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National test certificate No. P-SAC 02 / 5.1 / 25 - 155

Subject: ***BENTOSWELL* –**

swellable joint tape based on sodiumbentonite and butyl rubber as internal sealing for joints and transitions in or on waterproof components, including those made of concrete with high water penetration resistance in areas in contact with the ground, which cannot be assigned to products C 2.10.2 and C 2.10.3 in section C 2,

corresponding to: the Bavarian Technical Building Regulations (BayTB) – Announcement of 7 October 2025 in the November 2025 edition, Part C 3, serial no. C 3.30

Applicant: Nevoga GmbH
Znaimer Straße
83395 Freilassing

Date of issue: 26 January 2026

Period of validity: 25 January 2031

This national test certificate consists of 8 pages.

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A General provisions

(1) This national test certificate proves the suitability of the building product for use in accordance with state building regulations. It extends and replaces national test certificate No. P-SAC 02/5.1/23-124-1 dated 22 October 2024.

(2) The national test certificate does not replace the approvals, consents and certificates required by law for the implementation of building projects.

(3) The national test certificate is issued without prejudice to the rights of third parties, in particular private property rights.

(4) Without prejudice to further regulations in the "Special Provisions", manufacturers and distributors of the construction product must provide users of the construction product with copies of the national test certificate and point out that the national test certificate must be available at the place of use. Upon request, the manufacturer shall provide copies of the national test certificate to the authorities involved or to the test engineers and experts or institutions involved in the building inspection procedure.

(5) The national test certificate may only be reproduced in its entirety. Publication of excerpts requires the consent of the Society for Materials Research and Testing Institute for Civil Engineering Leipzig (MFPA Leipzig). Texts and drawings from advertising brochures must not contradict the general building inspection test certificate. Translations of the general building inspection test certificate must contain the note "translation of the original German version not tested by MFPA Leipzig".

(6) The national test certificate is issued revocably. The provisions may be supplemented and amended at a later date, in particular if new technical findings so require.

(7) The national test certificate refers to the information provided and documents submitted by the applicant. Any changes to these basic principles are not covered by the national test certificate.

B Special provisions

1 Subject matter and scope of application

1.1 Subject

The national test certificate applies to the manufacture and use of the *BENTOSWELL* waterstop from *Nevoga GmbH* as an internal sealseal for joints and transitions in or on waterproof components, including those made of concrete with high water penetration resistance in areas in contact with the ground, which cannot be assigned to products C 2.10.2 and C 2.10.3 in section C 2, in accordance with the Bavarian Technical Building Regulations (BayTB) - Announcement dated
7 October 2025 – in the November 2025 edition (Ref. 28-4130-3-12), Part C 3, serial no. C 3.30.

BENTOSWELL is a swellable natural clay joint tape based on sodium bentonite with added butyl rubber, measuring approx. 24 x 19 [mm] and 25 x 20 [mm], available in black and green. In addition to the waterstop, the sealing system includes the single-component adhesive *NEVOFIX mounting adhesive* offered by the client for fixing to the concrete substrate, as well as optional fixing grids.

1.2 Area of application

(1) The *BENTOSWELL* waterstop from *Nevoga GmbH* may be used for the internal sealing of construction joints (maximum joint width of 0.25 mm) in concrete components with high water penetration resistance against:

- ground moisture and non-pressurised water, as well as against
- Pressurised water up to a maximum water pressure of 2 bar (20 m water column)

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The sealing system is suitable for water change zones. The seal meets the requirements of usage class A for stress classes 1 and 2 in accordance with the WU guideline[1].

(2) Use is subject to compliance with the processing guidelines and the provisions for execution, paragraph 4.

2 Provisions for the construction product

2.1 Properties and composition

(1) According to the manufacturer, the *BENTOSWELL* rectangular profile consists of sodium bentonite and butyl rubber. In its unquollen state, it has the following properties:

Width: Height:	24 mm x 19 mm	25 mm x 20 mm
Consistency:	plastic	plastic
Colour:	black or green	black or green
Line weight:	approx. 670 g/m	approx. 725 g/m
Density at 23 °C [DIN EN ISO 1183-1]	1.48 g/cm	1.47 g/cm³
Total mass loss [DIN EN ISO 11358]; (25-1000 °C)	48.0 M.	48.0 M.

