

Technical Data Sheet

33.07.102E – 02/07

® KERABUTYL V

Soft rubber lining to protect steel and concrete components

General construction regulation approval no. Z-59.22-30

One-site rubber lining

Description

KERABUTYL V is a vulcanized two-ply soft rubber lining based on chlorobutyl rubber (CIIR). The layer thickness of the rubber sheet may range between 3 and 5 mm depending on the requirement.

Typical uses

KERABUTYL V is applied to protect steel and concrete components that are exposed to chemical attack. A particularly noteworthy feature of KERABUTYL V is that it can be applied in case of high thermal stress. The primary spectrum of application is for the lining of absorbers, ducts, storage and supply vessels in flue gas desulfurization and garbage incineration plants. Positive experience has been gained for more than 100,000 operating hours with KERABUTYL V linings applied in absorbers.

Furthermore, KERABUTYL V is used in process and storage tanks, channels and pits in the chemical industry and in waste water and process water treatment facilities.

KERABUTYL V has been certified by the DIBt in accordance with the building and test standards for application as a protective lining for steel tanks in which water-contaminating liquids are stored.

Properties

KERABUTYL V is characterised by its superior chemical and thermal resistance as well as excellent mechanical properties. It stands out for its superior resistant to water vapour.

KERABUTYL V also provides all the advantages of a vulcanised rubber sheet, particularly problem-free storage and transportation without cooling for at least 36 months as well as being fully capable of withstanding stress immediately after application without the necessity of costly vulcanization procedures.

Chemical resistance

Information on the chemical resistance properties will be furnished on request.

Substrate

Steel and concrete components may serve as substrate.

The steel structures and concrete components to be rubber lined shall comply with the requirements of DIN EN 14879-1.

Surface pretreatment

Steel: The steel surface must be blasted to a metallic white finish. A preparation degree of Sa 2 ½ as specified in DIN EN ISO 12944-4 and a roughness degree of "medium (G)" as specified in DIN EN ISO 8503-1 must be achieved; minimum roughness $R_z = 50 \mu\text{m}$ (Segment 2). After blasting, the steel surface must be primed.

Concrete: If required the concrete substrate must be treated by means of blasting in such a way that it is free from cement slurries, cement skin, loose and brittle particles, defects and separating substances. The residual moisture of the concrete surface shall be < 4%.

Concrete substrates are provided with a conductive smoothing coat (thickness approx. 1 mm) of KERAPOX EP 221 (see: Technical Information 33.05.307E) to level unevenness' and to serve as counter pole for electrical tightness testing.

Application

The KERABUTYL V rubber lining is composed of the single-component Keratex primer, the three-component adhesive BS and the KERABUTYL V sheet.

Mixing ratios	Parts by weight (kg)	Parts by volume (l)
<u>Adhesive BS</u>		
Solution BS	100	2.00
Accelerator BS	9	0.12
Keratex hardener E	3.4	0.06

Apply the Keratex primer to the steel or concrete substrate (KERAPOX EP 221), followed by two coats of the adhesive BS.

Wipe off the rubber sheet with KCH cleaner 1, then apply two coats of adhesive BS. The rubber sheets are then firmly bonded to the substrate by means of rolling as specified in DIN 28055-1.

Solution BS	12 months
Accelerator BS	12 months
Keratex hardener E	12 months
KCH cleaner 1	24 months

Pot life

Temperature	Adhesive BS
15°C	~ 160 min
20°C	~ 120min
30°C	~ 55 min

Higher temperatures will shorten the shelf life of this products. The packaging drums are to be kept tightly shut and are to be resealed each time material has been removed. All liquid products must be stored frost-free.

Consumption

Keratex primer:	approx. 0.15 kg/m ²
Adhesive BS:	approx. 0.2 kg/m ² per coat
KCH cleaner 1:	approx. 0.2 kg/m ²

Safety

Adequate ventilation shall be provided during the execution of all work. Ventilation is compulsory for all work carried out in pits and closed rooms. All vapours that are produced during processing must be continuously suctioned off at floor or bottom level.

Packing

The following standard quantities are available:

Only such amount of material effectively required to continue work is to be stored at the working place. The instructions for the prevention of fire and explosion are to be observed if required.

Keratex primer	5,16 kg
Solution BS	5,15 kg
Accelerator BS	5,25 kg
Keratex hardener E	0,75 kg
KCH cleaner 1	8,50 kg

Please note and ensure that even smallest quantities of the individual components and/or prepared mixtures are not allowed to reach the sewerage.

Storage

The products shall be stored in a cool and dry place. With a storage temperature of 23°C the minimum shelf life is as follows:

All regulations for the prevention of accidents stipulated by the employer's liability assurance association, the regulations for the prevention of accidents prescribed at the site of application and the TRGS 507 „Surface treatment in rooms and tanks“, as well as the safety precautions listed on the packing (label) required by the provisions of the Hazardous Materials Ordinance shall be adhered to. The operating instructions pursuant to § 14 GefStoffV as well as the EC safety data sheets are to be complied with.

KERABUTYL V sheet	36 months
Keratex primer	12 months

Technical data	Test specification	Unit	Parameter
Density top layer	DIN EN ISO 1183-1	g/cm ³	1.19 ± 0.02
Density lower layer	DIN EN ISO 1183-1	g/cm ³	1.45 ± 0.02
Hardness	DIN 53505	Shore A	55 ± 5
Tensile strength ^{*)}	DIN 53504	MPa	≥ 4
Elongation at tear ^{*)}	DIN 53504	%	≥ 350
Peeling strength	DIN 28055-2	N/mm	≥ 3
Max. surface pressure		MPa	2
Max. operating temperature		°C	100

*) : The values were determined at 4 mm thick rubber samples.

The technical data contained herein represents the current state of our product knowledge and is intended to furnish general information regarding our products and their application spectrum. In view of the diversity and multitude of application possibilities, this data should be regarded solely as general information, which does not guarantee any specific properties and/or suitability of these products for each concrete case of application. Consequently, when ordering a product, please contact us for detailed information relative to the properties required for a specific application. Our technical service will, upon request, furnish a profile of characteristics for the concrete application without delay.

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