



MAGNALUX™ VEL

CONDUCTIVE VINYLESTER LAMINATE SYSTEM

Revised 07/2023 Issue 1

PRODUCT DESCRIPTION

A glass fibre reinforced, 2-pack vinylester based coating system consisting of:

Magnalux™ VEL primary screeding

Magnalux™ VEL laminate

Magnalux™ VEL top coat

- Wide ranging chemical resistance to acids, leaches, solvents and notably to oxidising and flammable substances
- Crack bridging
- Conductive
- Drivable
- Very fast curing

RECOMMENDED USE

Can be used as a sealing for reinforced concrete receiving vats and chambers, indoors or outdoors, or for steel tanks for the storage of aggressive liquids (e.g. concentrate acids, leaches and solvents).

It is also suitable as a coating system to be driven on directly by vehicles with pneumatic tyres or with tyres of solid rubber, Vulkollan or polyamide, e.g. in electroplating works, pickling plants, and in plants where oxidising materials are manufactured, treated or used.

PRODUCT TECHNICAL DATA

Weight Solids:	Magnalux™ VE Solution (A), yellow glaze: 64 ± 2 % Magnalux™ VE Solution Conductive (A), dark grey: 73 ± 2 % Magnalux™ VE Solution (A), RAL 7032: 73 ± 2 % Magnalux™ VE Hardener (B): 87 ± 2 %	Mixing Ratio and Consumption:	Primary screeding 1.000 kg Magnalux™ VE Solution yellow glaze (100 parts) 0.015 kg Magnalux™ VE Hardener (1.5 parts) 0.800 kg Magnalux™ VEL Mehl (powder) (80 parts) 1.815 kg = 1 l final mixture consumption: approx. 0.7 - 1.5 kg/m² Laminate 1.074 kg Magnalux™ VE Solution yellow glaze (100 parts) 0.016 kg Magnalux™ VE Hardener (1.5 parts) 1.090 kg = 1 l final mixture consumption: approx. 2.5 kg/m² Topcoat conductive (per coat) 1.200 kg Magnalux™ VE Solution Conductive (100 parts) 0.12 kg Magnalux™ VE Hardener (1 part) 1.212 kg = 1 l final mixture consumption: approx. 0.3 kg/m² Alternative (without DIBt approval) Topcoat non-conductive ~RAL 7032 (per coat): 1.300 kg Magnalux™ VE Solution, RAL 7032 (100 parts) 0.13 kg Magnalux™ VE Hardener (1 part) 1.313 kg = 1 l final mixture consumption: approx. 0.3 kg/m²
Colours:	Magnalux™ VE Solution: yellow glaze Magnalux™ VE Solution Conductive: dark grey (~RAL 7031) Magnalux™ VE Solution: ~RAL 7032 Magnalux™ VEL Mehl: black	Density:	Magnalux™ VE Solution (A), yellow glaze: 1.1 kg/l Magnalux™ VE Solution Conductive (A), dark grey: 1.27 kg/l Magnalux™ VE Solution (A), RAL 7032: 1.34 kg/l Magnalux™ VE Hardener (B): 1.1 kg/l Magnalux™ VEL Mehl (powder), black: 0.54 kg/l (bulk density) (may vary with colours)
Flash Point:	Magnalux™ VE Solution (A), yellow glaze: 31°C Magnalux™ VE Solution Conductive (A), dark grey: 34°C Magnalux™ VE Solution (A), RAL 7032: 34°C Magnalux™ VE Hardener (B): >101°C Magnalux™ VEL Mehl, black: not applicable	Shelf Life:	Magnalux™ VE Solutions: 3 months Magnalux™ VE Hardener: 6 months Magnalux™ VEL Mehl (powder): 24 months from date of manufacture, stored in originally sealed containers in a cool and dry environment at max. + 20°C.
Cleaner/Thinner:	Acetone (for cleaning). Clean spills, tools and spatters immediately with Cleaner 26. Do not thin Magnalux™ components.	Recommended Application Methods:	Troweling, Laminating, Rolling
Pack Size:	Materials supplied in separate containers to be mixed prior to use: Magnalux™ VE Solution (A), yellow glaze: 25 kg (22.9 litre) Magnalux™ VE Solution Conductive (A), dark grey: 25 kg (19.6 litre) Magnalux™ VE Solution (A), RAL 7032: 25 kg (18.6 litre) Magnalux™ VE Hardener (B): 1 kg (0.94 litre) Magnalux™ VEL Mehl, black: 25 kg Glass fibre matting 'Vetrotex M 113' or 'Advantex M 113' (450 g/m²) roll approx. 70 kg Surface matting e.g. 'Vlies T 1790 ECR' (~30 g/m²) roll approx. 9 kg Volume will vary with colours and density.	Typical Thickness:	The dry film thickness of the complete coating system as described under 'Application Equipment' is approx. 3 mm.
		Pot Life:	+ 20°C 30 min Pot life is dependent on temperature and volume.



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AVERAGE DRYING TIMES

Primary screeding:

	+ 20°C
Foot Traffic	2 hours
To Recoat	16 hours

Laminate and Topcoats:

	+ 10°C	+ 20°C
Foot Traffic	12 hours	2 hours
To Recoat	12 hours	2 hours

Maximum recoat time is 2 days at 20°C. Prior to further applications all contamination must be removed. In the case of extended recoating times the surface must be sweep-blasted.

