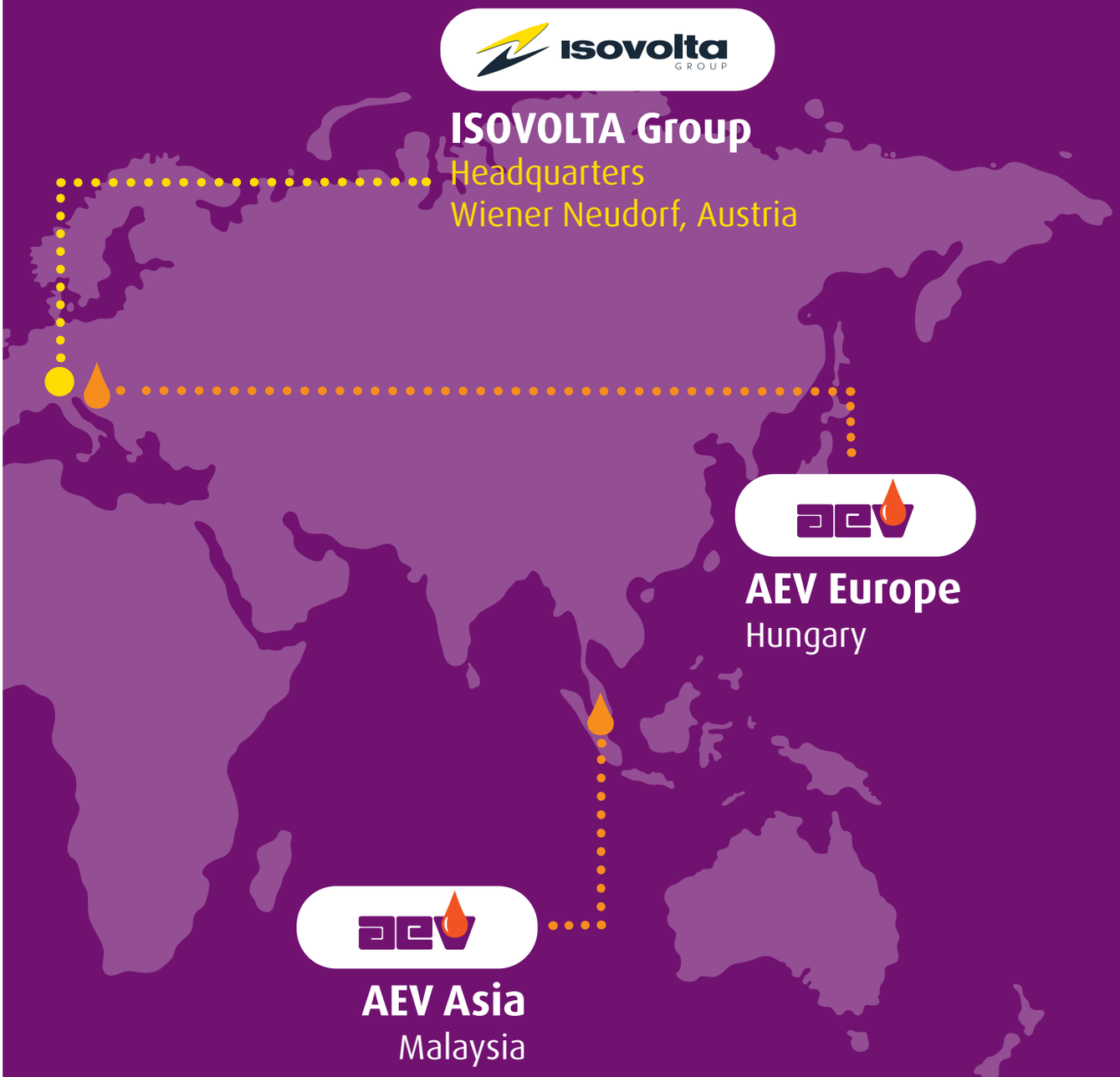
# AEV Worldwide

**ISOVOLTA Inc.**
Rutland, Vermont

**ISOVOLTA Inc.**
Mexico City, Mexico

**AEV Ltd.**
United Kingdom

The AEV group, now a member of Isovolta AG, has over the years, evolved into a global group of companies supplying its range of innovative products from multiple manufacturing locations worldwide.



