

## PRODUCT DATA SHEET

# SikaProof® Bentonite

### NATURAL SODIUM BENTONITE BELOW GROUND WATERPROOFING SYSTEM

#### DESCRIPTION

SikaProof® Bentonite is a needle-punched thermally locked Geosynthetic Clay Liner (GCL) used to waterproof below ground concrete structures. It is a waterproofing system which efficiently protects reinforced concrete structures, preventing the penetration of water and subsequent attack by aggressive chemical substances present in the surrounding soil. SikaProof® Bentonite is manufactured in Australia in accordance with the ISO 9001:2000 Quality Management System and consists of high quality polypropylene geotextiles and premium grade natural sodium bentonite. It is fibre-reinforced by needle-punching the product across its entire length and width. The high strength fibres are then thermally locked to ensure the high self-confining properties of SikaProof® Bentonite.

#### USES

SikaProof® Bentonite is ideally suited to:

- Conventional construction waterproofing applications
- Applications where concrete is poured directly against the waterproofing system
- Where other traditional types of barriers are susceptible to mechanical damage
- Cast in-situ floors and walls
- Precast panel walls
- Foundation pile sealing

#### PRODUCT INFORMATION

##### Composition

Needle-punched geosynthetic clay liner

##### Packaging

The SikaProof® Bentonite System is made up of the following items, each sold separately:

#### CHARACTERISTICS / ADVANTAGES

- BRANZ Appraised (Appraisal No. 612 [2008] )
- Rugged and durable needle-punched geotextile
- Can be installed in almost any weather
- High shear resistance, less prone to damage on site
- Self healing membrane if ripped or punctured
- Waterproof
- Excellent chemical resistance
- Will swell into and seal cracks that form in concrete
- Can be applied directly to piled basement walls and existing property lines

System Component	Packaging
SikaProof® Bentonite	1.1m wide x 10m roll
SikaProof® Bentonite	2.2m wide x 10m roll
SikaProof® Bentonite Paste	20 litre pails
SikaProof® Bentonite Powder	25 kg bags

## Shelf life

### Storage conditions

- Rolls of SikaProof® Bentonite Sheet should always be stored lying flat, continuously supported clear of direct ground contact and should never be stored standing on one end.
- Store, handle and freight SikaProof Bentonite rolls and accessories in dry and stable conditions to protect the product from premature hydration, deterioration or damage. Enclosed indoor storage such as a shipping container or a warehouse environment is preferred if SikaProof Bentonite Sheet is to be stored for long periods.
- Keep rolls of SikaProof Bentonite Sheet in original plastic wrappers for ease of product identification & greater weather protection.
- For safety, move and lift 1.1m x 10m rolls using two (2) persons per roll with lifting bar through the core of the roll and move and lift 2.2m x 10m rolls using approved mechanical lifting devices.

### Appearance and colour

Yellow/black

## BASIS OF PRODUCT 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.

## FURTHER INFORMATION

Bentonite Mass	≥ 4000 @ 0% g/m <sup>2</sup>	ASTM D5993
Swell Index	≥ 24 ml/2g	ASTM D5890
Fluid Loss	≤ 15 ml	ASTM D5891
Peel Adhesion to Concrete	28.1 (4.9) lbs/inch (kN/m)	ASTM D903 (mod.)
Hydrostatic Pressure Resistance	126.7 m	ASTM D5385 (mod.)
Permeability	2 x 10 <sup>-09</sup> cm/s	ASTM D5887
Grab Tensile Strength	550 N	ASTM D4632
Puncture Resistance	630 N	ASTM D4833
Low Temperature Flexibility	Unaffected @ - 32 °C	ASTM D1970
Roll Weight	61 kgs (1.1m x 10m roll), 122 kgs (2.2m x 10m roll)	
Dry Thickness	6 mm	

## IMPORTANT CONSIDERATIONS

- Concrete shall only be poured or cast against the SikaProof® Bentonite membrane. It shall not be sprayed or applied as shotcrete.
- Always store SikaProof® Bentonite and accessory products in a dry area, laid flat and protected with polyethylene sheet. Store products so that they are not in contact with the ground.

- SikaProof® Bentonite requires confinement from minimum 150mm thick reinforce concrete walls or floor slabs.
- Ensure all movement and construction joints are detailed with the appropriate Sika PVC Waterbar or SikaSwell® waterstop.
- To prevent the possible intrusion of soil or other materials between the edges of SikaProof® Bentonite at ground level and the structure, a termination bar should be installed. It should be attached to the structure, by fixing at 300mm centres, slightly below the tanking line (100 to 150mm) around the whole structure. A non-degradable bar or batten is recommended for this purpose.
- Where contaminated ground water or salt water conditions exist, consult Sika (NZ) Ltd.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## APPLICATION INSTRUCTIONS

### SUBSTRATE QUALITY

### SURFACE PREPARATION

- Base course substrates should be smooth, firm and unyielding (typically compacted to >90% Standard Proctor density). Sand shall not be used as the substrate as it does not provide adequate confining pressure.
- SikaProof® Bentonite can be applied to damp concrete, however, concrete must be at least 48 hours old and must be free from standing water.
- Masonry surfaces and concrete surfaces shall be smooth and even, with no abrupt deviations.

