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Institut für Baustoffe, Massivbau und Brandschutz | Materialprüfanstalt für das Bauwesen

General building authority test certificate

-Translation-

Test certificate number:	P-5147/5783 MPA-BS
Subject:	RubberElast sealing tape for use as a sealing tape for joints between prefabricated 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 Sudenburger Wuhne 60 39116 Magdeburg, Germany
Date of first issue:	27/01/2004
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Valid until:	05/05/2024

This general building authority test certificate consists of 6 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 used in the German building inspection procedure.

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

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

The RubberElast sealing tape is a sealing strip on the basis of butyl rubber. The sealing tape is produced with the cross-sectional dimensions of 17 mm x 17 mm, 22 mm x 22 mm, 25 mm x 19 mm, 32 mm x 25 mm, 37 mm x 28 mm, 38 mm x 32 mm, 46 mm x 40 mm and 48 mm x 42 mm (width x height in each case).

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 and is used for waterproofing joints between prefabricated concrete components with high resistance to water penetration. The sealing tape may be used for the following applications:

- pressing water up to a maximum water pressure of 0.5 bar (5 m water column),
- ground moisture and non-pressing water.

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

The sealing is based on adhesion to concrete and requires compression of the RubberElast sealing tape positioned between the hardened concrete surfaces to a height of ≤ 20% of the initial height (≥ 80% compression).

2 Provisions for the construction product

2.1 Characteristics and properties

The construction product has the characteristics listed in Annexes 1 and 2. The suitability for use of the sealing tape was verified though in-house component tests at the Braunschweig Civil Engineering Materials Testing Institute after pressing together the sealing tape (80% compression) and a subsequent widening of the joint by 0.25 mm as well as an additional horizontal movement of the joint by 3 mm (cross-section of 17 mm x 17 mm) or 7 mm (cross-section of 37 mm x 28 mm and 38 mm x 32 mm) (see Assessment reports no 5147/5783, dated 26/01/2004, and 1200/142/15, dated 25/07/2016). The verification of the suitability was supplemented by component tests where the sealing tape (cross-section of 38 mm x 32 mm) was compressed to 50% and then moved laterally by 25.6 mm and subsequently compressed to 20% of the initial height (80% compression), finally widened by 0.25 mm and then fixed in place (assessment report 1200/954/17, dated 28/02/2018). The test program was based on the specifications of the working group for "Granting general building authority test certificates for products in accordance with Administrative Provisions – Technical Building Rules, sequential no. C 3.30" at the Deutsches Institut für Bautechnik (DIBt) in Berlin.

2.2 Packaging, transport, storage and marking

(1) The sealing tape with a protective paper film on one side is packaged in cardboard boxes. Transport and storage must ensure that the construction product is neither deformed not damaged, is protected against frost and not exposed to constant sunlight.

(2) The information provided on the packaging in relation to requirements arising from other legal areas must be observed.

(3) The manufacturer's instructions must be observed in relation to the storage duration. Related system components must be clearly marked and sold together.

2.3 National conformity mark

(1) The construction products 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 national conformity mark (Ü-Zeichen) with the information prescribed there:

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

is to be applied to the packaging or, if this is not possible, to the packing slip. The mark may only be applied if the requirements in accordance with Section 3 are fulfilled.

(2) The following information must 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

(1) **General**

In accordance with the Administrative Provisions – Technical Building Rules, sequential no. C 3.30, the verification of the conformity of the construction product with the requirements of this general building authority test certificate is provided through a declaration of conformity by the manufacturer on the basis of a factory production control and a test of the product before confirmation of conformity (initial test) through a recognised testing centre (ÜHP).

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

As part of the initial test, the tests of the characteristic values in accordance with Table 1 shall be carried out. The test values may not deviate from the reference values by more than the tolerances specified there.

The initial test of the product can be omitted, if 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) **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 product and its 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 tests to be carried out as part of the factory production control

Properties	Test conditions	Requirements	Frequency
Geometry	-	Height ± 10% of the nominal dimensions Width ± 10% of the nominal dimensions	per batch
Density	DIN 53479	1.299 g/cm³ ± 2%	per batch
Thermogravimetric analysis	see Annex 2	No indication of changes Mass loss: 57.3% by mass ± 3%:	per batch
Infrared spectrum	DIN EN 1767 and DIN 51451	No indication of changes in the composition (Annex 2)	per batch
Compressive strength	see assessment report 5147/5783	1.39 N/mm² ± 5%	1x per year
Adhesive strength on concrete (23/50)	see assessment report no. 5147/5783	≥ 60 kPa	1x per year

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 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.

i.A.

