

PRODUCT INFORMATION

CHEMONIT 181

PRODUCT DESCRIPTION

CHEMONIT 181 is a black hard rubber lining based on Polyisoprene rubber (IR) and Styrene Butadiene rubber (SBR).

FIELDS OF APPLICATION

CHEMONIT 181 is used mainly for the workshop rubber lining of steel components which are exposed to chemical loads. The field of applications are mainly chemical plants, chlorine and steel industry, electricity generating plants, mineral processing plants and environmental protection plants. Some typical examples of applications are the rubber linings of storage tanks, filter tanks, agitated tanks, water treatment tanks, crystallization reactors, centrifuge drums as well as various tanks and pipelines in nuclear power plants.

APPROVALS & CERTIFICATES

- Approval for nuclear power plants according AVS D 6.1/50 Rev. A
- Certificate of suitability for aqueous food in accordance with the guidelines CFR 21§ 177.2600 of the Food and Drug Administration (FDA)
- BS 6920 (British Standard) => WRAS-listing

FEATURES

- Strong chemical resistance against mineral acids and bases
- High diffusion resistance
- Application onto steel components
- Workshop rubber lining

CHEMICAL RESISTANCE

Information on the chemical resistance properties is available upon request.

SUBSTRATE

Substrates are components made of non-ferrous metals, cast iron, non-alloyed or austenitic steel. Components to be rubber lined shall be designed and manufactured in accordance with EN 14879-1.

SURFACE PRE-TREATMENT

All surfaces to be rubber lined must be dry and free of contaminants. All contaminants, including non-visible detectable contaminants, must be removed in accordance with DIN TR 55684 or EN ISO 8502. Non-alloyed steel surfaces shall be abrasive blasted to "Near White Metal" in accordance with EN ISO 12944-4. A surface preparation degree of SA 2½ (SSPC-SP 10; NACE No. 2) as specified in EN ISO 8501-1 and a "medium (G)" roughness degree as specified in EN ISO 8503-2 must be achieved. A minimum surface profile of $R_z \geq 60 \mu\text{m}$ is required. To prevent flash rust, the primer must be applied immediately after the blasting and cleaning of the substrate or the component must be air conditioned to a relative humidity of $\leq 40\%$.

ENVIRONMENTAL CONDITIONS

Throughout the rubber lining process, the temperatures of the substrate and rubber lining materials shall be maintained within the range specified by TIP TOP. All surfaces shall be maintained at a temperature at least 3K above the dew point in order to prevent condensation.

ADHESIVE SYSTEM

CHEMONIT 181 is bonded onto steel components by using **ADHESIVE SH-3A SOLUTION (PRIMER HG 2)**.

APPLICATION METHOD AND CONSUMPTION

During the application of the product, the application instruction must always be observed.

Coat	Product	Application Method	Coverage [g/m ²]
1. Coat steel	Mixture of ADHESIVE SH-3A SOLUTION + 10% PRIMER HG 2	Brush	ca. 200
2. Coat steel	ADHESIVE SH-3A SOLUTION	Brush	ca. 200
1. Coat rubber	ADHESIVE PARA SOLUTION or ADHESIVE SH-3A SOLUTION	Brush	ca. 150 (PARA) ca. 200 (SH-3A)

For steam vulcanization or for special applications (e.g. rubber lining on stainless steel) the following adhesive systems are applied:

Coat	Product	Application Method	Coverage [g/m ²]
1. Primer steel	PRIMER HG 1	Roll / Spray	ca. 150
2. Primer steel	PRIMER HG 2	Brush	ca. 150
3. Coat steel	ADHESIVE SH-3A SOLUTION	Brush	ca. 200
4. Coat steel	ADHESIVE SH-3A SOLUTION	Brush	ca. 200
1. Coat rubber	ADHESIVE PARA SOLUTION or ADHESIVE SH-3A SOLUTION	Brush	ca. 150 (PARA) ca. 200 (SH-3A)

CLEANING

Clean all equipment with **SOLVENT CF-CE** immediately after use.

VULCANISATION

The details given in the application instruction must be observed during vulcanisation.

Place	Vulcanisation Method
Workshop	Vulcanisation in an autoclave under pressure by means hot air or steam.