- All damage, holes and cracks in masonry substrates must be repaired with the appropriate Sika MonoTop® repair system.
- Masonry surfaces shall be 'bagged' with Sika MonoTop®-723 N or other appropriate cement-based mortar or with SikaProof® Bentonite paste, as shall concrete surfaces with blow holes and minor imperfections
- Mortar joints in masonry blockwork must be finished flush with the surface. If mortar joints have been pointed apply Sika MonoTop®-723 N levelling mortar or other appropriate cement-based mortar to joints to make flush with surface.
- Tie-bolt holes must be filled with SikaGrout®-212, proprietary nonshrink grout.
- Keep the site water table level at least 300mm below the level of the base or site concrete during the tanking process.
- Complete any substrate remedial work prior to any SikaProof® Bentonite application or placement.
- Substrate preparation shall be approved by the designer / engineer prior to installation of the waterproofing barrier.

### APPLICATION METHOD / TOOLS

#### UNDER CONCRETE SLABS

- SikaProof® Bentonite is installed by simply rolling out the product, yellow side uppermost. Ensure the overlap area is clean and free from any debris and distortion. Water-tight overlaps are achieved by overlapping SikaProof® Bentonite by 150mm, with SikaProof® Bentonite Paste applied entirely in the overlap region and protruding approximately 50mm past the overlap. Ends of rolls should be staggered and a 300mm overlap is required.
- Before the concrete slab is poured, ensure the SikaProof® Bentonite Sheet is extended a minimum of 300mm beyond the edge of concrete work and protect to allow correct overlapping to any further connection or vertical wall placement.
- The overlaps should all run in a uniform direction. The fresh concrete should be placed in the direction of overlapping to avoid pushing wet concrete under the overlaps.
- SikaProof® Bentonite is typically installed with the non-woven (yellow) side facing upwards for cast in-situ concrete applications. This will enable the SikaProof® Bentonite to form a tenacious bond with the concrete slab.

#### VERTICAL CONCRETE WALLS

- The installation of SikaProof® Bentonite to vertical concrete walls requires pre-cutting of lengths to suit the wall height. Side overlaps in the SikaProof® Bentonite shall be a minimum 150mm wide. The top of each length of SikaProof® Bentonite shall be fixed to the concrete (if post fixed) or formwork (if pre fixed) at max. 300 centres along the top edge and within the end overlap area.
- End of roll overlaps should be a minimum of 300mm and staggered a minimum of 300mm away from each other. Ensure that SikaProof® Bentonite overlaps do not coincide with construction joints. The overlaps must be flat and wrinkle free to ensure a good intimate contact with the concrete and the backfill.
- The overlap between the floor slab waterproofing and the wall waterproofing should be a minimum of 300mm and fully pasted in the lap with SikaProof® Bentonite Paste. An additional SikaProof® Bentonite barrier strip, 400mm wide can be used. This should be placed directly over the construction joint, running parallel to it so that the overlap areas of the liners at the connection are fully sealed.
- The method of placement and orientation of SikaProof® Bentonite will depend on whether the wall is cast in-situ or precast.
- For cast in-situ concrete walls, SikaProof® Bentonite should be orientated so that the non-woven (yellow) surface is facing the pour ie. woven (black) side is fixed to the formwork.
- For precast concrete walls, SikaProof® Bentonite should be attached to the wall face by nailing with Hilti XSW 30mm soft washer fixings, ensuring that the woven (black) side is in contact with the concrete.
- Alternatively, SikaProof® Bentonite can be placed in the panel bed (yellow side up) prior to the concrete panel being poured.

#### MASONRY BLOCK WALLS

If SikaProof® Bentonite is to be applied onto masonry block walls, the following procedure MUST be followed:

- All mortar joints must be made flush.
- A bagging mortar must be applied over the face of the blocks.
- A coat of Sika BlackSeal® Plus can also be applied over the prepared substrate prior to the application of the SikaProof® Bentonite.
- The SikaProof® Bentonite must be applied with the yellow side facing the Applicator.

## BACKFILLING

- Prior to backfilling corflute or similarly rigid protection shall be placed against the installed SikaProof® Bentonite to provide confinement.
- When SikaProof® Bentonite is being used as a damp proof membrane, the backfill material must be granular free draining backfill.
- When SikaProof® Bentonite is being used as a tanking membrane the backfill material must be free from builder's debris and angular aggregate. It must be placed in 300mm thick layers (which is standard practice for backfill compaction) and compacted to 85% modified proctor density.
- Sand does not provide adequate confining pressure and shall not be used as backfill.
- Where SikaProof® Bentonite has been left in ponded water for a long period it should be inspected for damage prior to back filling.

## LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data.

## LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, 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. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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### Product Data Sheet

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