

## General building authority test certificate

-Translation-

Test certificate number: P-1202/354/19 MPA-BS

Subject: MultiElast sealing tape  
for use as a joint sealing in concrete components  
with a high resistance to water penetration in accordance with  
Administrative Provisions – Technical Building Rules  
sequential no C 3.30

Applicant: B.T. innovation GmbH  
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Valid until: 15/08/2024

This general building authority test certificate consists of 7 pages and 4 annexes.

Translation 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.

## **A General provisions**

- (1) This general building authority test certificate demonstrates the usability of the construction product as defined by the German State Building Codes.
- (2) The general building authority test certificate does not replace the permits, approvals and certificates required by law for the execution of construction projects.
- (3) The general building authority test certificate is granted without prejudice to the rights of third parties, including, but not limited to, private intellectual property rights.
- (4) Without prejudice to any further regulations under the "Special provisions" section, manufacturers and distributors of the construction product must provide the user of the construction product with copies of the general building authority test certificate and point out that the general building authority test certificate must be available at the application site. On request, copies of the general building authority test certificate shall be made available to the authorities concerned.
- (5) The general building authority test certificate may only be reproduced in full. Publication of excerpts requires the consent of the Braunschweig Civil Engineering Materials Testing Institute (MPA Braunschweig). Texts and drawings of advertising material must not contradict the general building authority test certificate. Translations of the general building authority test certificate must bear the following notice: "This translation of the German original document has not been checked by the MPA Braunschweig".
- (6) The general building authority test certificate may be revoked at any time. The provisions may be supplemented or amended subsequently, especially if this is required due to new technical knowledge.

## **B Special provisions**

### **1 Subject and field of application**

#### **1.1 Subject**

This general building authority test certificate applies to the production and application of the “MultiElast” sealing tape of B.T. innovation GmbH. The sealing tape is produced on the basis of a butyl rubber.

#### **1.2 Field of application**

The sealing tape of normal flammability falls within the Administrative Provisions – Technical Building Rules, sequential no. C 3.30 as amended. The sealing tape may be used for the sealing of construction joints in cast-in-place concrete constructions with a maximum opening width of 0.25 mm and additionally for the sealing of joints between prefabricated concrete components with high resistance to water penetration against:

- pressing water up to a maximum water pressure of 0.6 bar (6 m water column) for installation in fresh concrete,
- pressing water up to a maximum water pressure of 1.0 bar (10 m water column) for installation between joints between prefabricated concrete components (compression by  $\geq 80\%$  to  $\leq 4$  mm height)
- ground moisture and non-pressing water.

The sealing is suitable for water exchange areas. The sealing fulfils the requirements of use class A for wear class 1 and 2 in accordance with the German directive for water impermeable concrete structures (WU-Richtlinie)<sup>1</sup>.

The sealing shall always be installed in accordance with the specifications under 4 (Execution).

### **2 Provisions for the construction product**

#### **2.1 Composition, characteristics and properties**

The MultiElast sealing tape is a sealing strip on the basis of butyl rubber. The sealing strip is produced in rectangular sections with the approximate dimensions of 30 mm x 20 mm (width x height) and packaged in strips between an easily removable protective film.

The construction product has the characteristics listed in Table 1 and in Annexes 1 and 2 and shall correspond to same. The test program was based on the specifications of the working group for “Granting general building authority test certificates for joint sealings in concrete components with a high resistance to water penetration in areas in contact with soil” at the Deutsches Institut für Bautechnik (DIBt) in Berlin. The usability of the construction product as a sealing for construction joints in cast-in-place concrete constructions and between joints between prefabricated concrete components with a high resistance to water penetration was verified.

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<sup>1</sup> Directive by the German Committee for Reinforced Concrete “Water-impermeable concrete structures” Issue June 2017



The results are documented in the test report no. 1200/713/17 prepared by MPA Braunschweig.

The joints which are sealed using the sealing tape are sufficient for the fields of application listed under Section 1.2

- stable
- adhesive
- water-impermeable
- resistant to ageing

The sealing tape fulfils the requirements of construction material class B2 "normal flammability" according to DIN 4102-1.

## **2.2 Manufacture, packaging, transport, storage and marking**

### **2.2.1 Manufacture**

The construction product is factory-produced.

### **2.2.2 Packaging, transport and storage**

Packaging, transport and storage must ensure that the sealing tape's mode of action is unaffected. The material must be protected against frost and weather influences. The sealing tape must not be exposed to high temperatures for long periods of time (e.g. direct sun exposure during the summer).

