iBMB MPA TU BRAUNSCHWEIG
Institute of Building Materials, Concrete Construction and Fire Safety
Braunschweig Civil Engineering Materials Testing Institute

General Building Code Test Certificate

- Translation -

Test Certificate Number:	P-1200/311/15 MPA BS
Test item:	„SWELLFLEX® BS“ Quellband for internal joint sealing in concrete members with a high water penetration resistance against pressing and non-pressing water and against ground moisture in compliance with Administrative Provisions – Technical Building Rules, sequential no. C 3.30
Client:	PohlCon GmbH Nobelstraße 51 12057 Berlin
First issued:	01/06/2015
Issued on:	26/05/2025
Valid until:	25/05/2030

This General Building Code Test Certificate (abP) consists of 7 pages and 4 annexes.

This document is not checked by the test laboratory. The legally binding text is the German original version. This translation may not be used in the German building inspection procedure.

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Notified body (0761-CPR) -
Approved as a civil engineering testing and certifying body as well as notified as a civil engineering testing and certifying body.

Niedersachsen

A General provisions

(1) This General Building Code Test Certificate (abP) attests that the construction product can be used within the meaning of federal state building code regulations.

(2) The General Building Code Test Certificate (abP) does not replace any of the building permits, approvals and certificates required by law for the performance of building projects.

(3) The General Building Code Test Certificate (abP) is granted without prejudice to the rights of third parties, in particular private property rights.

(4) Producers and distributors of the construction product shall, without prejudice to any additional regulations set out under the special provisions below, furnish the user of the construction product with copies of the General Building Code Test Certificate (abP), and they shall in addition point out that the General Building Code Test Certificate (abP) must be available at the place of use of the construction product. On request, the manufacturer/distributor must provide the authorities involved or the test engineers and experts or institutions involved in the building inspection procedure with copies of the general building inspection test certificate.

(5) The General Building Code Test Certificate (abP) may not be copied unless as a complete text. Excerpts of the Certificate may only be published with the prior permission of the Braunschweig Civil Engineering Materials Testing Institute (MPA Braunschweig). The wording of, or drawings used in, advertising brochures must not be in conflict with the contents of the General Building Code Test Certificate. Translations of the General Building Code Test Certificate shall bear the note "translation of the German original not checked by MPA Braunschweig".

(6) The General Building Code Test Certificate (abP) is subject to revocation. The provisions may be subsequently amended or revised, in particular if and when required as a result of new technical findings.

(7) The general building authority test certificate refers to the information and documents provided by the applicant. Changes to these basic principles are not covered by the general building authority test certificate.

B Special provisions

1 Test item and field of application

1.1 Test item

This General Building Code Test Certificate (abP) applies to the fabrication and use of the "SWELLFLEX® BS" waterstop tape in connection with the "M-FLEX Montagekleber & Dichtstoff" or the "SWELLFLEX® mounting rail" of PohlCon GmbH for internal sealing of construction joints in structural elements made from concrete with a high water penetration resistance in accordance with Administrative Provisions – Technical Building Rules, sequential no. C 3.30.

The "SWELLFLEX® BS" waterstop tape is produced in rectangles of 10 mm x 20 mm, 16 mm x 21 mm, 18 mm x 24 mm or 20 mm x 25 mm (width x height).

1.2 Field of application

The swelling tape may be used for the internal sealing of construction joints in structural elements made from concrete with a high water penetration resistance, with a maximum opening width of 0.25 mm, against:

- Ground moisture and non-pressing water
- Pressing water up a maximum water pressure of 1.2 bar (12 m WC) (dimensions 24 mm x 18 mm and 25 mm x 20 mm),
- Pressing water up a maximum water pressure of 0.8 bar (8 m WC) (dimensions 20 mm x 10 mm and 21 mm x 16 mm)

The swelling tape is suited for use in zones of frequently changing water levels. The sealing complies with utilisation-class A requirements for application classes 1 and 2 as set forth in the regulations for watertight structures (WU-Richtlinie)[1].

The swelling tape must be applied as specified in section 4 (Execution). The sealing effect of the tape is based on its ability to swell.