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i. A.

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Properties of the RubberElast sealing tape

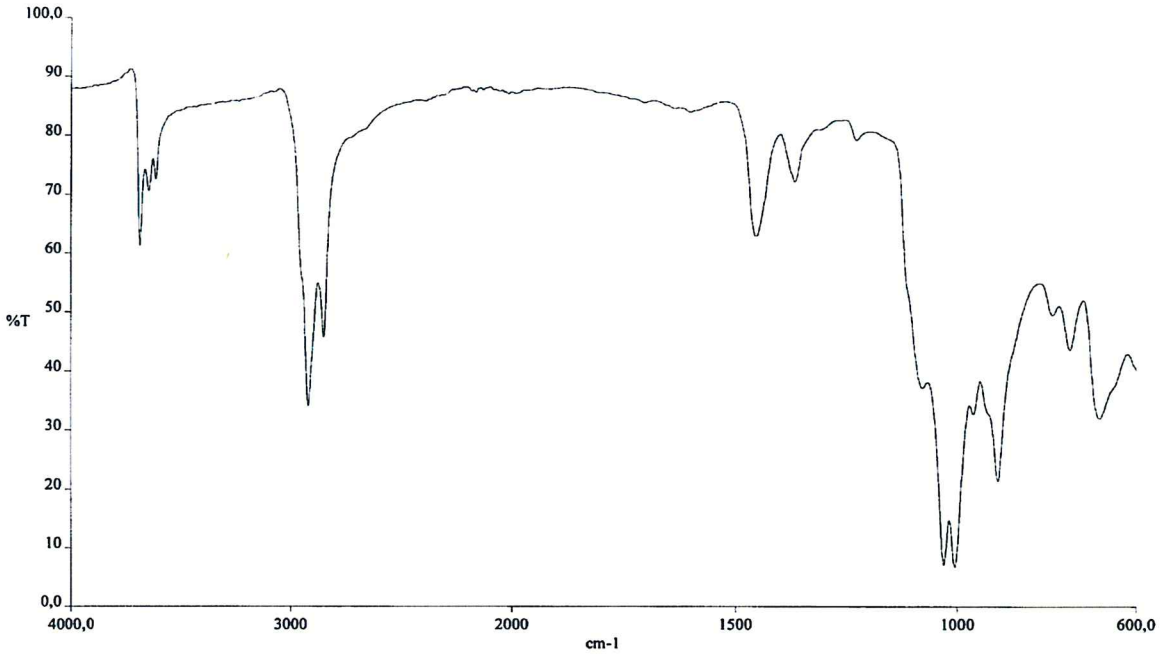
- Outer characteristics: Black, kneadable, homogeneous
- Density (DIN 53479): 1.299 g/cm³
- Mass loss: (TGA, 25 °C to 1,000 °C) 57.4% by mass
- Behaviour after
  - 28 d dest. water storage: mass increase 0.45% by mass; free from cracks and blisters
  - 28 d $Ca(OH)_2$ storage: mass increase 0.39% by mass; free from cracks and blisters
  - 28 d sulphuric acid (20%) Storage: Mass increase 0.64% by mass; free from cracks and blisters
- Behaviour during adhesive strength test on concrete

	Adhesive strength	Expansion under adhesive strength
- Delivered condition (23/50):	74 kPa	9.6%
- 14 d water storage:	56 kPa	13.3%
- 8 °C storage:	120 kPa	16.4%

