

TI 152K

Technical Information Surface Protection Linings
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VULCOFERRAN 2194

Hard rubber coating for the protection of steel components with general building authority approval no. Z-59.22-24.

Base

Natural rubber (NR) and styrene-butadiene rubber (SBR)

Material Group

On-site rubber lining

Description

Graphite-filled, single-layer hard rubber coating based on natural rubber (NR) and styrene-butadiene rubber (SBR), which can also be applied on site and vulcanized with hot water or steam.

Depending on the requirements, the layer thickness of the rubber sheet can be 3–6 mm.

Application

Rubber lining is mainly used in the following applications:

- Vessels in chlorine chemistry (membrane process)
- HCl tanks in pickling and regeneration plants
- Storage container
- Waste incineration plants

Properties

- DIBt approval
- Versatile vulcanizable

Physical Data

Property [unit], Test method	Value
Temperature resistance [°C]	100
Shore D hardness, DIN ISO 7619, ASTM D 2240	78 ± 5 ^[1]
Shore D hardness, DIN ISO 7619, ASTM D 2240 (Hot water- /steam vulcanization)	> 65
Adhesive strength [N/mm ²], DIN EN ISO 4624	≥ 6
Tensile strength [MPa], DIN 53504	≥ 30 ^[1]
Elongation at tear [%], DIN 53504	> 2 ^[1]
Maximum surface pressure [MPa]	10
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792	1.29 ± 0.02

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

^[1] Vulcanized in press (2 h /+ 145 °C).

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

Steel

Refer to DIN EN14879-1 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. The use of refrigerated containers should be considered on a project-by-project basis, especially when components are stored at temperatures below 20 °C in order to extend their shelf life. Keep the containers tightly closed (especially after material removal).

Component	Item number	Package	Content	Shelf life
Vulcoferran-2194-Sheet 2-6 mm	6071610200–600	Roll		2 Months 9 Months < 15 °C
Primer 1	5040271039	Hobbock	23 kg	12 Months
Primer 2	5040274001	Hobbock	25 kg	12 Months
Vulkodurit-Adhesive LS3A	5040253020	Hobbock	16 kg	6 Months
Kerabutyl-Cleaning-Agent	5040020041	Canister	8 kg	24 Months
KCH-Cleaner 1	5040016068	Canister	8.5 kg	24 Months
KCH-Diluent 5	5040021041	Canister	8 kg	24 Months
KCH-Diluent 9	5040015005	Canister	4 kg	24 Months
Release liners quality 2602/4706/125 C	9012015			

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

Application

The VULCOFERRAN 2194 rubber lining system consists of the 1-component primer Primer 1, the 1-component primer Primer 2, the 1-component vulcodurite adhesive LS3A and the Vulcoferran 2194 sheet.

Apply primer 1 once to the steel substrate. Then apply Primer 2 once and then the adhesive twice. Apply the diluted adhesive once to the rubber sheet.

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

A permanent and strong bond is achieved through the subsequent vulcanisation process.

Consumption

Primer 1	approx. 0.15 kg/m ²
Primer 2	approx. 0.20 kg/m ²
Vulkodurit-Adhesive LS3A	approx. 0.25 kg/m ² per application
Vulkodurite adhesive LS3A, diluted	approx. 0.10 kg/m 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

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 soiled with uncured materials can be cleaned with KCH-Cleaner 1 (primer) and KCH-Diluent 5 (adhesive). Only clean in well ventilated areas.

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This issue replaces all previous versions.