2 Provisions concerning the construction product

2.1 Composition, properties and characteristics

The "SWELLFLEX® BS" waterstop tape is a swellable Bentonite- and butyl-rubber-based tape. It comes in rolled lengths of 5 metres. For application of the waterstop tape to the hardened concrete, either the M-FLEX Montagekleber & Dichtstoff is used, or the SWELLFLEX® mounting rail (metal rail in 1-metre sections).

[1] German committee for RC directive “Wasserundurchlässige Bauwerke aus Beton” (watertight structures made from concrete), December 2017

The construction products have the characteristic values that are shown in table 1 and annexes 1 to 4, which they must comply with.

The fitness for use of the swelling tape as a sealing means for construction joints in structural elements made from concrete with a high water penetration resistance has been demonstrated in accordance with the test principles for certification with General Building Code Test Certificates (abP) for "joint waterproofing elements in structural elements made from concrete with a high water penetration resistance when in contact with the ground" (PG-FBB, May 2020). Results are documented in Test Reports No. 5065/1111, No. 5123/7614, No. 5059/394/13 and No. 1200/063/15a issued by MPA Braunschweig.

Construction joints that are sealed with the swelling tape

- provide adequate stability
- are adequately impervious to water
- provide adequate age resistance

for the fields of application mentioned in section 1.2 above.

The construction product fulfils the requirements of fire behaviour class *E* in accordance with DIN EN 13501-1.

2.2 Production, packaging, transport, storage, marking

2.2.1 Production

The construction products are produced industrially.

2.2.2 Packaging, transport, storage

The swelling tape is packed in boxes containing rolls of 5 metres each. The product has to be handled and stored, so the swelling tape, the adhesive and the mounting rail will not be adversely affected in their designed properties. The materials have to be protected against the action of frost and atmospheric influence.

The information provided on the packaging regarding other official requirements must be complied with.

The manufacturer's specifications regarding storage periods shall be complied with. System components that have to be used together must be clearly marked and marketed together.

2.2.3 Marking

2.2.3.1 Conformity mark (Ü mark)

The manufacturer shall mark the construction products with the conformity mark (Ü mark) in compliance with the conformity marking regulations of the federal states. The conformity mark with the required details:

- Name of manufacturer
- Number of the General Building Code Test Certificate (abP)

should be shown on the packaging or, if this should not be possible, in the package leaflet. This marking may be provided only if the conditions set forth in section 3 below are complied with.

2.2.3.2 Additional details

The following details must be shown on the packaging of the construction product or in package leaflet:

- Product name
- Lot number
- Intended use
- Reference to application requirements

3 Declaration of conformity

3.1 General information

Confirmation that the construction product conforms with the requirements set forth in the present General Building Code Test Certificate (abP) shall be provided for each production plant in the form of a manufacturer's declaration of conformity. This declaration shall be issued on the basis of an initial type test and factory production control (FPC) in accordance with sections 3.2 and 3.3 below. The manufacturer shall declare conformity by marking the construction product with the conformity mark (Ü mark) in accordance with 2.2.3.1.

3.2 Initial type test of the construction product performed by an approved inspection body

An initial type test is not required for the product, if the samples used for testing for purposes of a general type approval were taken from the normal production run in the production plant.

If the conditions under which the product is manufactured should change, the initial type test must be repeated.

3.3 Factory production control (FPC)

DIN 18200 requires that factory production control (FPC) be established for, and be performed in the production plant.

Factory production control must be performed in compliance with the specifications shown in table 1, which reflect the special features of the product and the conditions for producing this product. The requirements made are based on the results of the initial type test.

The results of factory production control must be recorded and evaluated by the manufacturer. The records must at least include the following details:

- Name of the product
- Type of test or inspection
- Date when produced and date of test
- Test results and comparison with requirements
- Signature of person in charge of factory production control

The records must be kept for a minimum of five years and must be presented upon request.

Should testing supply inadequate results, the manufacturer must take immediate action to remedy any deficiencies noted. Non-conforming construction products must be handled so that confusion with conforming and faultless construction products is positively prevented. Once the deficiency has been corrected, the required test must be repeated to the extent that is necessary to prove adequate correction.