# Epoxy Resins

| | | Thermal Class<br>Class according to UL1446 (temp°C) | S.G | Shelf life<br>Months @ 70°F | V.O.C<br>% age |
|---|---|---|---|---|---|
| VPI, Dip, Specialised and standard applications | **U2002L** c UL us<br>0 V.O.C Epoxy impregnation applied by dip / roll / VPI to all general purpose motors and transformers. UL systems are available for all the 2002 range. | H (180) | 1.12 | 12 | 0 |
| | **U2002** c UL us<br>Highly stable, General purpose 100% solids Epoxy VPI resin, ideal for motor repair facilities. | H (180) | 1.12 | 12 | 0 |
| | **U2002T** c UL us<br>Higher build Epoxy VPI resin, where traditional film builds of Epoxy are not acceptable. | H (180) | 1.15 | 12 | 0 |
| | **U2002XT** c UL us<br>Higher build Epoxy VPI resin, for random wound machines rated up to 7Kv, offering film builds of 100µM. Designed for elevated chemical and mechanical protection, notably in chemical plants, offshore, marine locations and challenging enviroments. | H (180) | 1.15 | 12 | 0 |
| | **U2002HVR** c UL us<br>Global impregnation of HV systems where uncatalysed Mica tapes are used up to 15kV. | H (180) | 1.14 | 12 | 0 |
| | **U2006** c UL us<br>A resilient single component VPI epoxy resin with excellent stability and high bond strength and electrical properties. | H (180) | 1.15 | 12 | 0 |
| | **U2220** c UL us<br>A high performance VPI Epoxy resin system that exhibits superior properties at elevated temperatures. | C (220) | 1.15 | 12 | 0 |
| Epoxy, single part, VOC free trickle resins | **U2050L** c UL us<br>A clear low viscosity, single component Trickle resin suitable for automated trickle application, low / non odour, high bond strength good penetration epoxy resin. Suitable for hermetic application. | H (180) | 1.16 | 9 | 0 |
| | **U2020**<br>High bond strength, ambient cure epoxy trickle resin. Available in Link Packs as an easy dispense option. | H (180) | 1.10 | 24 | 0 |
| Water based | **U2002AQ** c UL us<br>0 VOC UL Recognised Water based Epoxy Emulsion for impregnation of low voltage and hermetic motors. | H (180) | 1.09 | 12 | 0 |

| Viscosity | Typical cure | Bond strength | | Dielectric strength | | Special property | Application |
|---|---|---|---|---|---|---|---|
| Centipoise (cp) | hrs @ | ASTM D2519 @ 70°F lbf | ASTM D2519 @ 300°F lbf | ASTM D115 DRY volt/mil IEC243-1 | Volt/mil after 24hrs water immersion | | |
| 400 | 4hrs @ 300°F | 56 | 12 | 2640 | 1905 | Low viscosity / V.O.C | Motors / Transformers |
| 700 | 4hrs @ 300°F | 62 | 14 | 2750 | 1770 | General purpose VPI – Ideal for Motor Repair | Motors/Generators/ Transformers |
| 3500 | 4hrs @ 300°F | 82 | 18 | 3050 | 1650 | Higher film build | LV / MV / Traction / Trafo |
| 6000 | 4hrs @ 300°F | 99 | 18 | 2920 | 1400 | Higher film build | LV / MV / Traction / Trafo |
| 600 | 8hrs @ 330°F | 68 | 15 | 3050 | 2160 | High Voltage Resin | HV Machine Impregnation |
| 3000 | 8hrs @ 285°F | 71 | 12 | 5335 | 2920 | Excellent environmental protection, maintains properties after long term exposure. | VPI of LV Machines |
| 5000 | 8hrs @ 330°F | 84 | 19 | 4825 | 2920 | High Temperature properties | VPI of Traction motors and field coils |
| 6000 | 5 -7 mins @ 300°F (Induction) | > 155 | 22 | > 5000 | > 1750 | Stable Single part, low viscosity, V.O.C free quick cure epoxy | Suitable for OEM application as an alternative to traditional Polyester two part systems |
| 300 (Mixed) | Room temp. | 55 | 13 | 2795 | 2080 | High bond, room temperature cure | Stators /rotors |
| 20-30 | 4hrs @ 300°F | 44 | 7 | 2540 | 1778 | General Purpose Impregnation | LV and hermetic motors |

