



## PRODUCT INFORMATION

### CHEMOLINE 4 CN

#### PRODUCT DESCRIPTION

**CHEMOLINE 4 CN** is a pre-vulcanised, two-layer soft rubber lining based on bromobutyl rubber (BIIR), which can be fully loaded immediately after application.

#### FIELDS OF APPLICATION

**CHEMOLINE 4 CN** is used for the rubber lining of steel and concrete components exposed to chemicals. The fields of application range from the chemical, chlorine, fertiliser, steel and power generation industries, deionised water basins in nuclear facilities and ore processing to environmental protection.

Typical applications are the linings of storage and agitator tanks, crystallisation and condensation reactors, thickeners, pipelines and process tanks in flue gas desulphurisation plants.

#### FEATURES

- Very good chemical resistance to mineral acids, bases, polar solvents and salt solutions
- Excellent diffusion resistance to sulphur dioxide and saturated water vapour
- Full load immediately after application
- Application on steel and concrete components
- On-site rubber lining

#### CHEMICAL RESISTANCE

Requests for chemical resistance can be sent to [awt@tiptop-elbe.de](mailto:awt@tiptop-elbe.de).

#### SUBSTRATE

Substrates are components made of non-ferrous metals, cast materials, unalloyed or austenitic steel, concrete, screed or plaster. The components must be designed and manufactured in accordance with EN 14879-1. The substrate must remain dry during application.

#### SURFACE PRE-TREATMENT

##### STEEL

EN14879-1 and the TIP TOP specification "Corrosion protection of metallic components" must be observed. Unalloyed steel must be blasted to "Near White Metal" in accordance with EN ISO 12944-4. A surface preparation degree of SA 2½ according EN ISO 8501-1 and a roughness degree "Medium (G)" according EN ISO 8503-2 must be achieved. A minimum roughness depth of  $Rz \geq 50 \mu\text{m}$  is required. After blasting, the formation of new rust should be prevented by suitable measures (e.g. priming).

##### CONCRETE | SCREED

EN 14879-1 and the TIP TOP specification "Requirements for concrete structures and cementitious substrates" must be observed. The substrate must be prepared by suitable measures so that it is dry, free of cement slurries, cement skin, loose and friable parts, structural defects and substances with a separating effect. The residual moisture of cementitious substrates must not exceed 4%. The substrate is usually trowelled with a conductive epoxy resin filler (**REMAFIX C**) approx. 1-3 mm.

#### CLIMATIC CONDITIONS

During application, direct or indirect sunlight must be avoided and the climatic conditions specified in the application instruction must be observed. To avoid condensation, a dew point difference of at least 3K must be maintained. During application, the materials must never be colder than the ambient temperature at the workplace.

#### ADHESIVE SYSTEM

**CHEMOLINE 4 CN** is bonded to steel or concrete with **PRIMER PR 304** in combination with **CEMENT BC 3004** with 4% **HARDENER E-40**.

#### APPLICATION METHOD | CONSUMPTION | OPEN TIME

Coat	Product	Application	Consumption	Min. Open Time	Max. Open Time
1. Coat steel	<b>PRIMER PR 304</b>	Roll / brush	ca. 200 g/m <sup>2</sup>	2 h	7 d

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3. Coat steel	<b>CEMENT BC 3004</b>	Brush	ca. 200 g/m <sup>2</sup>	30 min	2 h
1. Coat rubber	<b>CEMENT BC 3004</b>	Brush	ca. 200 g/m <sup>2</sup>	30 min	1 h

Always observe the current application instruction before using the products. The specified open times apply to a temperature range of +20°C to +25°C.

#### CLEANING

All equipment should be cleaned with **SOLVENT CF-CE** immediately after use. The equipment should be cleaned in a well-ventilated area.

#### VULCANISATION

Location	Vulcanisation
On-site	As vulcanisation has already taken place in the workshop, no thermal post-treatment is required

#### SPARK TEST

The spark test is carried out in accordance with EN 14879-4. Only the Elmed Isotest IIRT, Isotest 3P or Isotest Inspect 35 high-voltage testers and the Wegener WEG 20, WEG 22 or WEG 100 test pistols may be used. Multiple tests can reduce the dielectric strength of the lining materials and must be taken into account by reducing the test voltage by at least 1 kV/mm. Special agreements are required for linings that have already been in operation.