The information provided on the packaging in relation to requirements arising from other legal areas (e.g. hazardous substances or transport law) must be observed.

### **2.2.3 Product marking**

#### **2.2.3.1 National conformity mark (Ü-Zeichen)**

The construction product must be marked with the national conformity mark (Ü-Zeichen) by the manufacturer in accordance with the Conformity Marking Ordinance of the federal states. The mark may only be applied if the requirements in accordance with Section 3 are fulfilled.

The national conformity mark (Ü-Zeichen) with the prescribed information:

- Name of manufacturer
- Number of the general building code test certificate

is to be applied to the packaging or the packing slip.

#### **2.2.3.2 Additional information**

The following information must also be included on the packaging of the construction product or the packing slip:

- Product name
- Batch number
- Intended use
- Reference to the associated processing regulations

### **3 Attestation of conformity**

#### **3.1 General details**

Conformity of the “MultiElast” sealing tape with the provisions of this general building authority test certificate shall be confirmed for every manufacturing plant with a declaration of conformity by the manufacturer in accordance with Section 3.4 on the basis of a factory production control and an initial test of the product through a recognised testing centre (ÜHP).

#### **3.2 Initial test of the construction product by a recognised testing centre**

The initial test of the product can be omitted, as the samples for the tests were taken from current production of the manufacturing plant as part of the usability certification.

If there are changes to the production conditions, a new initial test must be carried out.

#### **3.3 Factory production control**

A factory production control system shall be set up and implemented in the manufacturing plant in accordance with DIN 18200.

The factory production control shall be carried out in accordance with the provisions of the specifications listed in Table 1, adapted to the products and to their production conditions. The specified requirements are based on the results of the basic test.

The results from the factory production control are recorded and evaluated by the manufacturer. The records shall at least include the following information:

- Product designation
- Type of monitoring
- Date of manufacture and test
- Result of monitoring and comparison with requirements
- Signature of the person responsible for factory production control

The records shall be kept for at least five years and shall be submitted on request.

If the monitoring results are unsatisfactory, the manufacturer shall immediately take the necessary measures to remedy the defect. Construction products which do not meet the requirements shall be handled in such a manner that they cannot be mixed up with compliant products which are free from defects. After the defect has been remedied, the respective test shall be repeated, if this is required to verify that the defect has been eliminated.

Table 1: Type and frequency of the test to be carried out as part of the factory production control

Properties	Test conditions	Requirements	Frequency
Check of source materials	Manufacturer's declarations or suitable tests	no indication of changes	per batch supplied
General properties	(Visual)	no indication of changes	per batch
Width Height		34 mm ± 10% 20 mm ± 10%	per batch
Density	DIN EN ISO 1183-1 (Dipping method)	1.30 g/cm <sup>3</sup> ± 3%	per batch
Infrared spectrum	See Annex 2	no indication of changes	per batch
Thermogravimetric analysis	See Annex 2	no indication of changes Mass loss: 62.7% by mass ± 3%	per batch
Compressive strength	see Assessment Report No. 1200/713/17	1.75 N/mm <sup>2</sup> ± 10%	1x per year
Adhesive strength on concrete (23/50)	see Assessment Report No. 1200/713/17	≥ 40 kPa	1x per year

### 3.4 Declaration of conformity

Conformity of the construction product with the provisions of this general building authority test certificate must be provided for every manufacturing plant with a declaration of conformity by the manufacturer on the basis of the initial test and the factory production control in accordance with 3.2 and 3.3. The declaration of conformity shall be provided by the manufacturer by marking the construction product with the national conformity mark (Ü-Zeichen) in accordance with 2.2.3.1.

## 4 Implementation

The installation instructions of the manufacturer shall apply to the design and installation works (Annex 3 and 4).

Particular care must be taken to ensure that the joints to be sealed between prefabricated concrete components are level and the sealing tape is pressed together to a height of ≤ 20% of the initial height (≥ 80% compression).

## 5 Legal basis

This general building authority test certificate is granted on the basis of Article 19 of the Lower Saxony Building Code (NBauO) in conjunction with the Administrative Provisions - Technical Building Rules, sequential no. C 3.30.