# Epoxy Potting Resins

| UL QMFZ2 File E174454 | PROCESSING INFORMATION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | S.G Base | S.G Mix | Mix ratio | Mix ratio | Viscosity mixture | Usable life | Colour | Hardness | Tensile strength | Elongation at break | |
| | | | Parts by volume | Parts by weight | Poise @ 25°C | 500 gms mass mins @ 21°C | | Shore D / A | ASTM D-638 N | ASTM D-638 % | |
| **UF2004TCB** UL94 HB | 1.77 | 1.65 | 5:1 | 9:1 | 45 | 45 | Black / Grey | 89D | 52 | 4 | |
| **UF2114TC#** UL94 HB | 1.82 | 1.68 | 5.5:1 | 10:1 | 25 | 180 | All colours | 85D | 65 | 1 | |
| **UF810STB** UL94 V0 | 1.87 | 1.79 | 10:1 | 19.8:1 | 45 | 45 | Black | 88D | 55 | 1 | |
| **UFEP-55/8M** UL94 V0 | 1.72 | 0.97 | N/A | 100:14 | 14 | 50 min | Green | 75D | N/A | N/A | |
| **Polyurethane Resins** | | | | | | | | | | | |
| **UF041** UL94 V0 UL746B | 1.56 | 1.5 | 3.5:1 | 4.4:1 | 22 | 10 | Black | 85D | 32 | 8 | |
| **UF050N** UL94 V0 | 1.53 | 1.46 | 3.95:1 | 4.77:1 | 25 | Various | All colours | 75D | 27 | 22 | |
| **UFPU-461/38** UL94 V0 | 1.52 | 1.5 | N/A | 100:16 | 15 | 20 min | All colours | 85A/ 43D | 7 | 25 | |
| **Polyurea Potting Resins** | | | | | | | | | | | |
| **UFUR-1** | 1.10 | 2.30 | N/A | 100:50 | 12 | 20 min | Red, Black | 83A/ 30D | 9 | 200 | |

| CURED PROPERTIES | | | | | | |
|---|---|---|---|---|---|---|
| Dielectric strength | Dielectric constant | Flame retardant | Water absorption | Thermal conductivity | Special property | Typical application |
| IEC 60243 Kv / cm | IEC 60250 @ 50Hz | UL 94 (UL recognised) | ISO 62 % @ 23°C | W/mK | | |
| 190 | 4.8 | HB | 0.16 | 0.7 | Good themal conductivity, thermal shock resistance, Class H | Linear motors, transformers, Toroids, small magnets |
| 190 | 5.2 | HB | 0.15 | 1 | High thermal conductivity. Resilient & class H with good surface finish. Available in all RAL colours. | Linear motors, transformers, Toroids, small magnets |
| 200 | 5.4 | VO | 0.18 | 1 | High thermal conductivity, flame retardent, Class H | Ballasts, heat sinks |
| N/A | N/A | V0 | 0.15 | 0.72 | Fire Retardant | Transformers/General Purpose |
| | | | | | | |
| 189 | 4.5 | VO | 0.16 | 0.45 | Flame retardant, rigid, general purpose potting UL RTI 1150C | Toroidal transformers, Capacitors |
| 206 | 4.6 | VO | 0.18 | 0.32 | Flame retardant, semi-rigid general purpose potting | Linear motors, transformers, Toroids, small magnets |
| >200 | N/A | V0 | 0.15 | 0.70 | Flexible, Fire Retardant | Transformers/General Purpose |
| | | | | | | |
| N/A | N/A | - | N/A | N/A | Excellent dielectric properties from -40°C upto + 120 °C. | Electromagnets, transformers, capacitors and for elastic castings |