CHEMOLINE 4 CN	Test voltage	Max. Test voltage
vulkanisiert	4,0 kV/mm	20,0 kV

#### APPROVALS AND TEST CERTIFICATES

- General technical approval **Z-59.22-149** of the German Institute for Building Technology (DIBt) for steel storage tanks
- Approval for nuclear power plants in accordance with AVS D 6.1/50 Rev. A

#### DELIVERY FORM | MINIMUM SHELF LIFE

Product	Packaging	Article No.	Storage temperature	Min. shelf life
<b>CEMENT BC 3004</b>	0.7 kg	525 4088	5 - 25°C	24 Mon
<b>CEMENT BC 3004</b>	4.5 kg	525 4095	5 - 25°C	24 Mon
<b>CEMENT BC 3004</b>	9 kg	525 4143	5 - 25°C	24 Mon
<b>CEMENT BC 3004</b>	18 kg	525 4130	5 - 25°C	24 Mon
<b>CEMENT BC 3004</b>	190 kg	525 4105	5 - 25°C	24 Mon
<b>HARDENER E-40</b>	30 g	525 1067	5 - 25°C	24 Mon
<b>PRIMER PR 304</b>	0.75 kg	525 4112	5 - 25°C	12 Mon
<b>PRIMER PR 304</b>	10 kg	525 4150	5 - 25°C	12 Mon
<b>SOLVENT CF-CE</b>	10 l	595 9163	5 - 25°C	60 Mon

Dimensions	Article No. (DIN*)	Article No. (MIN)	Storage temperature	Min. shelf life
3 mm x 1100 mm x 10000 mm	528 7897	-	≤ +30°C	36 Mon
4 mm x 1100 mm x 10000 mm	528 7907	-	≤ +30°C	36 Mon
5 mm x 1100 mm x 10000 mm	528 7914	-	≤ +30°C	36 Mon

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#### DELIVERY FORM | MINIMUM SHELF LIFE

Dimensions	Article No. (DIN*)	Article No. (MIN)	Storage temperature	Min. shelf life
6 mm x 1100 mm x 10000 mm	528 7921	-	≤ +30°C	36 Mon

\* Tolerances according to EN 14879-4

The rubber sheets are wrapped in PE film on cardboard sleeves and packed freely suspended in sturdy, stackable cardboard boxes. The products must be stored in a cool, dry place protected from direct sunlight. Higher storage and transport temperatures shorten the shelf life. The containers must be stored frost-free and tightly closed and resealed after each removal. DIN 7716 must be observed. Information on handling, storage & transport can be found in the safety data sheet.

#### SAFETY MEASURES

The safety data sheets for the individual components and the legal regulations for handling hazardous substances must be observed. The prescribed personal protective equipment must be worn. Information on disposal can be found in the safety data sheets for the individual products. The safety data sheets can be downloaded from our homepage in the download area.

#### PHYSICAL DATA

Properties	Standard	Unit	Value
Abrasion	ISO 4649 (ASTM D5963)	mm <sup>3</sup>	≤ 320*
Colour	-	-	black
Density	EN ISO 1183-1 (ASTM D792)	g/cm <sup>3</sup>	1.25 ± 0.02
Elongation at break	DIN 53504 (ASTM D412)	%	≥ 370***
Max. Surface pressure	-	N/mm <sup>2</sup>	2
Peel strength steel	ISO 813 (ASTM D429)	N/mm	≥ 4
Polymer base	ISO 1629 (ASTM D1418)	-	BIIR
Shore hardness	ISO 48-4 (ASTM D2240)	Shore A	55 ± 5**
Temperature range	-	°C	-40 up to +90
Tensile strength	DIN 53504 (ASTM D412)	N/mm <sup>2</sup>	≥ 4***

The specified temperatures depend on the existing load and can therefore vary.

\* Press vulcanisation \*\* Autoclave vulcanisation \*\*\* 4 mm rubber

Information given in the fact sheet above corresponds to the current knowledge available to us regarding our products at the time of its drafting and is intended as a guideline for informational purposes. However, because of the multiple possibilities regarding possible applications, processing and on site conditions, any information given in the fact sheet above is not legally binding, in particular, without being limited to, such information shall not be interpreted as a warranty of merchantability or of fitness for a particular purpose. Customer therefore is advised to conduct its own testing or make an inquiry with our technical department before ordering. We reserve the right to change the product at any time, in particular, without being limited to, minor changes because of advancements in technology. If by way of exception, the information given in the fact sheet above is incorporated by reference into any contract concluded with us under German Law, such information, shall only be interpreted as determining the specific requirements of the contractual products as set out in § 434 BGB (German Civil Code) and shall not be interpreted as constituting a guarantee of condition.