

# Bentorub® Salt

Hydrophilic bentonite strip for the sealing of construction joints in concrete in contact with salt and brackish water.



## • field of application

- Bentorub® Salt is designed for sealing construction joints, cold joints and working joints in concrete, around pipe penetrations, in sewer joints, against slurry walls, sheet piling in contact with salt water and brackish water.
- Bentorub® Salt may only be used in contact with salt and brackish water.
- Can be used in combination with Infiltra Stop in situations, which are deemed to be high risk.

## • advantages

- Bentorub® Salt is a permanently active system, which swells up to approximately 2.5V in an 8% salt solution<sup>(\*)</sup>.
- Bentorub® Salt is an ecological and user friendly system: easy and quick installation by means of gun nailing or gluing with Bentoglue or MS Fixer.
- The use of Bentosteel will help the installation and will protect the Bentorub® Salt strip against damage during pouring or compaction of the concrete.
- The composition of Bentorub® Salt prevents premature swelling.
- Has a proven track record in water treatment plants, water purification plants, underground parking lots, water reservoirs, swimming pools, water tanks, metro works and other concrete structures subject to high salt water pressure.
- Bentorub® Salt can resist hydrostatic pressures of up to 60 metres of water column = 6 bar.
- The durability and performance of the Bentorub® Salt will exceed the design life of the structure (bentonite is a product of nature).
- Bentorub® Salt can fill small honeycombs.
- The highly elastic and plastic properties of Bentorub® Salt will easily counterbalance the initial concrete shrinkage.
- Bentorub® Salt will not dissolve in water and is non-polluting.

## • description

Bentorub® Salt is a red flexible hydrophilic strip of approx. 25 by 20 mm, made of natural sodium bentonite clay and synthetic rubber. Bentorub® Salt has the same qualities as Bentorub® Salt but is especially manufactured to be used in contact with salt or brackish water. Bentorub® Salt comes in lengths of approx. 5 metres. Due to the shrinkage of the drying concrete, small cracks and voids will appear in the construction and cold joints, through which salt water can penetrate. The swelling properties are created by the particle structure of the clay. In contact with salt water and in confined con-

ditions, Bentorub® Salt will swell to approximately 2.5 V The expansive clay mass will thus seal these hair line cracks and voids in the joint. The first expansion is delayed to prevent the strip from reacting too soon with possible rainwater, before or during the installation.

• **application**

**1. General**

- Bentorub® Salt can only function properly in a confined space in order to develop sufficient expansion pressure and assure waterproofing.
- The expansion of Bentorub® Salt will create a certain pressure, which needs to be counteracted by at least 7 cm of concrete coverage at both sides (installation in the middle of the joint is preferred).
- Bentorub® Salt is preferably applied onto a smooth and dust-free concrete surface. Bentorub® Salt can be used under most weather conditions.
- Installation during heavy rain or in prolonged contact with water can result in a premature swelling of the strip, which should be avoided.
- No special precautions should be taken during the preparatory activities (installation of the reinforcement bars, placement of shuttering, etc) in view of the subsequent installation of bentonite strip.
- The Bentorub® Salt is applied during the installation of the 2nd phase reinforcement bars, in between inner and outer rows of reinforcing bars.

**2. Substrate preparation**

- Remove dust, dirt and loose parts by brushing firmly.
- In case of very rough surface, it is recommended to level with Bentostic prior to installation of Bentorub® Salt. When using Bentostic, Bentorub® Salt needs to be fixed with nails.
- Alternatively, use Bentoglue or MS Fixer to level and glue Bentorub® Salt in place. This method is only valid for horizontal applications.
- In case of vertical or overhead applications, Bentorub® Salt cannot be glued with Bentoglue or MS Fixer, only use Bentosteel and nails.

**3. Horizontal applications**

***Application by nailing with or without Bentosteel.***

- Unroll Bentorub® Salt in the middle of the joint in the middle of the joint and press down firmly
- Nail directly to the substrate using 4 nails with washer per m.

