

TI 244C

Technical Information Surface Protection Linings
Issue 18.09.2019

OXYDUR VEL SR

Mechanical applied electrically conductive laminate system

Base

Vinyl ester resin

Material Group

Sealing layer

Tank- / vessel linings - laminates

Description

Electrically conductive, crack-bridging laminate system which can be applied by means of a special spray-method or with Glass-Fibre Mats by the conventional method. For concrete built catch basins application according to general technical approval is possible (see TI 244 B). The laminate can be applied on concrete and steel substrates.

Use

Coating of concrete and screed surfaces; lining of catch areas and catch basins used in buildings and structures used to store, to fill or to handle liquids hazardous to water; chemical resistant lining of steel or concrete vessels. By higher chemical, thermal or mechanical load a subsequent tile and brick lining is possible.

Properties

- crack bridging up to 0.4 mm (according to DIBt approval)
- electrically conductive
- tightness testable (concrete substrates)
- high chemical resistance
- temperature resistant:
 - up to 60 °C (as sealing layer on concrete);
 - up to 100 °C (on steel substrates - depending on chemical stress);
 - up to 120 °C (as sealing layer under tiles or bricks)
- high flexible

Physical Data

Property (unit), Test method	Value
Density [g/cm³], DIN EN ISO 1183-1, ASTM D 792	1.4
Tensile Strength [MPa], DIN EN ISO 527, ASTM C 307	60.0
Flexural strength [MPa], DIN EN ISO 178, ASTM C 580	140.0
Elongation at tear [%], DIN EN ISO 527, ASTM C 307	3.5
The thermal coefficient of linear expansion [1/K], ISO 11359-2, ASTM C 531	2.8×10^{-5}
Electrical leakage resistance [Ohm] to DIN EN 14879-3 at a relative humidity of > 70 %, ASTM F 150/98	$\leq 10^6$
Data are mean values	

Chemical Resistance

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

For application as a coating with general technical approval please refer to the list of authorized media in the latest test report.

Please contact our application engineering for approval of the project-specific possible application.

Substrate

Steel

Refer to DIN EN 14879-1 as well as to STEULER-KCH-Formsheet 020.

The steel surface shall be sandblasted to a metallic bright finish. A preparation degree of SA 2 ½ as specified in DIN EN ISO 12944-4 and a roughness grade "medium (G)" as specified in DIN EN ISO 8503-1 must be achieved; minimum surface roughness $R_z = 70 \mu\text{m}$. After blasting, the formation of new rust must be prevented by suitable measures, e. g. priming directly.

The substrate should have a temperature of approx. 10 – 30 °C.

Moisture

During application, the substrate must be kept absolutely dry. Uncured material has to be protected from any kind of moisture (condensation, fog, precipitation or other water source). Distance to dew point has to be at least 3 K, at a relative humidity of above 70 % at least 5 K.

System Design

- OXYDUR VEL SR PRIMER
- Oxydur VEL SR Scratch Coat LF
- Spray laminate
- *Alternatively Hand laminate 2 x 300 g*
- Oxydur VE Conductive Lacquer
- if required, adhesive layer for subsequent tile / brick layers

Packaging / Shelf life

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

Components	Item number	Package	Content	Shelf life
Oxydur-VEL-SR-Solution	5032034001	Drum	25 kg	6 Months
Oxydur-Accelerator OF	5032011044	Bottle	0.5 kg	12 Months
Oxydur-Hardener C	5032015007	Bottle	1 kg	12 Months
SKC-Filler 3L	5011194017	Bag	12.5 kg	24 Months
SKC-Filler 4L	5011195017	Bag	12.5 kg	24 Months
SKC-Filler 16	5011203001	Bag	25 kg	24 Months
PE-Fibre 940T	5119125007	Drum	1 kg	24 Months
Carbon-Fibre fine	5019090007	Drum	1 kg	24 Months
Spray roving 2400tex	5019004002	Coil	approx. 20 kg	unlimited
Glass-Fibre Mat 300 g/m ²	9300900390	Roll 1.27 m wide		unlimited
Copper band self-adhesive	9703301015	Roll 19-20 mm wide		unlimited

