

TI 251B

Technical Information Surface Protection Linings
Issue 18.09.2019

ALKADUR DFG LAMINATE

Laminate system for concrete and steel substrates.

Base

Epoxy resin

Material Group

Sealing layer

Tank- / vessel linings - laminates

Description

Crack-bridging laminate to produce a highly chemical resistant, impervious lining for concrete and steel substrates. The system can be combined with other lining systems, e. g. broadcast coating systems or tile or brick linings.

Use

Creation of chemical resistant, crack bridging protection layers also in combination with other coating systems or with tile or brick linings for floor areas, channels and foundations especially in the food industry or in constructions for livestock farming. Production of chemically resistant and liquid-tight linings, e.g. for containers, columns, reactors and towers, also with subsequent tile or brick linings.

Properties

- Thermal resistance depending on chemical exposure up to 70°C at the surface of the laminate
- physiologically harmless
- chemically resistant

Physical Data

Property (unit), Test method	Value
Compressive strength [MPa], DIN EN ISO 604, ASTM C 579	90.0
The thermal coefficient of linear expansion [1/K], ISO 11359-2, ASTM C 531	22×10^{-6}
Lowest working temperature [°C]	15.0
Maximum working temperature [C]	30.0
Data are mean values	

Chemical Resistance

* If electrostatic discharge capacity is necessary, appropriate cover layers are to be applied.

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

+ = resistant at 20 °C

(+) = short time resistant

- = not resistant

Substances

Acids

Chromic acid 20 %	+
Acetic acid 5 %	+
Hydrofluoric acid 5 %	(+)
Oleic acid	+
Phosphoric acid	(+)
Nitric acid 20 %	+
Hydrochloric acid 20 %	+
Sulfuric acid 70 %	+

Alkalis

Ammonia 25 %	+
Chlorine bleaching 13 %	+
Sodium hydroxide solution, potash lye 50	+

Solvents

Acetone	-
Aldehyde	+
Ethyl acetate *	+
Isopropanol *	+
Methanol / Ethanol *	(+)
Methylisobutylketone *	+
Mineral oils	+
Petrol *	+
Toluene / Xylene *	+
Trichlorethylene	-

Other

Hydrogen peroxide 30 %	+
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Substrate

Concrete / screed

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

To attain a sufficient adhesive tensile strength, the substrate is generally to be pretreated in such a way that it is free of cement slurry, cement skin, loose and crumbly particles, structure imperfections and separating substances.

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

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

- Alkadur DFG Primer sprinkled
- If required, Alkadur DFG filler can be spread to level the substrate or to increase the thickness of the overall system
- Alkadur DFG Laminating Filling
- Alkadur DFG Laminate with Alkadur DFG Laminating Solution (different configurations possible)
- If required, adhesive layer for subsequent coatings, tiles or brick coverings

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
Alkadur-DFG/V-Solution 1	5035120011	Jug	3 kg **	24 Months
Alkadur-DFG/V-Solution 1	5035120001	Drum	25 kg	24 Months
Alkadur-DFG-Solution 2 unpigmented	5035122004	Drum	6 kg **	24 Months
Alkadur-DFG-Solution 2 unpigmented	5035122001	Drum	25 kg	24 Months
SKC-Filler 16	5011203001	Bag	25 kg	24 Months
Oxydur-WV-Powder	5011119002	Bag	20 kg	24 Months
Glass-Fibre Mat 300 g/m ²	9300900390	Roll 1.27 m wide		unlimited
Glass-roving-mat 240 g/m ²	9300090208	Roll 1.25 m wide		unlimited
Glass-roving-mat 580 g/m ²	9300090008	Roll 1.25 m wide		unlimited

** predosed packaging

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

Mixing Ratio / Consumption

Alkadur DFG Primer

	Part by weight	Part by volume
Alkadur-DFG/V-Solution 1	1.0	1.0
Alkadur-DFG-Solution 2	2.0	1.8
Consumption on Steel	0.200 kg/m ²	
Consumption on concrete	0.250 kg/m ²	
Work steps	1	
Layer thickness	approx. 0.1 mm	
Spreading with SKC-Filler 16; consumption: 1.500 kg/m ²		

Option Alkadur DFG Filling sprinkled

	Part by weight	Part by volume
Alkadur-DFG/V-Solution 1	1.00	1.00
Alkadur-DFG-Solution 2	2.00	1.80
Oxydur-WV-Powder	5.25	6.70
Consumption	1.800 kg/m ²	
Work steps	1	
Layer thickness	1 mm	
Spreading with SKC-Filler 16; consumption: 1.500 kg/m ²		

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Alkadur DFG Laminating Filling

	Part by weight	Part by volume
Alkadur-DFG/V-Solution 1	1.00	1.00
Alkadur-DFG-Solution 2	2.00	1.80
Oxydur-WV-Powder	5.25	6.70
Consumption	1.800 kg/m ²	
Work steps	1	
Layer thickness	1 mm/m ²	

Alkadur DFG Laminating Solution

	Part by weight	Part by volume
Alkadur-DFG/V-Solution 1	1.00	1.00
Alkadur-DFG-Solution 2	2.00	1.80
Consumption		
1 Layer Glass-roving-mat 580 g/m ²	0.200 kg/m ²	
1 Layer Glass-roving-mat 580 g/m ² + 1 Layer Glass-roving-mat 240 g/m ²	0.550 kg/m ²	
2 layers Glass-Fibre Mat 300 g/m ²	1.600 kg/m ²	
Work steps	depends on the configuration	
(**) Depending on the project specific geometry, necessary additional consumption for overlaps of Glass-Fibre Mats and laminating solution are to be considered.		

Optional Adhesion layer for subsequent tile- / brick-linings or coating systems

Alkadur-DFG Primer + Sprinkling	
Consumption	0.250 kg/m ²
Work steps	1
Spreading with SKC-Filler 16; consumption: 1.500 kg/m ²	

Waiting Times

Between the Oxydur VEA layers at least 1.5 to 3 h, max. 24 h.

Pot Life

Pot life depends on temperature:

10 °C	approx. 70 minutes
20 °C	approx. 40 minutes
30 °C	approx. 15 minutes

Curing times

Time to walkability between single applications depend on the temperature:

Temperature	Min. Time
10 °C	20 h
20 °C	12 h
30 °C	4 h

The finished coating is fully mechanically and chemically resistant at 20 °C after 7 days.

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
Alkadur DFG Primer	RE 1
Alkadur DFG Filling	RE 1
Alkadur DFG Laminating Filling	RE 1
Alkadur DFG Laminating Solution	RE 1

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.