Final cure: Full mechanical and chemical resistance after 7 days at + 20°C.

These figures are given as a guide only.

APPROVALS & ENDORSEMENTS

- Satisfies the requirements of the 'principles of Construction and Inspection for the Protection of Waters' (Bau- und Prüfgrundsätze für den Gewässerschutz) of the DIBt (Deutsches Institut für Bautechnik - German Institute of Building Technology) and is building inspectorate approved for concrete
- Coating based on vinylester for concrete protection according to EN 1504, DoP, with CE-mark.

SURFACE PREPARATION

Concrete

Cleaning of the surface by shot-blasting, pressure blasting or milling (after milling shot-blasting is necessary). The surface must be dry, firm, fine gripping, free from loose and friable particles, mortar laitance, dust and other contaminations. Residual moisture content not above 4% according to CM. The average value of surface tensile strength should not be below 1.5 N/mm².

When working on very dirty or highly chemically contaminated surfaces, additional adequate cleaning methods are necessary. Structures that are subject to the provisions of water resources law (Wasserhaushaltsgesetz - WHG) may only be coated by qualified coating firms possessing certificates of capability.

Steel

Ensure surfaces to be coated are clean, dry and free from all surface contamination such as oil, grease, dirt and corrosion products to achieve satisfactory adhesion.

Steel surfaces shall be blast-cleaned to Sa 2½ according to ISO 8501-1 (ISO 12944-4).

MIXING

Fill Magnalux™ VE Solution in a container and add Magnalux™ VE Hardener at the specified mixing ratio. Stir thoroughly until a homogeneous compound is obtained.

We recommend to fill the mixed material into a clean container and mix again shortly as described above to avoid incorrect mixing.

Add powder according application and required mixing ratio. Mixing time should be at least 3 minutes.

APPLICATION CONDITIONS

Substrate temperature shall be between + 5°C and + 30°C and at least 3°C above the dew point.

Material temperature shall be above + 5°C.

Relative air humidity shall be below 80%.

Provide good and sufficient ventilation during application.

Water, even in minimal quantities, may damage the accelerating system and avoid the hardening process of the mortar. Please keep tools and mixers absolutely dry.

APPLICATION EQUIPMENT

Primary screeding

Magnalux™ VEL primary screeding should be applied with smoothing trowel.

Laminate

Magnalux™ VEL binding material is first rolled onto the hardened Magnalux™ VEL Primary screeding with a pilefabric roller. Glass fibre matting (Vetrotex M 113 or Advantex M 113) with a mass per unit area of 450g/m² is then immediately laid on, pressed in with the roller and simultaneously saturated with Magnalux™ VEL binding material.

A 2nd layer of the same glass fibre matting is laid on top of the 1st layer, thoroughly soaked, matting layer, pressed down in the same way with the roller, and saturated with Magnalux™ VEL binding material.

Finally the 2nd layer of glass fibre matting is covered by a layer of surface matting (approx. 30 g/m²) pressed in with a laminating roller and rolled out ensuring that any air that has become included is completely expelled.

Topcoat

In order to discharge static electricity, conductive tapes / braids are glued on to the Magnalux™ laminating layer, joined to the equipotential connection, and covered with the topcoat Magnalux™ VE Solution Conductive. Repeat application after 3 - 5 hours after curing of the first topcoat.

Alternatively to the conductive topcoat you can apply Magnalux™ VE Solution RAL 7032 as non-conductive topcoat.

Non slip characters

To improve the non-slip characteristic the 2nd layer of the topcoat may be broadcasted with carbon silicide (0.5 mm). Needed quantity is about 0.5 kg/m².



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ADDITIONAL NOTES

Drying times, curing times and pot life should be considered as a guide only.

Chemical resistance:

According to the approval of the DIBt (German Institute of Building Technology), approval number Z-59.12-69 for test groups 1, 1a, 2, 3, 3a, 3b, 4, 4a, 4b, 4c, 5, 5a, 5b, 6, 6b, 7, 7a, 7b, 8, 9, 9a, 10, 11, 12, 13, 14, 15 and 15a.

Additional building inspectorate approval for the following materials:

- hydrochloric acid $\leq 37\%$
- sulphuric acid $\leq 70\%$
- nitric acid $\leq 65\%$
- aqueous sodium hypochlorite (12% active chlorine)
- hydrogen peroxide $\leq 30\%$
- chromic acid $\leq 50\%$

Note: In some cases a discolouration of cargo may occur, however this does not effect the chemical resistance of the coating.

Temperature resistance:

Dry heat up to approx. $+ 100^{\circ}\text{C}$.

Increased humid ambient temperature depending on chemical exposure upon request.

Tensile strain at break:

Approx. 73 N/mm^2 (horizontally in the layer) (According to ISO 527).

Crack bridging ability:

Up to max. 0.2 mm.

Electrical resistivity:

$\leq 1 \times 10^8 \Omega$

Numerical values quoted for physical data may vary slightly from batch to batch.

HEALTH & SAFETY

Consult Product Health and Safety Data Sheet for information on safe storage, handling and application of this product.

WARRANTY

Whilst all statements made about our products (whether in this data sheet or otherwise) are correct and accurate to the best of our knowledge, we have no control over the quality or the condition of the substrate, the application conditions or the many other factors affecting your use and application of our product.

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