[1] DAfStb guideline: Waterproof concrete structures (WU guideline) December 2017 edition

According to the manufacturer's specifications, the single-component *NEVOFIX assembly adhesive* is a hybrid polymer-based adhesive. It has the following properties:

Consistency:	paste-like
Colour:	grey
Density at 23°C	1.50 g/cm³ [DIN EN ISO 2811-1]
Total mass loss	65.8 ±0.5 M.% [DIN EN ISO 11358]; (25-1,000 °C)

(2) When stored in neutral water, the swelling tape increases its mass to a maximum of 240% relative to its initial mass. This process is reversible, which means that the material regains its initial mass when dried. When stored in strongly alkaline liquids and liquids that are highly corrosive to concrete in accordance with DIN 4030, the mass of the swelling tape increases continuously and reaches maximum values of approx. 30% (alkaline) or 120% (highly corrosive to concrete).

If the volume increase of the swelling tape is impeded when installed, swelling pressure builds up, which contributes to the sealing of the joint. The magnitude of the resulting swelling pressure depends on the installation conditions and the liquids acting on it and can reach maximum values of 31.5 kN/m (or a maximum swelling pressure of 1.5 MPa).

The swelling tape retains its functionality even when subjected to alternating drying and renewed water exposure.

The functionality of *BENTOSWELL* for sealing working joints has been proven with a water pressure of 5 bar in combination with *NEVOFIX mounting adhesive* and fastening grids in black and green. The waterstop can be used in practice up to a maximum water pressure of 2 bar, taking into account a safety factor of 2.5.

The fire behaviour of *BENTOSWELL* is classified as class E in accordance with DIN EN 13501.

(3) The usability test was carried out with product components in accordance with 2.1 (1). The national test certificate only applies to products that correspond to this product structure and the associated characteristic values. Intended changes in the product composition that may lead to changes in the characteristic values and functional properties must be reported to the testing body that issued the certificate, which will decide on any additional evidence that may be required.

Proof of suitability was provided on the basis of the "Testing principles for the issuance of national test certificates for joint seals in concrete components with high water penetration resistance in areas in contact with the ground" PG FBB - Part 1: Seals for construction joints and controlled crack cross-sections, as of May 2020. The sealing system must correspond to the material tested in the usability test. It must have the technical characteristics specified in (1) and (2).

2.2 Manufacture, packaging, transport, storage, labelling

(1) The components of the sealing system are manufactured in the factory. The individual products are manufactured in factories that have been designated to the testing centre. The packaging is carried out at the applicant's factory. Changes in the formulation and a change of delivery factories must be reported to the testing centre immediately.

(2) Packaging, transport and storage must be carried out in such a way that the *BENTOSWELL* waterstop is not stored in water, is not contaminated or damaged and is not exposed to prolonged direct sunlight. The packaging must be labelled with these instructions.

(3) The information on the packaging regarding requirements from other areas of law must be observed.

2.3 Conformity mark

(1) The construction product must be marked by the manufacturer with the conformity mark (Ü mark) in accordance with the conformity mark regulations of the federal states. The marking may only be applied if the requirements set out in Section 3, Proof of conformity, are met. The Ü mark must be accompanied by the information specified therein:

- Manufacturing plant
- Number of the national test certificate

on the packaging or, if this is not possible, on the delivery note or package insert. The marking may only be applied if the requirements of Section 3 are met.

(2) The following information must be included on the packaging of the construction product or the package insert:

- Product name
- Batch number
- Intended use
- Reference to the relevant processing instructions

3 Confirmation of conformity

(1) **General**

Proof of conformity of the construction product with the requirements of this national test certificate is provided by a declaration of conformity from the manufacturer based on factory production control (FPC) and an initial inspection of the construction product prior to confirmation of conformity (initial inspection - EP) by a testing laboratory recognised by the building authorities (ÜHP).

(2) **Initial testing of the construction product by a recognised testing body**

The initial test may be omitted because the samples for the tests as part of the proof of usability were taken from the manufacturer's ongoing production.

(3) **Factory production control**

The manufacturer must establish factory production control in accordance with DIN 18200:2021-04. This requires continuous monitoring of production to ensure that the manufactured products comply with the provisions of the general building inspection test certificate.

The factory production control must include the tests described below. The results obtained must not deviate from the technical characteristics specified in section 2.1 and must be within the specified tolerance ranges.

Compliance with the requirements specified in Section 2.1 must be checked in each manufacturing plant as follows:

- per batch, or at least every 1,000 m of joint tape length:
  - Mass increase during unimpeded swelling in neutral water (tap water)) on 3 test specimens (l = 15 cm) over a period of 7 days: Δm ± 15%

- Scope of delivery:
  - Raw material inspection – for each delivery batch based on the supplier's factory test certificates (including density)

The above test criteria must be complied with. The results of the factory's own production control must be recorded and evaluated. The records must be kept for at least 5 years and presented to the testing centre on request.