- Compressive strength at 80% compression: 1.39 N/mm²

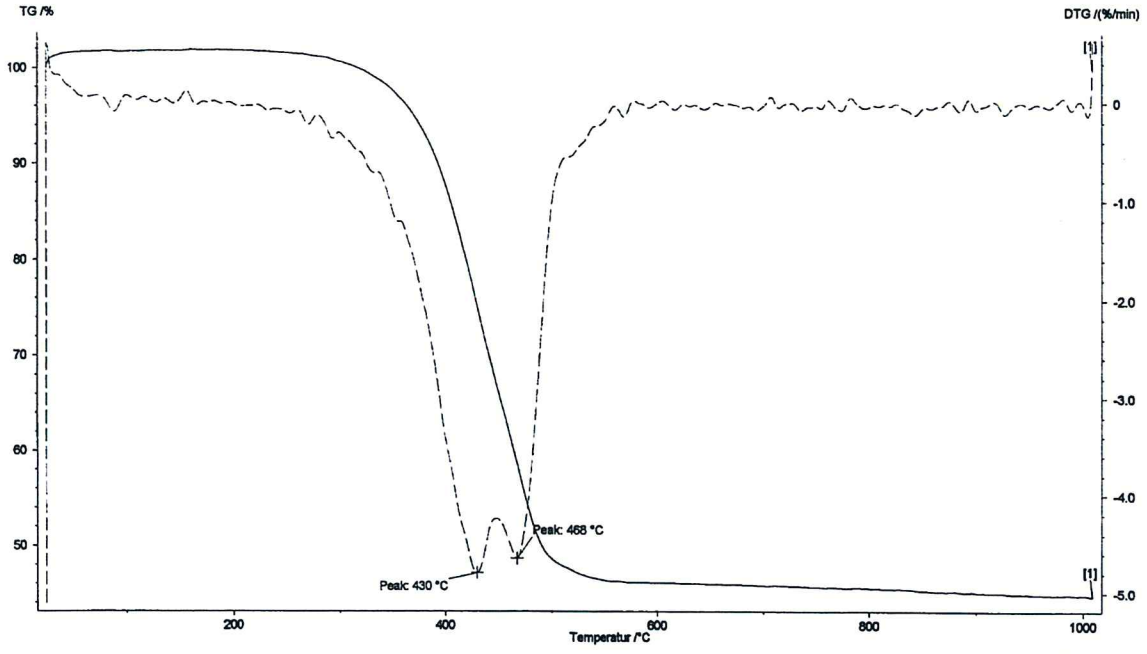
IR spectrum

The infrared spectrum was recorded without further pre-treatment using a Golden Gate single-reflection ATR unit on a Perkin-Elmer FTIR unit of type Spectrum 2000 Explorer in a wave number range between 4,000 cm^{-1} and 600 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 on the basis of DIN EN ISO 11358. The heat-up rate was 10 K/min. Measurements were taken using a thermogravimetric analyser in a nitrogen atmosphere. The mass loss was determined in the temperature range from 25 ° to 1,000 °C.



RubberElast – Installation instructions

1. Install only on hardened concrete components.

2. To ensure optimum adhesion of the RubberElast sealing material, the concrete surface in the area of the joint must be dry, clean, free from cement paste, dust as well as free from separating agents, curing agents and other substances that would impair adhesion.

3. Place the RubberElast 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 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 RubberElast 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 ≤ 20% of its original height before subjecting the joint to loads.

Product	Nominal dimensions			
	Width	Height	Length	Height at 80% compression
RubberElast 17x17	17 mm	17 mm	4.5 m	3.4 mm
RubberElast 25x19	25 mm	19 mm	4.4 m	3.8 mm
RubberElast 22x22	22 mm	22 mm	4.4 m	4.4 mm
RubberElast 32x25	32 mm	25 mm	4.4 m	5.0 mm
RubberElast 37x28	37 mm	28 mm	3.2 m	5.6 mm
RubberElast 38x32	38 mm	32 mm	3.2 m	6.4 mm
RubberElast 46x40	46 mm	40 mm	2.25 m	8.0 mm
RubberElast 48x42	48 mm	42 mm	2.25 m	8.4 mm

Additional installation instructions for prefabricated walls and complex components

1. Install RubberElast on floors and wall areas as described above.

2. Pre-position the next component, e.g. hanging from a crane. Protect existing components with RubberElast (e.g. using wooden slats) so the new component can cease swinging.

3. Remove the protective strip and begin installing the components. Initially, reduce the width of the joints only to the point that the compression of RubberElast is as much as up to 50%.

4. Lower and reduce the joint width to the existing components so the new component/prefabricated wall can slowly slide a bit into the corners and a compression of 80% is only reached at the end of the positioning.

Additional instructions:

1. Storage: do not expose RubberElast to high temperatures or direct sun for long periods of time.

2. Stacking height: no more than a maximum of five original cardboard boxes may be stacked on top of each other.

3. When installing in damp conditions, the concrete must be kept dry to achieve the relevant adhesive force.