SPARK TEST

The spark test (holiday test) of new rubber linings is carried out according EN 14879-4 by using a high voltage tester. For carrying out the spark test, only the high voltage testers of Elmed model Isotest II RT or P as well as the test pistols of Wegener model WEG 20 or 22 or 100 are allowed.

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CHEMONIT 181	Test Voltage [kV/mm]	Max. Test Voltage [kV]
unvulcanised	5,0	20,0
vulcanised	5,0	20,0

SAFETY MEASURES

The material safety data sheets of the individual components, the safety instructions on the packing (label) as well as the legal requirements for handling hazardous materials must be observed.

PACKING UNITS

The products are supplied in the following standard package sizes:

Product	Size	Article No.
ADHESIVE PARA SOLUTION	6 kg	538 1504
ADHESIVE PARA SOLUTION	21 kg	538 1460
ADHESIVE SH-3A SOLUTION	4 kg	538 1410
ADHESIVE SH-3A SOLUTION	8 kg	538 1511
ADHESIVE SH-3A SOLUTION	21 kg	538 1430
PRIMER HG 1	4.5 kg	525 3050
PRIMER HG 1	9 kg	525 2956
PRIMER HG 2	4.5 kg	525 3060
PRIMER HG 2	9 kg	525 2987
SOLVENT CF-CE	10 l	595 9163

PACKAGING OF RUBBER SHEETS

The rubber sheets are wrapped with PE-separating sheets on cardboard cores, and packed freely suspended in stable, stackable card boxes, to avoid pressure points.

CHEMONIT 181 is manufactured by extrusion in the following standard sizes:

Technical Data	Standard	Unit	Value
Polymer	ISO 1629	-	IR / SBR
Bending Strength	EN ISO 178	N/mm ²	≥ 40*
Density	EN ISO 1183-1	g/cm ³	1.32 ± 0.02
Contact Resistance	DIN IEC 60093	Ω · cm	10 ¹¹
Modulus of Elasticity	EN ISO 527 (ASTM D638)	N/mm ²	≥ 1500*
Hardness Shore D	ISO 48-4 (ASTM D2240)	-	75 ± 5**
Max. Surface Pressure	-	N/mm ²	10
Adhesion Strength Steel	EN ISO 4624 (ASTM D429; Method E)	N/mm ²	≥ 6
Elongation at Break	DIN 53504 (ASTM D412)	%	≥ 3.5***
Tensile Strength	DIN 53504 (ASTM D412)	N/mm ²	≥ 20***
Temperature Range	-	°C	-25 up to +100

* Press vulcanisation ** Autoclave vulcanisation *** 4 mm rubber // **Note:** The indicated temperatures are dependent on the present load and may vary

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.

TIP TOP Oberflächenschutz Elbe GmbH | Heuweg 4 | 06886 Wittenberg / Germany
Phone: +49 (0) 3491 635 50 | E-Mail: info@tiptop-elbe.de | Internet: www.tiptop-elbe.com

TIP TOP Oberflächenschutz Elbe GmbH	CHEMONIT 181	Revision 1.11 - 12.03.2021
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Size (Tolerances according EN 14879-4)	Article No.
2 mm x 1100 mm x 10000 mm	529 5102
3 mm x 1100 mm x 10000 mm	529 5119
4 mm x 1100 mm x 10000 mm	529 5126
5 mm x 1100 mm x 10000 mm	529 5130
6 mm x 1100 mm x 10000 mm	529 5140

STORAGE

The products must be stored in a cool and dry place, away from direct sunlight. The rubber sheets must be stored free of pressure, best in the original packaging. The rubber sheets may not receive any pressure points. At the specified storage temperatures a shelf life of the products is given of at least for the following periods:

Product	Temperature	Shelf Life
ADHESIVE PARA SOLUTION	≤ +20°C	12 Months
ADHESIVE SH-3A SOLUTION	5 - 20°C	12 Months
CHEMONIT 181	≤ +25°C	3 Months
CHEMONIT 181	≤ +5°C	12 Months
PRIMER HG 1	5 - 20°C	12 Months
PRIMER HG 2	5 - 20°C	12 Months
SOLVENT CF-CE	5 - 25°C	60 Months

If the storage time is exceeded, the materials must be tested before use. Higher storage and transport temperatures will reduce the shelf life. The containers must be kept tightly closed. Liquid products must be stored frost-proof. In addition, the DIN 7716 must be observed.