Table 1: Type and frequency of tests to be performed as part of factory production control

Properties	Test conditions	Requirements	Intervals
SWELLFLEX® BS waterstop tape			
Inspection of source material	Manufacturer's declaration or suitable tests	No signs of change	Per shipment lot
Height Width	- -	Nominal dimensions ± 10 %	Per lot
Density	DIN EN ISO 1183-1 immersion method	1.86 g/cm³ ± 3 %	Per lot
Swelling capacity (weight gain)	24 h stored in distilled water	10 x 20 = 224 wt % ± 10 % 16 x 21 = 216 wt % ± 10 % 18 x 24 = 191 wt % ± 10 % 20 x 25 = 162 wt % ± 10 %	Per lot
M-FLEX Montagekleber & Dichtstoff			
Inspection of source material	Manufacturer's declaration or suitable tests	No signs of change	Per shipment lot
Density	DIN EN ISO 1183-1 immersion method	1.52 g/cm³ ± 3 %	Per lot
Infrared spectrum	See annex 3	No signs of change	Per lot
SWELLFLEX mounting rail			
Width	-	26.9 mm ± 5 %	Per lot
Hole centre distance	-	20.2 mm ± 5 %	Per lot
Weight	-	197.5 g/m ± 3 %	Per lot

4 Execution

The DBV data sheet ‘Injection hose systems and swellable inserts for construction joints’, version December 2020 and the manufacturer's installation instructions (Annex 4) apply to the execution and installation work.

In the joint region, the concrete surface must be dry, plane and clean, and it must be free from loose material, cement slurry and release agents. The swellable tape must always be glued to the concrete surface with the M-FLEX Montagekleber & Dichtstoff or the SWELLFLEX® mounting rail. The swelling tape has to be checked for perfect fit and premature swelling immediately before placing the concrete.

The manufacturer is obliged to incorporate the provisions for the design into his processing instructions without contradiction.

This general building authority test certificate and the manufacturer's processing instructions must be available at the installation site.

5 Legal basis

This General Building Code Test Certificate (abP) is issued on the basis of article 19 of the building code of Lower Saxony (NbauO) in conjunction with Administrative Provisions – Technical Building Rules, sequential no. C 3.30.

6 Legal remedy

This General Building Code Test Certificate (abP) is subject to objection. Objections must be lodged in writing or stated orally on the record of the management of Materialprüfanstalt für das Bauwesen, Beethovenstraße 52, 38106 Braunschweig within a period of one month after it has been issued. The date on which the Testing Laboratory receives the notice of objection shall decide on whether the objection was made timely.

Dipl.-Min. F. Ehrenberg
Head of Testing Laboratory

i. A.
M. Pankalla
Engineer/official in charge

Documents without a stamp and signature bear a verifiable, qualified electronic signature.

Properties of the SWELLFLEX® BS waterstop tape

- Appearance: black, coated, dimensionally stable, homogeneous
- Density (DIN 53479): 1.86 g/cm³
- Weight loss: 37.9 wt.-%
  (TGA, 25° C to 900° C)
- Swelling capacity after
  (gain in weight;
  Dimensions 10 mm x 20 mm)
  - $Ca(OH)_2$ storage (pH 12.5):
    1 d = 10 M.-%
    2 d = 137 M.-%
    11 d = 172 M.-%
  - Stored in H_2SO_4 (pH 4):
    1 d = 92 M.-%
    2 d = 174 M.-%
    7 d = 224 M.-%
  - Stored in water (demin.):
    1 d = 225 M.-%
    2 d = 327 M.-%
    10 d = 428 M.-%
- Swelling pressure: 0,5 N/mm²
- IR-spectrum and TGA: see annex 2 and 4
- Flammability: DIN EN 13501-1

