

TI 251A

Technical Information Surface Protection Linings
Issue 18.09.2019

ALKADUR EPL

Laminate system for concrete and steel substrates.

Base

Epoxy resin

Material Group

Sealing layer

Tank- / vessel linings - laminates

Description

Laminate system based on a special epoxy resin for the creation of chemical resistant and liquid-tight linings on concrete and steel substrates. The system can be covered with tiles or bricks to increase durability.

Use

Creation of chemical resistant and liquid-tight linings for tanks, vessels, columns, reactors, towers etc. also against thermal load. Creation of chemical resistant protection layers under tile or brick linings for tanks, vessels, columns, reactors, towers, channels, foundations and floor areas.

Properties

- high chemical resistance
- thermal resistance (load at the surface of the laminate): up to 80 °C as sealing layer on concrete substrates; up to 100 °C on steel substrates depending on chemical load; up to 120 °C as sealing layer under tile or brick linings

Physical Data

Property (unit), Test method	Value
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792	1.28
Flexural strength [MPa], DIN EN ISO 178, ASTM C 580	61.0
Modulus of elasticity [MPa], DIN EN ISO 178, ASTM C 580	18300
The thermal coefficient of linear expansion [1/K], ISO 11359-2, ASTM C 531	2.2 x 10 ⁻⁵
Tensile Strength [MPa], DIN EN ISO 527, ASTM C 307	130.0
Lowest working temperature [°C]	15.0
Maximum working temperature [C]	50.0
Data are mean values	

Chemical Resistance

For detailed information about the chemical resistance please refer to Technical Information TI 230.

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

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. 12 – 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 EPL Primer
- If necessary Alkadur EPL Filling sprinkled for smoothing of the substrate or to increase total thickness of the system
- Alkadur EPL Filling
- Alkadur EPL Laminate with Alkadur EPL Laminating Solution (different configurations possible)
- *Optional: Alkadur EPL laminate pigmented with Alkadur EPL laminating solution RAL 7032 (different constructions are possible)*
- If required, adhesive layer for subsequent tile / brick coverings or coatings

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-EPL-Solution	5035555006	Drum	10 kg	24 Months
Alkadur-EPL-Solution	5035555001	Drum	25 kg	24 Months
Alkadur-EPL-Solution RAL 7032	5035518139	Drum	11.2 kg	24 Months
Alkadur-EPL-Solution RAL 7032	5035518215	Drum	25 kg	24 Months
Alkadur-EPL-Hardener	5035467003	Drum	5 kg	24 Months
Alkadur-EPL-Hardener	5035467017	Drum	12.5 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-Fibre Mat 450 g/m ²	9300900388	Roll 1.27 m wide		unlimited
Glass Fleece 30 g/m ²	9300900089	Roll 1.00 m wide		unlimited

* The colours may differ slightly from the RAL colour template. Other colours on request.

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

Mixing Ratio / Consumption

Alkadur EPL Primer

	Part by weight	Part by volume
Alkadur-EPL-Solution	2.00	1.77
Alkadur-EPL-Hardener	1.00	1.00
Consumption on Steel	0.200 kg/m ²	
Work steps	1	
Consumption on concrete	0.250 kg/m ²	
Work steps	1	

If necessary Alkadur EPL Filling sprinkled

	Part by weight	Part by volume
Alkadur-EPL-Solution	2.00	1.77
Alkadur-EPL-Hardener	1.00	1.00
Oxydur-WV-Powder	4.70	6.00
Consumption at 1 mm thickness	1.490 kg/m ²	
Work steps	1	
Spreading with SKC-Filler 16; Consumption: 4.000 kg/m ²		

Alkadur EPL Filling

	Part by weight	Part by volume
Alkadur-EPL-Solution	2.00	1.77
Alkadur-EPL-Hardener	1.00	1.00
Oxydur-WV-Powder	4.70	6.00
Consumption	1.490 kg/m ²	
Work steps	1	
Layer thickness	1 mm/m ²	

Alkadur EPL Laminating Solution

	Part by weight	Part by volume
Alkadur-EPL-Solution	2.00	1.77
Alkadur-EPL-Hardener	1.00	1.00
Depending on the project specific geometry, necessary additional consumption for overlaps of Glass-Fibre Mats and laminating solution are to be considered.		
Consumption depends on configuration:		
2 Layer Glass-Fibre Mat 300 g/m ² + 1 Layer Glass Fleece 30 g/m ²	1.600 kg/m ²	
2 Layer Glass-Fibre Mats 450 g/m ² + 1 Layer Glass Fleece 30 g/m ²	2.400 kg/m ²	
Work steps	Depending on structure	

Alternative Alkadur EPL Laminating Solution pigmented

	Part by weight	Part by volume
Alkadur-EPL-Solution RAL7032	2.00	1.63
Alkadur-EPL-Hardener	0.89	0.89
Depending on the project specific geometry, necessary additional consumption for overlaps of Glass-Fibre Mats and laminating solution are to be considered.		
Consumption depends on configuration		
2 layers Glass-Fibre Mat 300 g/m ² + 1 Layer Glass Fleece 30 g/m ²	1.600 kg/m ²	
2 layers Glass-Fibre Mat 450 g/m ² + 1 Layer Glass Fleece 30 g/m ²	2.400 kg/m ²	
Work steps	depends on the configuration	

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

	Part by weight	Part by volume
Alkadur EPL Primer		
Consumption	0.250 kg/m ²	
Work steps	1	
Spreading with SKC-Filler 16; Consumption: 4.000 kg/m ²		

Waiting Times

Between the layers at least 3 h, max. 48 h

Pot Life

Pot life depends on temperature:

	approx. 60 - 120 minutes
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Curing times

Time to walkability between single applications depend on the temperature:

Temperature	Min. Time	Max. Time
10 °C	24 h	48 h
20 °C	10 h	36 h
25 °C	3 h	24 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 EPL Primer	RE 6
Alkadur EPL Filling	RE 6
Alkadur EPL Laminating Filling	RE 6
Alkadur EPL Laminating Solution	RE 6

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.

Thinner M for cleaning the windscreen rollers.

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This issue replaces all previous versions.