

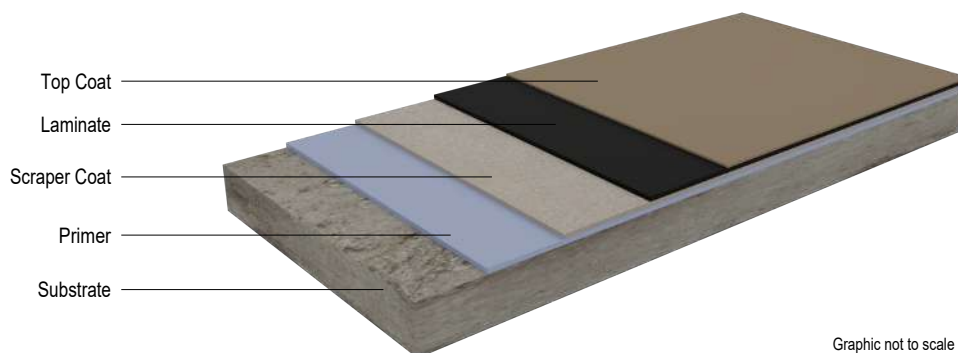
TI 226A

Technical Information Surface Protection Linings
Issue 03.02.2025

OXYDUR VE-LR LF

Crack-bridging, electrical conductive and highly chemically resistant laminate system based on vinyl ester resin
National technical approval by DIBt, Berlin Z-59.12-263

System Design



- Alkadur HR Primer + sprinkling with SKC-Filler 16, alternative Oxydur VE LR Primer
- Oxydur VE LR Scraper Coat
- Oxydur VE-LR LF Laminate
- If necessary Oxydur VEU Conductive Varnish as an optional top coat for subsequent tile/brick linings (not part of the DIBt-approval)

Description and Use

Electrical conductive laminate system for the production of chemically resistant and fluid-tight linings on concrete substrates. For coating concrete surfaces, secondary containments and surfaces that are used as structures for the storage, filling and handling of water-polluting liquids.

In case of increased chemical, thermal and mechanical stress, it is possible to cover tile and brick linings (not part of the DIBt-approval).

For concrete built secondary containments application according to national technical approval is possible.

When cured, the sealing layer is particularly low in emissions and suitable for indoor use. It fulfils the emission requirements of the AgBB scheme and Class A+ of the VOC regulation of the French Ministry of Environment (MEDDTL).

Properties

- High chemical resistance
- Electrically conductive
- Crack-bridging up to 0.3 mm (according to DIBt-approval)
- Temperature-resistant under stress on the laminate surface
 - Up to 60 °C as a sealing layer on concrete substrates
 - Up to 120 °C as a sealing layer under tile or brick linings
 - The temperature resistance is basically dependent on the individual chemical stress.

Physical Data

Physical Property	Testing Standard	Value	Unit
Flexural strength	DIN EN ISO 14125	400 ^[1]	MPa
Flexural modulus of elasticity	DIN EN ISO 14125	23,500 ^[1]	MPa
Tensile strength	DIN EN ISO 527-4	300 ^[1]	MPa
Dissipation resistance	DIN EN 14879-3	$\leq 10^6$ ^[2]	Ohm
Shore D hardness	DIN EN ISO 868	85	

Data are mean values

Chemical Resistance

For detailed information on chemical resistance, please refer to the Technical Information TI 210A.

Please contact our Application Technology Department for approval of the project-specific possible application.

Substrate

Requirements

Application temperature approx.	10 - 30 °C
Dew point distance	> 3 K
Dew point distance from 70 % humidity	> 5 K

Optimal temperature is 20 °C. Higher and lower temperatures influence the pot life and consistency of the mixtures.

Avoid draughts and solar radiation.

During application, the substrate must be kept dry. No moisture (condensate, mist, etc.) must get onto the material.

Concrete / Screed

Refer to DIN EN 14879-1 as well as to STEULER-KCH-Formsheet 010.

To achieve sufficient adhesive tensile strength, the substrate must generally be pre-treated in such a way that it is free of cement slurry, cement skin, loose and friable parts, structural defects and separating substances.

The residual moisture of cementitious substrates must not exceed 4 %.