## 6 Legal remedies

An objection can be raised against this general building authority test certificate within one month of issue. The objection must be filed in writing or for the record with the management of the Civil Engineering Materials Testing Institute, Beethovenstraße 52, 38106 Braunschweig, Germany. The date of receipt of the notice of objection at the testing centre shall be decisive when determining whether the objection has been made in due time.

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Dr.-Ing. K. Herrmann  
Head of Testing Laboratory

M. Pankalla  
Engineer/Official in Charge

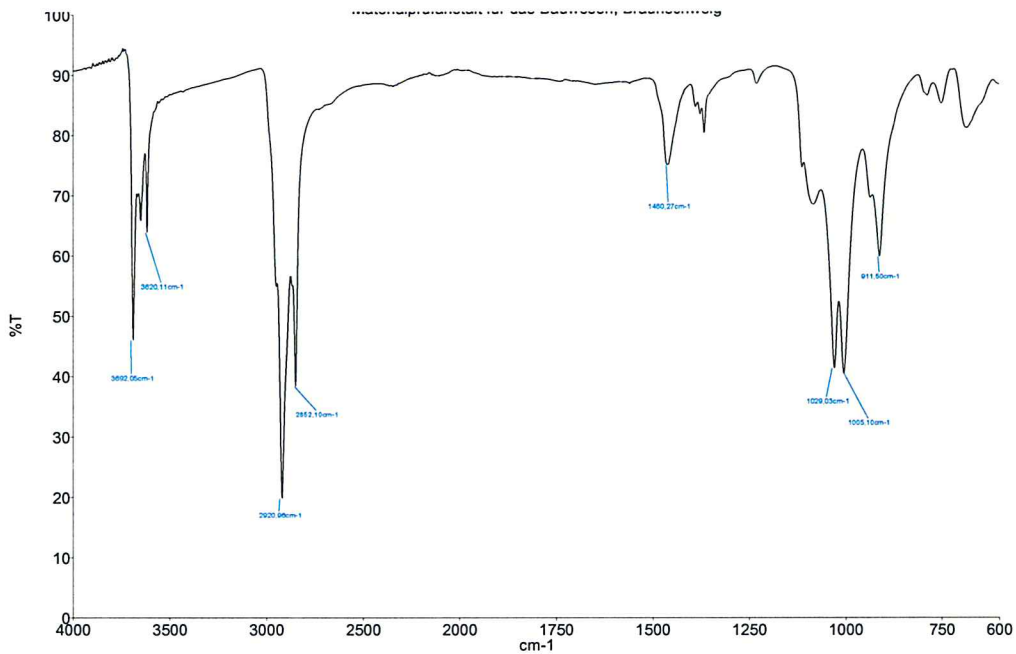
## Properties of the MultiElast sealing tape

- Outer characteristics: Black, sticky, kneadable, homogeneous
- Density (DIN EN ISO 1183-1): 1.30 g/cm<sup>3</sup>
- Mass loss:  
(TGA, 25 °C to 1,000 °C) 62.7% by mass  
(see Annex 2)
- Infrared spectrum: see Annex 2
- Behaviour after
  - 28 d water storage: 2.4% weight increase;  
free from cracks and blisters
  - 28 d SO<sub>4</sub><sup>2-</sup> storage (pH 4.5): 2.6% weight increase;  
free from cracks and blisters
  - 28 d Ca(OH)<sub>2</sub> storage (pH 12): 5.9% weight increase;  
free from cracks and blisters
- Compressive strength at  
80% compression 1.75 N/mm<sup>2</sup>
- Adhesion properties to concrete: > 0.04 N/mm<sup>2</sup> 100% adhesion failure  
Sealing tape/concrete
- Reaction to fire: construction material class B2 on solid mineral  
substrates (in accordance with DIN 4102-1)