***Application by means of gluing with Bentoglue or MS Fixer.***

- Apply a bead of Bentoglue or MS Fixer of 5x10 mm with a caulking gun on the concrete surface.
- Unroll the Bentorub® Salt strip and press firmly into the glue. Wait until the glue is dry before pouring concrete (a concrete cover of 7 cm at all sides should always be respected). The roll ends should have a lateral overlapping of 5 to 10 cm. The ends need to be pressed firmly together.
- Additional nailing or gun nailing will provide secure fixing onto the concrete.

**4. Vertical and overhead applications by nailing with Bentosteel**

- Unroll the Bentorub® Salt strip (a concrete cover of 7 cm at all sides should always be respected). The roll ends should have a lateral overlapping of 5 to 10 cm. The ends need to be pressed firmly together.
- Install the Bentosteel wire mesh profile over the Bentorub® Salt.
- Fix the system by nailing or gun nailing (use nails with washer, approx. 4 per metre).

**5. Remarks**

- Bentorub® Salt can be fixed around pipe penetrations with steel wire or Bentoglue (dry surface) or MS Fixer (dry to moist surface).
- For special applications, such as contact with strongly polluted water or chemicals, it is recommended to consult the De Neef representative.

• **technical data/properties**

Property	Value	Norm
Density	Approx. 1,30 kg/dm <sup>3</sup>	ASTM D71-84
Weight	Approx. 0,65 kg/m	Test report DNC
Cone penetration	35,5	ASTM D217
Elongation at break	7500%	Test report KUL University
Maximum allowable allowed	No cracks at 180° above 0°C	Test report KUL University
Installation temperatures	-15°C to 60°C	Test DNC
Operating temperatures	-45°C to 120°C	Test DNC
Odour	Odourless	
Swelling capacity and resistance to hydrostatic pressure of Bentorub® Salt in contact with salt water.		
Salt solution	Swelling capacity	Hydrostatic pressure resistance
8%	Approx. 2,5 V	6 bars
10%	Approx. 2,1 V	6 bars
20%	Approx. 1,6 V	5 bars
30%	Approx. 1,3 V	5 bars

• **appearance**

Red, rectangular plastic strip of approx. 20 by 25 mm, in rolls of approx. 5 metres length.

• **consumption**

The necessary quantities depend on the length of the various (construction) joints, which need to be sealed. It has to be taken into consideration that a lateral overlapping of 5 to 10 cm between 2 lengths of Bentorub® Salt is necessary.

Bentoglue or MS Fixer consumption can vary greatly depending on the roughness of the concrete.

**Design consumption Bentoglue**

- Smooth concrete : 65 g/m joint.
- Rough concrete : 130 g/m joint.

**Design consumption MS Fixer**

- Smooth concrete : 60 g/m joint.
- Rough concrete : 120 g/m joint.

• **packaging**

30 m cardboard boxes containing 6 x 5 m.  
Weight per box: approx. 19.5 kg net / approx. 22 kg gross.  
1 pallet = 24 boxes = 720 m.

• **storage**

Bentorub® Salt should be stored under cover, clear of the ground. Protect the materials from all sources of moisture and frost. Storage temperature must be between 5°C and 30°C.

Shelf life is unlimited in correct storage conditions.

• **accessories**

**To be ordered separately**

**Bentosteel**

- Steel wire mesh profile for Bentorub® Salt.
- Mesh grid: 10,6 by 10,6 mm. Section: 25,5 mm by 9 mm.
- Length: 1 metre.
- Packaging: 30 x 1 metre.

**Bentostic**

- Mastic for levelling the surface.
- Green colour.
- Packaging: plastic pails 5 kg.

• **health & safety**

**Bentoglue**

- Caulk applied adhesive for Bentorub® Salt.
- 310 cm<sup>3</sup> = 403 g cartridges
  - 12 sausages per cardboard box.
  - 75 boxes per pallet.
- (See respective Technical Data Sheet)

**MS Fixer**

- Caulk applied adhesive for Bentorub® Salt.
- 400 cm<sup>3</sup> = 600 g sausages.
  - 20 sausages per cardboard box.
  - 48 boxes per pallet.
- (See respective Technical Data Sheet).

For full information consult the relevant Material Safety Data Sheet.  
(\*) Tested under laboratory conditions.