The condition of the substrate must be documented by STEULER-KCH-Test-Record 006 (Concrete) resp. STEULER-KCH-Test-Record 007 (Screed).

NOTE! Only the concrete substrate is part of the DIBt-approval.

^[1] The values only apply to the laminate

^[2] At a relative humidity of > 70 %.

Packaging / Shelf Life

All components must be stored and transported dry. The minimum shelf life applies to a storage temperature of 20 °C, unless otherwise specified. Higher temperatures reduce, lower temperatures increase the minimum shelf life.

Component	Item Number	Package	Content	Shelf Life
Alkadur-HR-Solution	5035197001	Hobbock	25 kg	24 months
Alkadur-HR-Hardener	5035198001	Hobbock	25 kg	24 months
Oxydur-VEU-Solution	5032042001	Hobbock	25 kg	6 months
Oxydur-VEU-Solution RAL 9011	5032046001	Hobbock	25 kg	6 months
Oxydur-Accelerator D	5032007023	Canister	2.5 kg	24 months
Oxydur-Hardener C	5032015007	Bottle	1 kg	12 months
Oxydur-WV-Powder	5011119002	Bag	20 kg	24 months
SKC-Filler 16	5011203001	Bag	25 kg	24 months
SKC-Filler 4L	5011195017	Bag	12.5 kg	24 months
SKC-Filler 1L	5011192001	Bag	25 kg	24 months
Carbon Fibre fine	5019090007	Drum	1 kg	24 months
Copper tape self-adhesive	9703301015	Roll 19 - 20 mm wide		unlimited
Glass-Roving-Fabric 580 g/m²	9300090008	Roll 1.25 m wide		unlimited
Glass-Carbon Fibre-Mixed-Fabric 280 g/m²	9300940199	Roll 1.25 m wide		unlimited

For handling, transport and storage observe the relevant safety data sheets.

Mixing Ratio / Consumption

Primer, Sprinkled

Alkadur HR Primer

Component	Mix	Consumption kg/m²
Alkadur-HR-Solution	3.60 kg	0.161
Alkadur-HR-Hardener	2.00 kg	0.089
Total	5.60 kg	0.250
Area per mix approx.		22.4 m²
Sprinkling with SKC-Filler 16. Consumption approx. 3.0 kg/m²		

Alternative Primer

Oxydur VE LR Primer

Component	Mix	Consumption kg/m²
Oxydur-VEU-Solution	4.40 kg	0.239
Oxydur-Accelerator D	90 g	0.005
Oxydur-Hardener C	110 g	0.006
Total	4.60 kg	0.250
Area per mix approx.		18.4 m²

Scraper Coat

Oxydur VE LR Scraper Coat

Component	Mix	Consumption kg/m ²
Oxydur-VEU-Solution	4.40 kg	0.557
Oxydur-Accelerator D	90 g	0.011
Oxydur-Hardener C	110 g	0.014
Oxydur-WV-Powder	8.80 kg	1.118
Total	13.40 kg	1.700
Area per mix approx.		7.9 m ²
Layer thickness approx.		1.0 mm

Laminate

Oxydur VE-LR LF Laminate

Component	Mix	Consumption kg/m² on Alkadur HR Primer	Consumption kg/m² on Oxydur VE LR Primer
Oxydur-VEU-Solution RAL 9011	4.40 kg	0.609	0.431
Oxydur-Accelerator D	90 g	0.012	0.009
Oxydur-Hardener C	110 g	0.016	0.011
Carbon Fibre fine	90 g	0.013	0.009
Total	4.69 kg	0.650	0.460
Area per approach to Alkadur HR Primer approx.		7.2 m²	
Area per approach to Oxydur VE LR Primer approx.		10.2 m²	
Glass roving fabric 580 g/m² + glass-carbon fibre blend fabric 280 g/m²			
Depending on the project-specific geometry, additional consumption of glass fibre materials and laminating solution must be planned due to the that fact that the glass fibre reinforcement are overlapped.			

