

# CEMTOBENT® DS BENTONITE WATERPROOFING LINER

## Sodium Bentonite Waterproofing liner

### PRODUCT DESCRIPTION

CEMto bent® DS is a sodium-bentonite waterproofing membrane specially designed for use on vertical and horizontal applications on below ground reinforced concrete structures.

CEMto bent® DS consists of two complementary components:

- ☞ The primary liner is a high-quality (GCL) geo-composite clay liner
- ☞ The secondary liner is a 3D composite (polyethylene honeycomb liner) with a unique cell structure which encapsulates the sodium bentonite powder.



### APPLICATION AREAS

Typical applications include blind-side waterproofing, backfilled concrete walls, earth covered roofs, structural slabs, tunnels, property line construction including secant and contiguous piling, skin wall, metal sheet piling, shotcrete and stabilized earth retention walls. CEMto bent® DS is resistant to: nitrates, phosphates, chlorides, sulfates, lime and organic solvents.

Note: Where contaminated groundwater or saltwater conditions exist, use CEMto bent CS-Plus.

### HOW DOES CEMTOBENT® DS WORK?

The sealing process of the bentonite lining system is activated immediately by penetrating water causing a controlled swelling of the bentonite clay within the matrix, forming a dense, impermeable waterproofing membrane. Even if the primary sealing, the 3D-PE-Sheet, is damaged, the exposed bentonite reacts with the incoming water creating an extremely tight and strong, gel-like film, which seals the concrete structure (secondary sealing) and stops any water circulation between the membrane and the concrete. Even shrinkage cracks get reliably sealed and overbridged.

### CHARACTERISTICS AND ADVANTAGES

- ☞ Integral rain protection
- ☞ Seals small cracks in the concrete
- ☞ Demonstrates self-healing properties
- ☞ Higher puncture and tear resistance compared to conventional foils and coating
- ☞ Quick and easy to install without complicated welding equipment
- ☞ High compound shear strength
- ☞ Can be installed in every season independently of temperature and weather conditions
- ☞ Quality control tests to ensure consistent high quality
- ☞ May be installed pre- or post-applied

### APPROVALS

- ☞ German Standards - DIN EN 965, 964-1, DIN 18121, DIN 18132
- ☞ SKZ Accredited Testing Laboratory
- ☞ KIWA Accredited Testing Laboratory
- ☞ Independent Test on Product's Performance – Brendebach Ingenieure GmbH (Structural Engineers)
- ☞ CE Marking



**PRODUCT DATA**

	Bentonite Waterproofing Liner CEMtobent® DS (DoubleSeal)	Article No.
Dimensions/ Packaging	1,80x30 m (width x length); roll in black foil; Ø approx. 60 cm; approx. 300 kg/roll	20-200
	3,60x30 m (width x length); roll in black foil; Ø approx. 60 cm; approx. 600 kg/roll	20-201
	1,20x30 m (width x length); roll in black foil; Ø approx. 60 cm; approx. 200 kg/roll	20-202
Storage	Bentonite Waterproofing Liner CEMtobent® DS should be stored off the ground in dry conditions.	

**TECHNICAL DATA**

Technical Data	Test Method (based on)	Unit	Value
Mass per unit area, total	DIN EN 965	g/m <sup>2</sup>	5.500
Mass per unit area, nn-woven extra light (PP white, filled with bentonite)	DIN EN 965	g/m <sup>2</sup>	60
Mass per unit area, honeycomb (PE-3-D-Composite, filled with bentonite)	DIN EN 965	g/m <sup>2</sup>	70
Masse per unit area, bentonite layer (sodium bentonite, powder)	DIN EN 965	g/m <sup>2</sup>	5.000
Mass per unit area, carrier woven (PP-slit film woven, beige)	DIN EN 965	g/m <sup>2</sup>	120
Mass per unit area, top layer woven (PE-coated woven, black)	DIN EN 965	g/m <sup>2</sup>	200
Thickness, total	DIN EN 964-1	mm	≥ 8
Max. tensile strength, md/cmd*	DIN EN ISO 10319 / ASTM-D-4595	kN/m	30 / 25
k-value	DIN EN ISO 18130 / ASTM-D-5887	m/s	2 x 10 <sup>-15</sup>

\*md= machine direction, cmd= cross machine direction



Bentonite Properties	Test Method (based on)	Unit	Value
<b>Montmorillonite content</b>	XRD	%	≥70
<b>Methylene blue consumption</b>	Methylene blue test, VDG P 69	mg/g	≥200
<b>Water content</b>	DIN 18121 (5h, 105°C)	%	≤15
<b>Water absorption</b>	DIN 18132 (24 h)	%	≥500
<b>Swell index</b>	ASTM-D-5890	ml/2g	≥20
<b>Fluid loss</b>	ASTM-D-5891	ml	<20

## ADDITIONAL INFORMATION

### Surface

Bentonite waterproofing liner CEMtobent® DS should be placed on a properly prepared flat surface that is free from voids > 20mm and free from construction debris.

Cracks > 1 mm and/or offsets > 1 mm should be sealed with CEMtopaste® before installing the bentonite waterproofing liner.

### Methods of the sealing of overlappings

- ⊕ Overlap edges of the membrane by 15cm and detail overlaps using Bentonite Powder.
- ⊕ Overlap edges of the membrane by 15 cm and seal with CEM 805 Adhesive.
- ⊕ Overlap edges of the membrane by 15 cm and seal with CEMtopaste bentonite paste.
- ⊕ In addition to the above nail fixings may be used to secure the overlaps if required

### Preparation and general advice

Surrounding air temperature: Minimum -5°C

The above mentioned temperatures constitute the generally valid area in which no additional measures need to be taken during application.

### Environment and health

This product does not represent a hazardous substance within the meaning of the EU Hazardous Substances Regulation. A safety data sheet for transport, placing on the market and use is available on the request.

### Dangers and Safety

The essential safety, toxicological, physical and ecological data for the handling of CEMtobent® DS can be taken from the product-specific safety data sheets.

### Data

All technical data stated in this product data sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.



**Legal advice**

All above mentioned Information concerning BPA products, especially any recommendations and advices relating to the application and use of BPA products are given in good faith based on BPA's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with BPA's recommendations.

In practice, the differences in materials, actual site conditions and other factors outside are such that no warranty nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered.

The user of the product must test the product's suitability for the intended application and purpose before proceeding with the full application of the products. BPA reserves the right to change the properties of its products without notice.

Users must always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request. All sales of BPA are subject to our current terms and conditions.

**Local Restrictions**

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local product data sheet for the exact description of the application fields.

