Construction

SikaCor® VEL

Conductive Vinylester Laminate system

Product Description

SikaCor® VEL is a glass fibre reinforced, 2-pack vinylester based coating system and an inert powder:

- **SikaCor® VEL primary screed**
- **SikaCor® VEL laminate**
- **SikaCor® VEL top coat**
- **SikaCor® VEL Primer**

Uses

SikaCor® VEL is suited for sealing 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).

SikaCor® VEL 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.

Characteristics / Advantages

- Wide range of chemical resistance to acids, leachates, solvents and notably to oxidising and flammable substances
- Crack bridging
- Conductive
- Trafficable
- Rapid hardening

Product Data

Form

Appearance / Colours

SikaCor® VE (solution conductive), Dark Grey	RAL7031
SikaCor® VE (solution), Pebble Grey	RAL7032
SikaCor® VE (solution), Yellow glaze	
SikaCor® VE (hardener)	Yellowish transparent
SikaCor® VE Carbon (Powder)	Black

Packaging

SikaCor® VE (solution)	25kg and 180kg drums
SikaCor® VE (hardener)	1kg plastic bottle
SikaCor® VE Carbon(powder)	25kg bags
Glass Fibre matting (450 g/m^2)	35kg (1.3m x 60m)
SikaCor surface fleece (27g/m^2)	2.7kg (1m x 100m)

Storage

Storage Conditions/ Shelf-Life

SikaCor® VE (solution)	3 months
SikaCor® VE (hardener)	6 months
SikaCor® VE Carbon(powder)	24 months

Technical Data

Chemical Base

SikaCor® VE (solution)	Vinylester resin
SikaCor® VE (hardener)	Org. peroxide
SikaCor® VE Carbon(powder)	Carbon

Density

SikaCor® VE (solution) yellowish transparent	~1.1 g/cm^3
SikaCor® VE (hardener)	~1.1 g/cm^3
SikaCor® VE (powder)	~0.54 g/cm^3 (bulk density)
SikaCor® VE (conductive solution)	~1.26 g/cm^3
SikaCor® VE (conductive solution) RAL7032	~1.34 g/cm^3

Crack Bridging Up to max. 0.2mm

Crack Resistance Acc to ISO 527 ~ 73 N/mm^2 (horizontally in the layer)

Electrical resistance $\leq$ 1 x 10^8

Mechanical / Physical Properties

Bond Strength *Substrate:*

Concrete:	> 1.5 N/mm²	(failure in concrete)	(DIN EN 13892-8)
Steel (SA 2.5):	> 15 N/mm²		(DIN EN 24624)
Aluminum:	> 10 N/mm²		(DIN EN 24624)

Resistance

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

Additonal building inspectorate approval for the following materials:

Hydrochloric Acid $\leq$ 37%

Sulfuric Acid $\leq$ 70%

Nitric acid $\leq$ 65%

Aqueos Sodium hypochlorite (12% active chlorine)

Hydrogen peroxide $\leq$ 30%

Chromic Acid $\leq$ 50%

Note: In particular cases discoloration of medium may occur. This does not effect the chemical resistance itself.

TEMPERATURE RESISTANCE

Dry Heat Up to approx.. +100°C

Damp heat Depending on chemical exposure on request

System Information

System Structure

Primary Screed:

SikaCor® VE (solution) (100 parts)

SikaCor® VE (hardener) (1.5 parts)

SikaCor® VE (powder) (80 parts)

Laminate:

SikaCor® VE (solution) (100 parts)

SikaCor® VE (hardener) (1.5 parts)

Topcoat

SikaCor® VE (solution) (100 parts)

SikaCor® VE (hardener) (1.0 parts)

Application Details

Consumption / Dosage

Primary Screed	Product	Consumption
Solution	SikaCor® VE (solution)	~ 1kg/m²
Hardener	SikaCor® VE (hardener)	~ 0.015kg/m²
Powder	SikaCor® VE (powder)	~ 0.8kg/m²
Primary Screed	**SikaCor® VE Screed**	**~ 0.7 -1.5kg/m²**