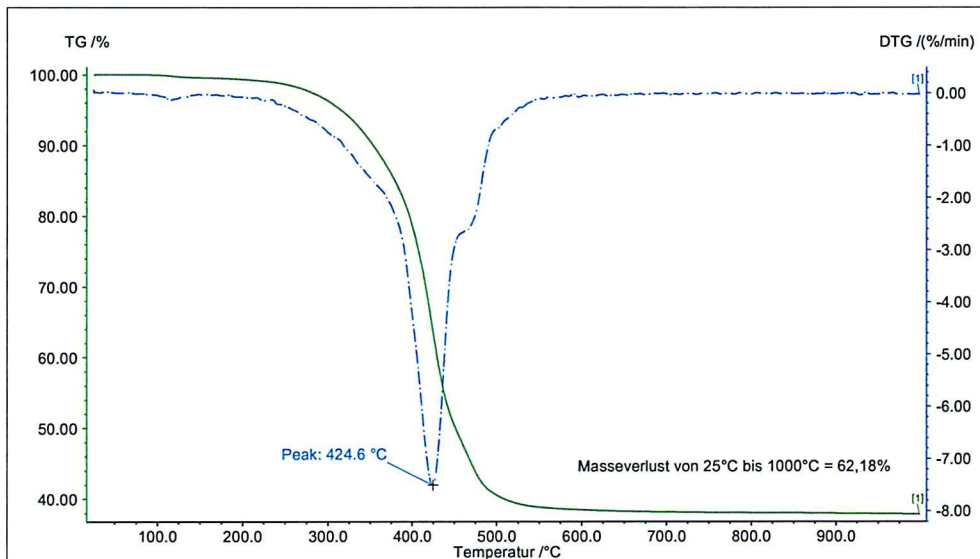
### IR spectrum

The infrared spectrum was recorded on a Perkin-Elmer FTIR unit of type Spectrum 2000 Explorer in a wave number range between  $4,000\text{ cm}^{-1}$  and  $400\text{ cm}^{-1}$ . The coating thickness was selected to comply with the requirements of DIN 51451 in relation to the extinction ratios.



### Thermogravimetric analysis

The thermogravimetric analysis was performed based on ISO 7111. The heat-up rate was 10 K/min. Measurements were taken using a TA 3000 thermogravimetric analyser in a nitrogen atmosphere. The mass loss was determined in the temperature range from  $25\text{ }^{\circ}\text{C}$  to  $1000\text{ }^{\circ}\text{C}$ .



## MultiElast installation instructions

### A. Installation in fresh concrete as a construction joint sealing

1. No substrate preparations are required for the installation in fresh concrete. MultiElast should be installed in concrete immediately after its application. The concrete in the area of the tape should only be dragged smooth, not rubbed smooth.
2. After the installation of the fresh concrete, the MultiElast sealing tape is placed (with the unprotected side) on the joint area of the fresh concrete at the beginning of the setting process and pressed into the concrete approx. halfway. The lower part of the sealing tape must be fully encased by fresh concrete with approx. one half of it protruding from the concrete.
3. When laying bends with the elastic MultiElast tape, it can be helpful to briefly flex the tape with a much stronger curvature when unrolling it before placing it in the fresh concrete.
4. In the joint area (end of tape and start of the new roll), the MultiElast sealing tapes should be kneaded together with a lateral overlap of approx. 5 cm. The lateral overlap of the tape ends must be achieved by firmly pressing the tape ends together to prevent air pockets from forming. For lower temperatures in particular, the joints can be shaped easily by briefly heating the tape ends.
5. The protective film should only be removed from the sealing tape just before reaching the next concreted section. After removing the sealing strip, ensure that the joint sealing tape is not exposed to any dirt before concreting of the next section commences.
6. Mistakes made when laying the tape can be corrected once the concrete has hardened.

If parts of the MultiElast strip were placed too deeply in the fresh concrete, another MultiElast strip can be glued onto the previously laid strip. For this purpose, heat both tapes until the surface begins to melt and then press together whilst hot.

#### **D. Installation as a compression seal between prefabricated components**

1. Installation as a compression seal between hardened prefabricated concrete components is described below.
2. To ensure optimum adhesion of the MultiElast tape, the concrete surface in the area of the joint must be dry, clean, free from cement paste and dust, as well as free from separating agents, curing agents and other substances that would impair adhesion.
3. Place the MultiElast sealing tape (with the protective paper film facing upward) in the centre of the surface area to be jointed and firmly press down along the entire length to prevent the sealing from moving when the next construction component is put in place.
4. The joint area shall be executed as follows: both ends shall be cut at an angle (30–45°) so they are connected and lie on top of each other after being pressed together and before being pressed onto the component.
5. Remove the protective strip just before putting the next component in place and check that the MultiElast sealing strip is installed securely in the desired position and cannot be moved.
6. To achieve optimum sealing, ensure that the material has been compressed to  $\leq 20\%$  of its original height before subjecting the joint to loads.

Product	Nominal dimensions		Height at 80% compression
	Width	Height	
MultiElast	30 mm	20 mm	4.0 mm