

TI 206K

Technical Information Surface Protection Linings
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VULKODURIT D3

Hard rubber coating for the protection of steel components.

Base

Natural rubber (NR)

Material Group

Workshop rubber linings

Description

Single-ply hard rubber lining based on natural rubber (NR), vulcanized in an autoclave.

Depending on the requirements, the layer thickness of the rubber sheet can be 2–6 mm.

Application

VULKODURIT D3 is recommended as a protective lining for structural components made of steel that are subjected to chemical exposure.

The primary spectrum of application is for the lining of components at garbage incineration plants, water treatment plants, processing and supply tanks operated by the chemical industry, as well as diverse steel components in various industrial branches.

Furthermore, VULKODURIT D3 is suited for application in nuclear power plants up to a radiation dose of 1 MGy.

Properties

VULKODURIT D3 is characterised by its good resistance to a wide range of chemicals and a high degree of diffusion resistance. It also exhibits excellent mechanical properties.

Physical Data

Property [unit], Test method	Value
Temperature resistance [°C]	100
Shore D hardness, DIN ISO 7619, ASTM D 2240	75 ± 5
Adhesive strength [N/mm ²], DIN EN ISO 4624	≥ 8
Tensile strength [MPa], DIN 53504	≥ 25
Elongation at tear [%], DIN 53504	< 3
Maximum surface pressure [MPa]	10
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792	1.21 ± 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

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
Vulkodurit-D3-Sheet 2 - 7 mm	6071804200–700	Roll		12 Months < 15 °C
Vulkodurit-Brushing-Adhesive	5040257021	Hobbock	15 kg	6 Months
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
Seam-Solution 2104/N1	5040703021	Hobbock	15 kg	12 Months
KCH-Diluent 5	5040021041	Canister	8 kg	24 Months
KCH-Cleaner 1	5040016068	Canister	8.5 kg	24 Months
Release liners quality 2602/4706/125 C	9012015			
Kerabonit-D3-HW-Sheet 2–6 mm ^[1]	6074001200–600	Roll		2 Months 9 Months < 15 °C
Keratex-Hardener E ^[1]	5040025047	Bottle	0.75 kg	12 Months

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

Application

The VULKODURIT-D3-rubber lining is composed of the two-component pre-coat mixture, the one-component Vulkodurit adhesive LS3A and the Vulkodurit-D3-Sheet.

For stainless steel and grey cast iron, the one-component Primer 1 and the one-component Primer 2 are applied instead of the pre-coat mixture.

^[1] Only required for on-site repairs.

Pre-coat mixture

Mixing Ratio	Parts by weight (kg)	Parts by volume (l)
Vulkodurit-Brushing-Adhesive	100	2.00
Primer 2	10	0.18

Spread the pre-coat mixture on the substrate and then apply the Vulkodurit adhesive LS3A. For stainless steel and grey cast iron, spread the Primer 1 on the substrate, followed by the Primer 2 and then apply two coats of the Vulkodurit-Adhesive LS3A.

The rubber sheets are coated with KCH Thinner 5 and bonded to the substrate in accordance with DIN EN 14879-4. A permanent and firm bond is achieved by pressing the rubber sheet and the subsequent vulcanization process.

Consumption

Pre-coat mixture	approx. 0.22 kg/m ²
Vulkodurit-Adhesive LS3A	approx. 0.25 kg/m ² per application
KCH-Diluent 5	approx. 0.10 kg/m ²
For stainless steel / grey cast iron additionally	
Primer 1	approx. 0.15 kg/m ²
Primer 2	approx. 0.20 kg/m ²

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

The working tools contaminated with the adhesive are cleaned using KCH-Diluent 5.

Cleaning must be carried out prior to hardening of the material. Cleaning must be carried out outdoors.

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This issue replaces all previous versions.