

TI 107K

Technical Information Surface Protection Linings
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KERABUTYL V3

Two-ply soft rubber lining for the protection of steel and concrete components

Base

Butyl rubber (IIR)

Material Group

On-site rubber lining

Description

Pre-vulcanized soft rubber lining based on butyl rubber (IIR) with a bonding-friendly, factory-ground adhesive layer (brown side). Depending on the requirements, the layer thickness of the rubber sheet can be 2–5 mm.

Application

Rubber lining is mainly used in the following applications:

- Deionat Basin
- Nuclear power plant components

Properties

- Nuclear power plant approval
- Pre-vulcanized rubber sheet
 - Easy transport and storage without refrigeration for at least 36 months
 - Fully resistant immediately after application

Physical Data

Property [unit], Test method	Value
Temperature resistance [°C]	110
Shore A hardness, DIN ISO 7619, ASTM D 2240	55 ± 5
Peeling strength [N/mm], DIN EN 14879-4	≥ 3
Tensile strength [MPa], DIN 53504	≥ 6
Elongation at tear [%], DIN 53504	≥ 400
Maximum surface pressure [MPa]	2
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792 Top layer	1.16 ± 0.02
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792 Sub layer	1.35 ± 0.02

Data are mean values of 4 mm thick vulcanized rubber samples.

Chemical Resistance

Information of chemical resistance is available on request.

Substrate

Requirements

Application temperature	approx. 10–30 °C
Dew point distance	> 3 K
Dew point distance from 70 % air humidity	> 5 K

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.

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

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

For levelling and as a counter pole for the electrical leakage test, concrete substrates are filled with the conductive scraper coat KERA-POX EP 224 (see TI/VA 162) in a thickness of approx. 1-3 mm.

Steel

Refer to DIN EN 14879-1 as well as to STEULER-KCH-Formsheet 020 and 030.

The steel surface is blasted to near white blast cleaning. A surface cleanliness of Sa 2½ according to DIN EN ISO 12944-4 and the roughness grade "Medium (G)" according to DIN EN ISO 8503-1 must be achieved; surface roughness $R_z = 40-70 \mu\text{m}$. After blasting, the formation of new rust must be prevented by suitable measures, such as priming directly.

The condition of the substrate must be documented by STEULER-KCH-Test-Record 003 (Steel) resp. STEULER-KCH-Test-Record 004 (Inspection of Grit Blasting Works).

Stainless steel must be abrasive blasted with non-ferritic abrasives.

Grey cast iron must be tempered in the autoclave prior to blast cleaning, in order to expel any inclusions of moisture.

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. Unless otherwise specified, the minimum shelf life applies to a storage temperature of 20 °C. Higher temperatures reduce, lower temperatures increase the minimum shelf life. Keep the containers tightly closed (especially after material removal).

Component	Item number	Package	Content	Shelf life
Kerabutyl-V3-Sheet 2-5 mm one-side ground	6077225200–500	Roll		36 Months
Keratex-Primer	5040307020	Hobbock	16 kg	12 Months
Keratex-Solution	5040341014	Hobbock	22 kg	12 Months
Keratex-Accelerator	5040342026	Drum	2 kg	12 Months
Keratex-Hardener E	5040025047	Bottle	0.75 kg	12 Months
KCH-Cleaner 1	5040016068	Canister	8.5 kg	24 Months

Keratex-Primer is suitable for steel substrates. Stainless steel substrates are primed with Primer 1.

Primer 1	5040271039	Hobbock	23 kg	12 Months
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For handling, transport and storage observe the relevant safety data sheets.

Application

The KERABUTYL V3 rubber lining system consists of the 1-component Keratex-Primer, the 3-component Keratex Adhesive and the Kerabutyl-V3-Sheet.

Keratex Adhesive

Component	kg/m ²	Part by weight	kg / mix	Mix
Keratex-Solution	0.178	1.000	22.00 ^[1]	1 l
Keratex-Accelerator	0.016	0.090	2.00 ^[1]	60 ml
Keratex-Hardener E	0.006	0.035	0.75 ^[1]	30 ml
Total	0.200		24.75	

Concrete substrates must be pre-treated with KERAPOX EP 224 (see TI/VA 162). Apply Keratex-Primer to the substrate (stainless steel substrates are primed with Primer 1). Then apply the Keratex Adhesive twice. Wash off the brown, ground adhesive side of the rubber sheet with KCH-Cleaner 1 and then apply the Keratex Adhesive twice.

The rubber sheets are bonded to the substrate based on DIN EN 14879-4.

Pot life at 20 °C in hours approx.	2
Consumption primer per application in kg/m ² approx.	0.15
Consumption adhesive per application in kg/m ² approx.	0.2 (total consumption 0.8)
Consumption KCH-Cleaner 1 in kg/m ² approx.	0.2

The consumption figures already include the usual losses during application.

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.

Cleaning of Equipment

Tools that are soiled with uncured materials can be cleaned with KCH-Cleaner 1. Only clean in well ventilated areas.

^[1] Pre-dosed package

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This issue replaces all previous versions.