Properties of the M-FLEX Montagekleber & Dichtstoff

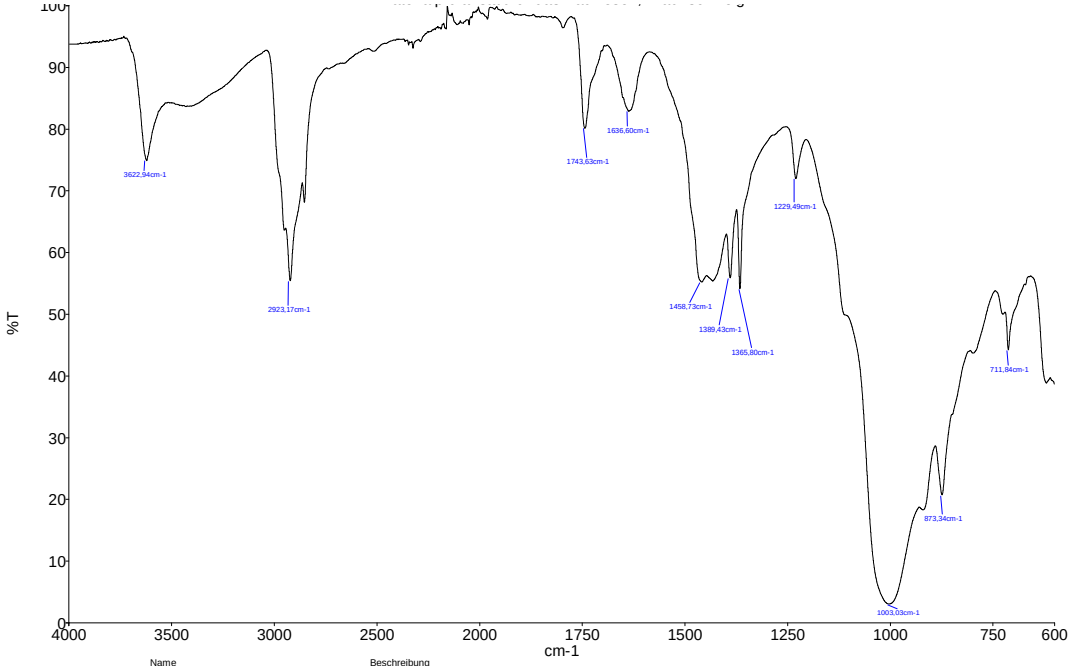
- Appearance: grey, tacky, soft, homogeneous
- Density (DIN ISO 1183-1): 1.52 g/cm³
- IR-spectrum: see annex 3

Properties of the SWELLFLEX® mounting rail (steel rail)

- Dimensions: 1000 mm thick /26.9 mm wide
- Hole diameter: 4.8 mm
- Hole centre distance: 20 mm
- Weight: 197.5 g/m

IR-spectrum **SWELLFLEX® BS waterstop tape**

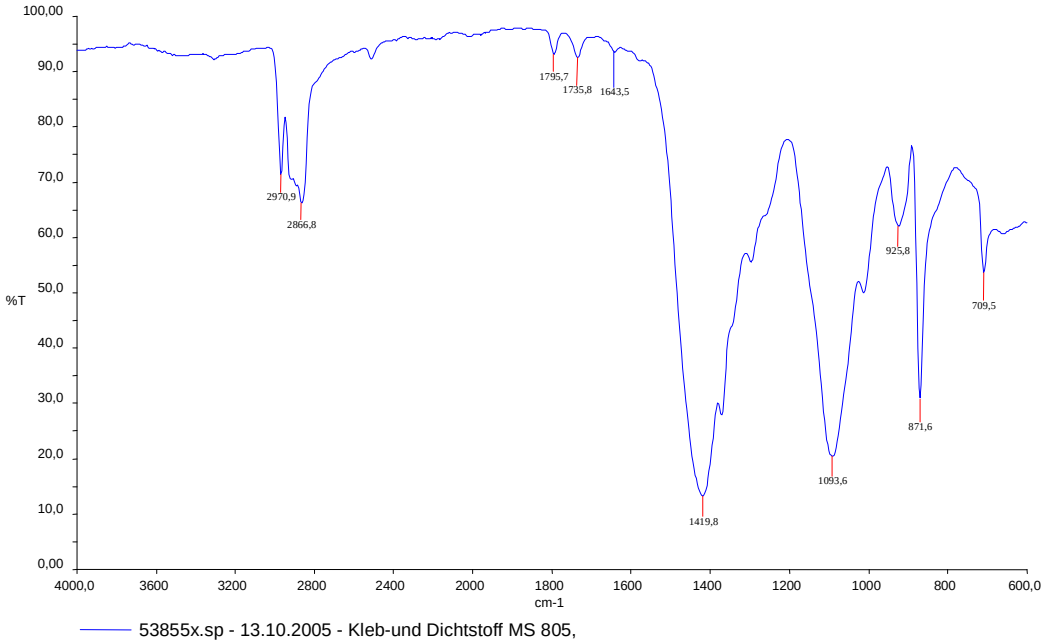
The IR analyses were made with a Perkin-Elmer FTIR unit of the type Spectrum 2000 Explorer, wave number range 4,000 cm-1 to 600 cm-1. The layer thickness was selected, so the DIN 51451 requirements respecting extinction ratios are complied with.