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

Mixing Ratio / Consumption

Oxydur VEL-SR Primer

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
Consumption	0.250 kg/m ²	
Work steps	1	

Oxydur VEL-SR Scratch Coat LF

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
SKC-Filler 3L	0.750	0.894
PE-Fibre 940T	0.030	0.740
Consumption	0.600 kg/m ²	
Layer thickness	approx. 0.5 mm	
Work steps	1	

Oxydur VEL-SR Spray Laminate

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
Spray roving 2400tex	0.490	
Consumption:		
Resin mixture	1.600 kg/m ²	
Spray roving	0.700 kg/m ²	
Layer thickness	1.5 – 2.5 mm	
Work steps	1	

Alternative Oxydur VEL-SR Hand laminate

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
Glass-Fibre Mat 300 g/m²	0.45	
Consumption (*):		
Resin mixture	1.400 kg/m²	
2 layers Glass-Fibre Mat 300 g/m²	0.600 kg/m²	
Layer thickness	1.5 mm	
Work steps	2	
(*) Depending on the project-specific geometry, additional consumption for the necessary overlaps of the Glass-Fibre Mats and the resin mixture must be taken into account.		

Before application of the Oxydur VE Conductive Lacquer, the cured laminate is tested with a spark tester.

Oxydur VE Conductive Lacquer

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
SKC-Filler 4L	0.367	0.521
Carbon-Fibre fine	0.077	0.111
Consumption	0.350 kg/m ²	
Work steps	1	

if necessary Oxydur VEL-SR Primer as adhesion layer for subsequent tile- / brick-linings

	Part by weight	Part by volume
Oxydur-VEL-SR-Solution	1.0	0.917
Oxydur-Accelerator OF	0.020	0.020
Oxydur-Hardener C	0.025	0.025
Consumption	0.250 kg/m²	
Work steps	1	
Spreading with SKC-Filler 16; consumption: approx. 1.500 kg/m²		

Waiting Times

See curing times.

Pot Life

Pot life depends on temperature:

20 °C	approx. 50 minutes
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The pot life can be adjusted by addition of Oxydur-Accelerator OF which depends on the temperature.

Curing times

Time to walkability between single applications depend on the temperature:

Temperature	Min. Time	Max. Time
20 °C	8 h	36 h
30 °C	6 h	12 h

After 5 days at 20 °C, the finished coating is fully resistant to mechanical and chemical stress.

Safety and Disposal

- Sufficient aeration and de-aeration (especially in tanks and pits).
- No smoking/no fire
- Refer to the Safety Data Sheets
- Observe danger references and safety recommendation labels.
- Wear required personal protective equipment (avoid skin contact with materials)
- Clean and protect hands with skin protective soap and skin protection cream (no solvents)
- Wear a dust mask when sanding (e.g. for repairs).
- Instructions as per § 14 of GefahrstoffV (Toxic Substances Act) and TRGS 507 (Technical regulations for Hazardous Substances - Germany)
- Accident precautions issued by the Liability Insurance Association for the Chemical Industries (Germany)

Do not expose materials to heat or open flame, this applies in particular to welding works (weld beads).

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

GISCODE

Product	GISCODE
OXYDUR VEL SR PRIMER	SB-STY 30
Oxydur VEL SR Scratch Coat LF	SB-STY 30
Oxydur VEL SR Spray Laminate	SB-STY 30
Oxydur VEL SR Hand Laminate	SB-STY 30
Oxydur VE Conductive Lacquer	SB-STY 30

Cleaning of Equipment

Tools soiled with uncured materials can be cleaned with STEULER UNIVERSAL CLEANER (Technical Information TI 190). Only clean in well ventilated areas.

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This issue replaces all previous versions.