STEULER | Linings

TI 424K

Technical Information Surface Protection Linings
Issue 06.12.2023

KERANOL VE 110

Synthetic resin based jointing mortar for tile linings exposed to severe stress

Base

Vinyl ester resin

Material Group

Mortars, Jointing Materials

Description and use

3-component synthetic resin mortar based on vinyl ester resin for tile linings, bricks and shapes with high chemical, thermal and mechanical loads.

Typical areas of application of the mortar are tile linings in chemical industry plants, in waste and process water treatment, in sewers, pits and secondary containments, traffic and handling areas, neutralisation plants or acid pickling plants.

Sewers, pits and secondary containments are usually not lined with hexagon tiles.

Properties

- very good mechanical properties and chemical resistance
- temperature resistant up to 100 °C

Physical Data

Property [unit], Test method	Value
Density [g/cm³], DIN EN ISO 1183-1, ASTM D 792	1.8
Compressive strength [MPa], DIN EN ISO 604, ASTM C 579	80
Modulus of elasticity [MPa], DIN EN ISO 178, ASTM C 580	7500
Dissipation resistance [Ohm] to DIN EN 14879-3 at a relative humidity of > 70 %, ASTM F 150/98	$> 10^9$
Adhesive strength to ceramic bricks [MPa], DIN EN ISO 4624	> 3
Shore D hardness, DIN EN ISO 868	80
The thermal coefficient of linear expansion [1/K], ISO 11359-2, ASTM C 531	40×10^{-6}
Temperature resistance [°C]	100

Data are mean values

Chemical Resistance

Highly chemically resistant , especially to solvents and other organic compounds.

Information of chemical resistance is available on request.

Substrate

The substrate consists of a bedding mortar and acid-resistant tiles or bricks.

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The joints have to be clean and free of separating agents.

The tile surface is protected against application of the mortar with Steuler-Separating-Varnish Primer and STEULER SEPARATING-VARNISH A (see Technical Information TI 194). Stripping-Gel is used for narrow joints (hexagonal tiles).

Requirements

Application temperature	approx. 10–30 °C
Dew point distance	> 3 K
Dew point distance from 70 % air 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.

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
KCH-VE-Solution 21 clear	5032351001	Hobbock	25 kg	9 Months at 15 °C
KCH-VE-Solution 21 RAL 7031 [1]	5032400001	Hobbock	25 kg	9 Months at 15 °C
KCH-UP-Hardener 2	5032202073	Pouch	60 g	12 Months
KCH-Powder 51	5011155001	Bag	25 kg	24 Months
Steuler-Separating-Varnish Primer	5045014026	Canister	2 kg	24 Months
Steuler-Separating-Varnish A	5045013006	Drum	10 kg	24 Months
Steuler-Stripping-Gel	5045012006	Drum	10 kg	12 Months
Steuler-Cleaner SK	5040028006	Drum	10 kg	24 Months

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

Mixing Ratio / Consumption

Keranol VE 110 (for joint widths of 4-8 mm)

Component	kg / liter	Part by weight	kg / mix	l / mix
KCH-VE-Solution 21	0.447	1.00	2.000	1.900
KCH-UP-Hardener 2	0.013	0.03	0.060**	1 Pouch
KCH-Powder 51	1.340	3.00	6.000	4.300
Total	**1.800**		**8.060**	
10 % must be added to the calculated project requirement as a reserve.				

** pre-dosed package.

Consumption per litre in kg (approx.):	1.800	Mix yields in l (approx.):	4.5

Steuler Separating-Varnish Primer

Total consumption in kg/m² (approx.):	0.1	Application steps:	1

Steuler Separating-Varnish A

Consumption per application in kg/m² (approx.)	0.3	Application steps:	2–3

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

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Mortar requirement (jointing) per m² (approx.)

Split tiles 240 x 115 x 15 mm	approx. 2.0 l	3.5 kg
Split tiles 240 x 115 x 20 mm	approx. 2.5 l	4.5 kg
Split tiles 240 x 115 x 30 mm	approx. 3.5 l	6.5 kg
Split tiles 240 x 115 x 40 mm	approx. 4.5 l	8.0 kg

Keranol VE 110 (for hexagon tiles)

Component	kg / liter	Part by weight	kg / mix	l / mix
KCH-VE-Solution 21	0.691	1.00	2.000	1.900
KCH-UP-Hardener 2	0.021	0.03	0.060**	1 Pouch
KCH-Powder 51	1.038	1.50	3.000	2.150
Total	**1.750**		**5.060**	
10 % must be added to the calculated project requirement as a reserve.				

** pre-dosed package.

Consumption per litre in kg (approx.):	1.750	Mix yields in l (approx.):	2.9

Steuler-Stripping-Gel (for hexagon tiles)

Consumption per application in kg/m² (approx.)	0.8	Application steps:	1

Steuler Cleaner SK (for hexagon tiles)

Consumption on 10 l water in ml (project-related)	10

Joint dimensions (in mm)

Joint width	4–8
Joint width (hexagon tiles)	< 4
Depth of joints by hollow joint installation	min. 15

Pot Life

Pot life depends on temperature:

15 °C	approx. 40 minutes
20 °C	approx. 30 minutes
30 °C	approx. 12 minutes

Waiting and curing times

The waiting time until further pot life between operations are at 20 °C (approx.):

Standard

Steuler Separating-Varnish Primer	2 h
Steuler Separating-Varnish A	1–2 h
(The maximum waiting time of 2 hours between orders must not be exceeded. No further orders are possible on the following day!)	
Until the jointing is carried out	At least 3 h
Until the separating-varnish is removed	5–16 h

For narrow joints (hexagon tiles)

Steuler Separating-Varnish Primer	2 h
After jointing (until the stripping-gel is applied)	4–8 h
Until the stripping-gel is removed	12–16 h
(If the stripping-gel is removed, clean within 30 minutes. Work in sections on large areas!)	

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Higher temperatures reduce, lower temperatures increase the waiting time.

The finished coating is fully mechanically and chemically resistant at 20 °C after 5 days.

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
Keranol VE 110	SB-STY10

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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