The records must contain at least the following information:

- *Designation of the construction product/type of construction,*
- *Type of control,*
- *Date of manufacture and inspection of the construction product/type,*
- *Results of the checks and, where applicable, comparison with the requirements,*
- *Signature of the person responsible for factory production control.*

If the inspection results are unsatisfactory, the manufacturer must immediately take the necessary measures to remedy the defect and remove the affected products. As part of the factory production control, it must be ensured that construction products that do not meet the requirements are not marked with the Ü mark and that confusion with compliant products is ruled out. Once the defect has been rectified, the relevant inspection must be repeated immediately, insofar as this is technically possible and necessary to prove that the defect has been rectified.

4 Provisions for execution

(1) Use is subject to compliance with the applicant's work instructions and consideration of all technical rules applicable to the respective application. *BENTOSWELL* is usually installed as an internal seal in the structure in such a way that the waterstop is located in the centre of the joint to be sealed. To ensure the functionality of the swelling tape, the increase in volume must be prevented by complete embedding in concrete so that the material cannot escape into the joint gap and sufficient swelling pressure can build up.

The material may only be processed in dry conditions and in dry weather. The geometry described must not be altered. Waterstops that have been altered in their rectangular geometry, contaminated or damaged must not be installed.

BENTOSWELL must be fixed over the entire surface of the level substrate, which must be free of loose particles, using the *NEVOFIX mounting adhesive* supplied by the manufacturer or the fixing grids, so that no change in position is possible during concreting.

When using *NEVOFIX attachment adhesive,* the amount of adhesive applied depends on the surface condition of the working joint. To do this, apply the adhesive from the cartridges in an even bead (bead diameter for flat, smooth joints: 8 - 10 mm) in the middle of the joint and press the bentonite waterstop into the fresh adhesive so that a small amount of material is visible along the long edges.

As an alternative to bonding, the waterstop can be secured with attachment grids. In this case, ensure that the waterstop is in full contact with the substrate. The distance between the attachment grids on the concrete substrate must not exceed 20 cm in the longitudinal direction of the waterstop.

When laying the expansion joint tape in several sections without changing direction, the two ends must overlap by at least 5 cm. Ensure that both section ends are in full contact with each other and that there is no adhesive between the contact surfaces. If the direction of the expansion joint tape changes, the section ends must be butted together.

A minimum edge distance of 8 cm must be maintained on all sides of the waterstop.

The following requirements apply to the concrete substrate:

- Concrete with high water penetration resistance
- Age of in-situ concrete at least 21 days
- Surface clean, even, free of burrs and imperfections, without loose components and cement slurry, free of formwork oil and other separating components or components that interfere with adhesion
- Free of ice and snow and free of standing water

(2) The manufacturer's installation instructions apply to the execution of joint sealing. The instructions and the national test certificate must be available at the installation site. In addition, the following must be observed:

After installation, *BENTOSWELL* must not come into contact with water for a prolonged period of time in order to prevent premature swelling. Joint tapes that have already swollen and changed in cross-section must be replaced.

The joint sealant must be protected from mechanical damage and direct sunlight.

(3) The manufacturer is obliged to include the implementation provisions of this section in its processing instructions without contradiction.

5 Legal basis

This national test certificate is issued on the basis of Article 19 of the Bavarian Building Code (BayBO) in the version published on
14 August 2007 (GVBl. p. 588, BayRS 2132-1-B), last amended by Sections 4 and 5 of the Act of 25 July 2025 (GVBl. p. 254), and on the basis of the Bavarian Technical Building Regulations (BayTB) – announcement of 7 October 2025 – in the November 2025 edition (Ref. 28-4130-3-12), Part C 3, serial no. C 3.30.

6 Information on legal remedies

An objection or legal action against this national test certificate is permissible in accordance with the legal regulations of the country in which the applicant is based. In the event of a right of objection, the objection must be lodged in writing or recorded at the Gesellschaft für Materialforschung und Prüfungsanstalt für das Bauwesen Leipzig mbH, Hans-Weigel-Straße 2 b, 04319 Leipzig. The date of receipt by MFPA Leipzig is decisive for the timeliness of the objection.

Leipzig, 26 January 2026

Dr.-Ing. U. Hornig
Testing Laboratory Manager

Dipl.-Ing. J.-U. Jüling
Processing