IR-spectrum **M-FLEX Montagekleber & Dichtstoff**

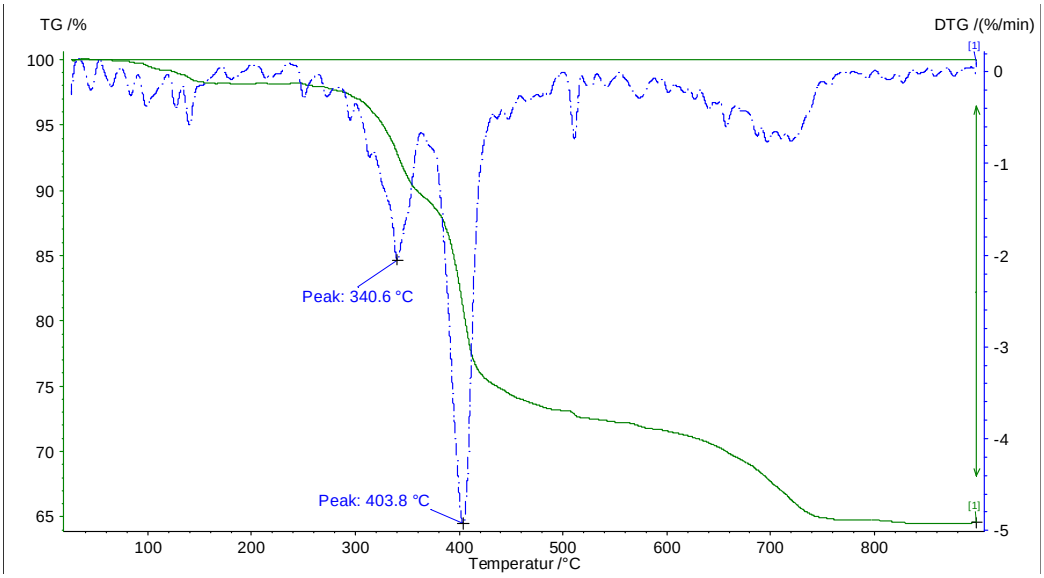
The IR analyses (Pyrolyse)were made with a wave number range of 4,000 cm-1 to 600 cm-1. The layer thickness was selected, so the DIN 51451 requirements respecting extinction ratios are complied with.

Materialprüfanstalt für das Bauwesen,



Thermogravimetric analysis **SWELLFLEX® BS waterstop tape**

The thermogravimetric analysis was made on the basis of ISO 7111. The heating rate was 20 K/minute. Measurements were made with a TA 3000 thermoanalysing station in a nitrogen atmosphere. The weight loss was determined at temperatures between 25° C and 900° C.



Instructions for installation

- The SWELLFLEX® BS waterstop tape has to be stored in a dry place and left in its original packaging until it is used.
- The base material must be dry, plane and it must have been freed from loose material, cement slurry and release agents.
- To prevent underflow, the swelling tape has to be glued to the base material with the M-FLEX Montagekleber & Dichtstoff applied to its full face, or fixed with the SWELLFLEX® mounting rail and the required steel nails / nail plugs (max. spacing: 35 cm). The processing instructions (technical data sheets) for the adhesives must be complied with.
- The swelling tape is placed in the middle of the joint, leaving a space of about 8 cm both at the inner and the outer reinforcement. In members of a relatively large thickness, the swelling tape can be installed within 1/3 d to 1/2 d of the member thickness d (with respect to the exposed side).
- In joint areas, ends are abutted and firmly pressed together.
- The swelling tape has to be checked for perfect fit and premature swelling before placing the concrete.

Due regard must be given to the regulations in DIN EN 1992, DIN EN 13670, the regulations for watertight structures (WU-Richtlinie), and DBV codes of practice (DBV-Merkblätter) in designing and providing joints.