

TI 243

Technical Information Surface Protection Linings
Issue 19.10.2023

ALKADUR ESD HC

Self-levelling, electrically conductive coating system for areas with requirements according to DIN EN 61340-5-1 (ESD) applicable also at very low air moisture

Base

Epoxy resin

Material Group

Floor coatings - Levelling coatings

Description and use

Self-levelling, plain coloured, electrically conductive synthetic resin coating for the protection of concrete areas. The system meets the ESD requirements of DIN EN 61340-5-1 even at very low humidity. Therefore particularly suitable for the production, further processing and storage of electronic components, also in measuring and testing laboratories.

Properties

- Electrically conductive; suitable for ESD areas; the requirements of DIN EN 61340-5-1 are fulfilled up to a humidity of $\geq 12\%$
- Self-levelling
- Smooth, non-porous surface
- Plain coloured
- Jointless

System Design

- Alkadur HR Primer and Alkadur HR Conductive Scraper Coat
- *Alternative:* 2 x Alkadur ESD Primer (for smooth, pore-free substrates)
- Alkadur ESD HC Top Coat
- Maintenance with Alkadur ESD Finish

Physical Data

Property [unit], Test method	Value
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792	approx. 1.42
Shore D hardness, DIN ISO 7619, ASTM D 2240	60 - 65
Dissipation resistance [Ohm] to DIN EN 14879-3 at a relative humidity of $> 70\%$, ASTM F 150/98 ^[1]	$< 1 \times 10^9$
Charging of persons [V], DIN EN 61340-4-5 ^[1]	< 100
System resistance [Ohm], DIN EN 61340-4-5 ^[1]	$< 1 \times 10^9$

Data are mean values

^[1] Humidity $\geq 12\%$

Chemical Resistance

Resistant to solvents, petrol, fats, oils, salts and salt solutions, diluted acids and alkalis.

For detailed information about the chemical resistance please refer to Technical Information TI 230. Please refer to the column ALKADUR DFG.

Substrate

Requirements

Application temperature approx.	15 - 25 °C
Dew point distance	> 3 K
Relative air humidity	≤ 70 %

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

Avoid draughts and solar radiation.

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.

Depending on the selected primer, different residual moisture levels of the cementitious substrates must be observed:

- Alkadur HR Primer up to 4 %
- Alkadur ESD Primer up to 6 %
- Greater than 6 % permanently damp, visually dry for special primer ALKADUR FB (TI 137)

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

Moisture

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

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-Solution	5035197020	Hobbock	16 kg	24 Months
Alkadur-HR-Hardener	5035198085	Drum	8.8 kg	24 Months
Alkadur-ESD-HC-Solution	5035162064	Drum	11 kg	24 Months
Alkadur-ESD-HC-Hardener RAL 7032 ^[2]	5035160184	Drum	14.9 kg	6 Months
Alkadur-ESD-HC-Hardener RAL 7040 ^[2]	5035161184	Drum	14.9 kg	6 Months
Alkadur-ESD-Primer-Component A ^[3]	5035429041	Drum	8 kg	6 Months
Alkadur-ESD-Primer-Component B	5035431026	Can	2 kg	6 Months
SKC-Filler 3L	5011194017	Bag	12.5 kg	24 Months
ESD-Filler	5011103001	Bag	25 kg	24 Months
Steuler-Diluent EN	5060005005	Canister	4 kg	24 Months
Tap water				
Alkadur-ESD-Finish ^[3]	5045018006	Canister	10 liters	24 Months
Ground-Connection-Set	5019015000			unlimited

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

Mixing Ratio / Consumption

Alkadur HR Primer

	Part by weight	Part by volume
Alkadur-HR-Solution	1.8	1.6
Alkadur-HR-Hardener	1.0	1.0
Total consumption	approx. 0.250 kg/m ²	
Application steps	1	

Alkadur HR LF Conductive Scraper Coat

	Part by weight	Part by volume
Alkadur-HR-Solution	1.8	1.6
Alkadur-HR-Hardener	1.0	1.0
SKC-Filler 3L	2.6	3.1
Diluent EN	0.04	0.05
Consumption per mm thickness	approx. 1.200 kg/m ²	
Application steps	1	
Layer thickness	at least 0.6 mm (depending on substrate)	

Alternative: 2 x Alkadur ESD Primer

	Part by weight	Part by volume
Alkadur-ESD-Primer-Component A	4.0	3.64
Alkadur-ESD-Primer-Component B	1.0	0.90
Water	1.0	1.00
Total consumption	approx. 0.200 - 0.300 kg/m ²	
Application steps	2	

^[2] The colours may differ slightly from the RAL colour template. Other colours on request.

^[3] Frost-free storage and transport.

Alkadur ESD HC Top Coat

	Part by weight	Part by volume
Alkadur-ESD-HC-Solution	11.0	9.9
Alkadur-ESD-HC-Hardener	14.9	9.0
ESD-Filler	9.2	6.5
Minimum thickness	approx. 1.2mm	
Application steps	1	
Layer thickness	approx. 2.0 mm	
Total consumption (at 2.0 mm)	approx. 3.200 kg/m ²	
Layer thickness	approx. 1.6 mm	
Total consumption (at 1.6 mm)	approx. 2.560 kg/m ²	

Pot Life

Pot life depends on temperature.

Temperature	Pot life
12 °C	approx. 90 min
20 °C	approx. 45 min
30 °C	approx. 25 min

Waiting and curing times

Time to walkability between single applications depend on the temperature.

Temperature	Walkable after
12 °C	48 h
20 °C	16 h
30 °C	12 h

The maximum waiting time between operations at 20 °C is approx. 36 hours.

After application, the temperature must be above 15 °C for at least 72 h and the humidity above 70 % for the system to cure completely.

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

Cleaning, Maintenance

Please refer to Technical Information 198 „CLEANING ADVICE FOR STEULER-KCH-INDUSTRIAL FLOORS“.

Condensation on the surface caused by high humidity can be removed by normal cleaning.

To optimise the cleaning properties, we recommend treating the surface with ALKADUR ESD FINISH in a clean condition before initial operation. The finish has to be polished.

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 Building 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
Alkadur HR Conductive Scraper Coat	RE90
Alkadur ESD Primer	RE20
Alkadur ESD HC Top Coat	RE30

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.

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