# Solvent Based Varnishes

| | Thermal Class | Flash Point | S.G | Shelf life | V.O.C | |
|---|---|---|---|---|---|---|
| | Class according to UL1446 (temp°C) | Abel closed cup °F | | Months @ 70°F | % age | |
| **Oven Cure Varnishes** | | | | | | |
| ***U380 - Phenolic Modified Polyester**<br>UL recognised high build general purpose varnish. Used by many OEM'S and repair shops. UL systems are available. | H (180c) | 105 | 0.90 | 24 | 50 | |
| **U250# - Epoxy Phenolic**<br>Epoxy phenolic varnish with excellent Freon and refrigerant gas resistance. | H (180c) | 79 | 1.00 | 18 | 58 | |
| **Air Drying Varnishes** | | | | | | |
| ***U372 - Alkyd**<br>High build Alkyd Air drying varnish with tropicalising agent in Clear and Golden. Available in various pigmented versions as Anti tracking enamels in Red, Grey, Black, White and Blue. | H (180c) | 81 | 1.00 | 18 | 40 | |

| Viscosity | Typical cure | Bond strength | | Dielectric strength | | Special property | Application |
|---|---|---|---|---|---|---|---|
| B4 cup seconds or Centipoise @ 77ºF | hrs @ | ASTM D2519 @ 70ºF lbf | ASTM D2519 @ 300ºF lbf | ASTM D115 DRY volt / mil IEC243-1 | Volt/mil after 24hrs water immersion | | |
| | | | | | | | |
| 130 secs | 4 hrs @ 265ºF | 45 | 4 | 4215 | 3050 | High bond, tank stable, UL approved | Motors/general purpose |
| 45 secs | 4 hrs @ 300ºF | 50 | 13 | 3810 | 3555 | Chemical resistance | Hermetic motors |
| | | | | | | | |
| 100 secs | Air drying | N/A | N/A | 1830 | 760 | Fast drying, CTi 180 | Motors / transformers |

# Solventless Varnishes

| | Thermal Class | Flash Point | S.G | Shelf life | V.O.C | |
|---|---|---|---|---|---|---|
| | Class according to UL1446 (temp°C) | Abel closed cup °F | | Months @ 70°F | % age | |
| **VPI & Dipping Resins** | | | | | | |
| ***U520** - **Unsaturated Polyester**<br>Low odour, high flash point single component resin for VPI, roll and immersion applications. UL systems are available. | H (180c) | 330 | 1.20 | 12 | 5 | |

# Miscellaneous

| | Thermal Class | Flash Point | S.G | Shelf life | |
|---|---|---|---|---|---|
| | Class according to UL1446 (temp°C) | Abel closed cup °F | | Months @ 70°F | |
| **U720 - HT Masking Grease**<br>Masking solution for all types of surfaces prior to Dip or VPI impregnation methods. Protects surfaces from Polyester and Epoxy resins without causing contamination to tanks. | N/A | N/A | 0.90 | 36 | |

| Viscosity | | Typical cure | Bond strength | | Dielectric strength | | Special property | Application |
|---|---|---|---|---|---|---|---|---|
| B4 cup seconds or Centipoise @ 77ºF | | hrs @ | ASTM D2519 @ 70ºF lbf | ASTM D2519 @ 300ºF lbf | ASTM D115 DRY volt / mil IEC243-1 | Volt/mil after 24hrs water immersion | | |
| 600 cP | | 4 hrs @ 265ºF | 49 | 15 | 3300 | 2060 | Not classified as flammable | Motors / transformers |

| V.O.C | Viscosity | Typical cure | Bond strength | | Dielectric strength | | Special property | Application |
|---|---|---|---|---|---|---|---|---|
| % age | Centipoise (cp) | hrs @ | ASTM D2519 @ 70ºF lbf | ASTM D2519 @ 300ºF lbf | ASTM D115 DRY volt / mil IEC243-1 | Volt/mil after 24hrs water immersion | | |
| 0 | Grease | N/A | N/A | N/A | N/A | N/A | High temperature | Masking Grease |

# Notes

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