

## PRODUCT INFORMATION

### **CHEMOLINE 4 B (BIIR)**

#### **General properties**

**CHEMOLINE 4 B** is a black soft rubber material on the basis of bromobutyl rubber (BIIR) that can be vulcanised not only in the workshop by means of hot air or in the autoclave with steam alternatively but is also self-vulcanising on site within 3 – 4 months at ambient temperature ( $T > + 25 \text{ }^{\circ}\text{C}$ ).

If a considerable reduction in vulcanisation time at ambient temperature is required above mentioned material could also be vulcanised by means of hot air, hot water or steam.

Under special circumstances **CHEMOLINE 4 B** can also be vulcanised at operating conditions (vulcanisation by means of medium). This kind of vulcanisation is only allowed after having consulted the supplier (REMA TIP TOP).

The essential properties of **CHEMOLINE 4 B** are its strong resistance to mineral acids, bases, polar solvents, aqueous phases, and especially its excellent diffusion resistance to gases like sulphur dioxide, nitrogen oxide and saturated water vapour.

Above mentioned lining material can be used within temperatures of  $- 40 \text{ }^{\circ}\text{C}$  up to  $+ 100 \text{ }^{\circ}\text{C}$ .

#### **General Approval of German Institute for Construction Technology (DIBt)**

The lining material **CHEMOLINE 4 B** is approved by the German Institute for Construction Technology (DIBt) as an organic surface protection for storage tanks that are subject to the German water resources law (WHG 19 I)

**CERTIFICATE No.: Z-59.22-159**

#### **Fields of application**

Due to its resistance to numerous chemicals **CHEMOLINE 4 B** is worldwide used in the chemical, chlorine and steel industry, in mineral processing installations as well as in the field of environmental protection. Here, structural steel parts subject to high chemical, mechanical and thermal stress, such as storage bins, filter cells, mixing tanks, crystallisers, condensers and FGD plants can be protected from corrosion by using the **CHEMOLINE 4 B** lining material.

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### Shelf life

The **CHEMOLINE 4 B** lining material can be stored without any loss of quality up to 8 weeks at maximum temperatures of + 25 °C.

Under cool storing conditions (at a temperature of + 5 °C) above mentioned lining material can be stored up to 6 months. The standard DIN 7716 has to be observed.

### Application on steel

a) The lining material **CHEMOLINE 4 B** is bonded onto steel by using the TIP TOP two-coat primer system **PRIMER PR 500-1** / **PRIMER S 500-2** in combination with **CEMENT TC 5000** (polymer basis BIIR).

The standards EN 14879-1, EN 14879-4 and EN ISO 12944-4 have to be observed.

The preceding bonding system requires a subsequent thermal treatment in order to reach the final bonding strength, i.e. the lining material must be vulcanised for 7 days at minimum 50 °C by hot air or hot water or the medium when permissible.

b) The CFC-free cold bonding system **METAL PRIMER PR 304** in combination with **CEMENT BC 3004** or the adhesive system **METAL PRIMER PR 300** in combination with **CEMENT BC 3000** can be used alternatively. When using the cold bonding system the service temperature is limited to 85 °C. The chemical resistance has to be observed.

### Spark test

The spark test (Holiday Test) is carried out according to the EN 14879-4. An earthed high-voltage spark tester Elmed-Isotest II RT or alternatively the Wegener AC Spark Tester WEG 20/22 must be used.

The test voltage has to be set as follows:

Lining material	Test voltage
<b>CHEMOLINE 4 B</b> un-vulcanised	4 KV/mm (max. 20 KV)
<b>CHEMOLINE 4 B</b> vulcanised	4 KV/mm (max. 20 KV)

## Mechanical - Physical Characteristics

Properties	Units	Standard	Value
Polymer		ISO 1629	BIIR
Tensile strength determined on:	[MPa] S2 Bar	DIN 53504	$\geq 5$ <sup>1)</sup> $\geq 3$ <sup>4)</sup>
Elongation at break determined on:	[%] S2 Bar	DIN 53504	$\geq 370$ <sup>1)</sup> $\geq 500$ <sup>4)</sup>
Hardness	[Shore A]	DIN 53505	$50 \pm 5$ <sup>1)2)</sup> $60 \pm 5$ <sup>3)</sup> $40 \pm 5$ <sup>4)</sup>
Rebound resilience	[%]	DIN 53512	$\geq 6$ <sup>1)</sup>
Abrasion	[mm <sup>3</sup> ]	ISO 4649	$\leq 320$ <sup>1)</sup>
Density	[g / cm <sup>3</sup> ]	EN ISO 1183-1	$1.27 \pm 0.02$
Bonding strength on steel	[N / mm]	ISO 813	$\geq 4$
Surface resistivity	[ $\Omega$ ]	DIN IEC 60093	$\geq 10^{12}$
Test voltage	[KV/mm]	EN 14879-4	4
Operating temperature	[° C]		$\leq 100$
Thermal conductivity	[W / mK]	DIN 51046	0.33
Water vapour permeability (thickness of sheet 4 mm)	[g / m <sup>2</sup> · d]	DIN 53122	0.04

<sup>1)</sup> Press vulcanisation

<sup>2)</sup> Vulcanisation in an autoclave or without pressure at ambient temperature within 3-4 month @ [T = + 25 °C  $\pm$  2 °C]

<sup>3)</sup> Hardness after full vulcanisation without pressure

<sup>4)</sup> Vulcanisation without pressure by means of hot air (+ 50 °C / 7 d)

The information given above is based on approved test results and represents statistical product data, which however does not necessarily guarantee the specific properties of the product.

We reserve the right to changes to technical specifications without prior notice, provided these ensure technical improvement without major modifications to the product itself.

## Basic Program *CHEMOLINE 4 B*

### Availability and dimensions

Rubber sheets with PE separating sheets on hard core freely suspended in cardboard boxes.

Length [mm]	Width [mm]	Thickness [mm]	Quantity [m.]	Product-No.
10.000	1.100	2	11	293 <del>5</del> 28
10.000	1.100	3	11	297 <del>5</del> 28
10.000	1.100	4	11	301 <del>5</del> 28
10.000	1.100	5	11	305 <del>5</del> 28
10.000	1.100	6	11	309 <del>5</del> 28

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