Conductive Varnish if Necessary

As Top Coat for Subsequent Tile / Brick Linings (Not Part of the DIBt-Approval)

Oxydur VEU Conductive Varnish

Component	Mix	Consumption kg/m ²
Oxydur-VEU-Solution	4.40 kg	0.235
Oxydur-Accelerator D	90 g	0.005
Oxydur-Hardener C	110 g	0.006
Carbon Fibre fine	0.33 kg	0.018
SKC-Filler 4L	1.60 kg	0.087
Total	6.53 kg	0.350
Area per mix approx.		18.7 m ²
Sprinkling with SKC-Filler 1L. Consumption approx. 2.0 kg/m ²		

Pot Life

Higher temperatures reduce, lower temperatures extend the pot life.

Alkadur HR Primer

Temperature	Pot Life
10 °C	70 min
20 °C	30 min
30 °C	20 min

The times given are approximate temperature-dependent values

Oxydur VE Coatings

Temperature	Pot Life
10 °C	70 min
20 °C	40 min
25 °C	15 min

The times given are approximate temperature-dependent values

Waiting and Curing Times

The waiting times between the individual applications depend on temperature.

Alkadur HR Primer

For sprinkled layers, the maximum waiting time for next layers does not apply as long as the sprinkling is intact and clean.

Oxydur VE Coatings

Temperature	Walkable After	Maximum Waiting Time
10 °C	10 h	72 h
20 °C	5 h	48 h
25 °C	3 h	30 h

The waiting time until full chemical and mechanical resistance is reached is 5 days at a temperature of 20 °C.

Testing

Visual Testing

The lining is checked for visible defects such as bubbles, inclusions, inequalities, cracks or mechanical damage.

Testing the Electrostatic Conductivity

The measurement of the earth leakage resistance R_A is carried out with a commercially available resistance measuring device up to 10^8 Ohm with 100 volts DC as measuring voltage. A circular electrode with a diameter of 50 mm is used as the measuring electrode. On the surface of the floor covering to be measured, a 50 mm diameter blotting paper slightly moistened with tap water is placed as a contact mediator. The electrode is placed flush on this and pressed onto the surface with a force of about 10 N during the measurement.

When applying conductive layers, the conductivity must be tested after 24 hours and before applying the subsequent layer.

The final test for reaction resin coatings is carried out at the earliest 48 hours after installation. The floor covering is cleaned before the test. There must be no insulating layers.

The test specification PV 016 ELECTROSTATIC CONDUCTIVITY must be observed.

Repair and Connections

Repair of the Sealing Layer

Faulty, Damaged or Connected Areas

When carrying out repair work, the relevant information in the Application chapter must be observed.

1. Grind damaged areas down to the substrate with a grinding machine.
2. Bevel the edge zones and roughen the surface of the old coating generously (with sandpaper or, for larger areas, by blasting).
3. Clean the surface with a cloth and Steuler-Universal-Cleaner.
4. Prime the substrate and completely rebuild the coating as described above, observing the waiting times. Apply the new material only to the roughened and ground areas.

Safety and Disposal

The following points should be observed:

- Sufficient ventilation and venting (especially in pits and tanks)
- No smoking and no fire
- Safety Data Sheets
- Observe hazard warnings and safety instructions on labels
- Wear required personal protective equipment (avoid skin contact with materials)
- Clean and protect hands with skin protection soap (no solvents!) and skin protection cream
- Wear a dust mask when grinding (e.g. for repairs)
- Operating instructions as per § 14 of GefahrstoffV (Toxic Substances Act) and TRGS 507 (Technical regulations for Hazardous Substances - Germany)
- Accident prevention regulations by the Liability Insurance Association for the Chemical Industries (Germany)
- Avoid direct contact of the materials with the flame, especially during welding work (welding beads) on site

Preferably consume residual quantities. Do not pour into a spout or dustbin! Collect separately for disposal in durable, lockable and labelled containers.

GISCODE

Product	GISCODE
Alkadur HR Primer	RE90
Oxydur VE LR Primer	SB-STY20
Oxydur VE LR Scraper Coat	SB-STY20
Oxydur VE-LR LF Laminate	SB-STY20
Oxydur VEU Conductive Varnish	SB-STY20

Cleaning of Equipment

Tools that are soiled with uncured materials can be cleaned with Steuler-Universal-Cleaner. Only clean in well ventilated areas.

All information contained in this Technical Information is based on the present state of our knowledge and practical experience. All data are approximate values for guidance only. A legally binding warranty of certain characteristics or the suitability for a certain purpose of use cannot be derived from this.

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This issue replaces all previous versions.