Laminate	Product	Consumption
Solution	SikaCor® VE (solution)	~ 1.074kg/m²
Hardener	SikaCor® VE (hardener)	~ 0.016kg/m²
Laminate	**SikaCor® VEL**	**~2.5kg/m²**

Topcoat non-conductive	Product	Consumption
Solution	SikaCor® VE (solution)	~ 1.2kg/m²
Hardener	SikaCor® VE (hardener)	~ 0.012kg/m²
Topcoat	**SikaCor® VEL**	**~0.3kg/m²**

Topcoat conductive	Product	Consumption
Solution	SikaCor® VE (solution)	~ 1.3kg/m²
Hardener	SikaCor® VE (hardener)	~ 0.013kg/m²
Topcoat	**SikaCor® VEL**	**~0.3kg/m²**

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile ,variations in level and wastage etc.

Substrate Quality

The concrete substrate must be sound and of sufficient compressive strength (minimum 25 N/mm^2) with a minimum pull off strength of 1.5 N/mm^2.

The substrate must be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc.

If in doubt apply a test area first.

Substrate 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 % acc. to CM. The average value of surface tensile strength should not be below 1.5 N/mm^2. 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 may only be coated by qualified coating firms possessing certificates of capability. Steel: Blast cleaning to Sa 2 ½ according to ISO 12944, part 4.
Substrate Temperature	+5°C min. / +30 °C max.
Ambient Temperature	+5°C min. / +30 °C max.
Substrate Moisture Content	
Relative Air Humidity	80% r.h. max. (temperature ≥ 3 K above the dew point)
Dew Point	Beware of condensation! The substrate and uncured coating must be at least 3°C above dew point to reduce the risk of condensation or blooming on the coating surface.

Application Instructions

Mixing	
Mixing Time	Fill SikaCor® VE solution in a container and add SikaCor® VE hardener at the specified mixing ratio. Stir thoroughly until a homogeneous compound is obtained. Then fill into a clean container to stir up again. Add powder according application and required mixing ratio. Mixing time should be at least 3 minutes.
Application Method / Tools	Troweling, laminating, rolling = undiluted Primary screeding: SikaCor® VEL primary screeding should be applied with smoothing trowel. Laminate: SikaCor® VEL binding material is first rolled onto the hardened SikaCor® VEL Primary screed with a pile-fabric roller. Glass fibre matting (Vetrotex M 113 or Advantex M 113) with a mass per unit area of 450 g/m^2 is then immediately laid on, pressed in with the roller and simultaneously saturated with SikaCor® VEL binding material. A 2nd layer of the same glass fibre matting is laid on top of the 1$_{st}$ layer, thoroughly soaked, matting layer, pressed down in the same way with the roller, and saturated with SikaCor® VEL binding material. Finally the 2nd layer of glass fibre matting is covered by a layer of surface matting (approx. 30 g/m^2) pressed in with a laminating roller and rolled out ensuring that any air that has become included is completely expelled. Top coat: In order to discharge static electricity, conductive tapes / braids are glued on to the SikaCor® laminating layer, joined to the equipotential connection, and covered with the top coat SikaCor® VE Lösung leitfähig (solution conductive). Repeat application after 3 - 5 hours after curing of the first top coat. Alternatively to the conductive top coat you can apply SikaCor® VE Lösung RAL 7032 (solution RAL 7032) as non-conductive top coat. Non slip characters: To improve the non-slip characteristic the 2$_{nd}$ coating may be broadcasted with carbon silicide (0.5 mm). Needed quantity is about 0.5 kg/m^2.
Cleaning of Tools	Clean all tools and application equipment with Acetone immediately after use.

Construction

Potlife ~30 min

Waiting Time / Overcoating

Before applying SikaCor® VEL:

Screed	Walkable	Overcoatable
+20°C	2 hours	16 days
Laminate		
+10°C	12 hours	12 hours
+20°C	2 hours	2 hours
Topcoat		
+10°C	12 hours	12 hours
+20°C	2 hours	2 hours

Note: Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

Notes on Application / Limitations

Provide a good and sufficient ventilation during application!

Water, even in minimal quantities, may damage the accelerating system and stop the hardening process of the laminate resin.

Keep tools and mixers absolutely dry

Value Base

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

Legal Notes

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