

# Evidence of Performance

Impregnated sealing tape according to DIN 18542 for exposure category 1 (BG 1)



## Test Report

No. 19-004099-PR01

(PB 01-K08-0209-en-01)

<b>Client</b>	Krimelte OÜ Suur-Paala 10 13619 Tallinn Estonia
<b>Product</b>	Impregnated sealing type made of cellular plastics, self-adhesive on one side
<b>Designation</b>	Premium Expanding Tape 600
<b>Dimensions (t<sub>F</sub> / b<sub>max</sub>)</b>	8 to 50 / 2 – 42
<b>Material</b>	Flexible polyurethane foam
<b>Impregnation</b>	Acrylate-based
<b>Special features</b>	-/-

### Basis

DIN 18542 : 2009-07  
Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics, impregnated sealing tapes - Requirements and testing

Test report 14-000709-PR01 (PB 01 K08-0209-de-01) dated 27.07.2015

ift certification program QM 304 contract no. 159 6017301 dated 25.09.2006

### Representation



Test as per DIN18542 Clause	Requirements according to DIN 18542 for BG 1	Results of test
7	Transferability on the delivery program	Passed
8.2	Air permeability $a < 1.0 \text{ m}^3/[\text{h m (daPa)}^{2/3}]$	Passed
8.3	Watertightness of joints bei $\Delta p \geq 600 \text{ Pa}$	Passed
8.4	Watertightness of joint intersections at $\Delta p \geq 600 \text{ Pa}$	Passed
8.5	Thermal shock resistance from (-30 to +90) °C *)	Passed
8.6	Light resistance and resistance to moisture penetration	Passed
8.7	Compatibility with adjoining building materials at up to +80 °C	Passed
8.9	Water vapour permeability $s_d \leq 0.5 \text{ m}$	Passed
8.10	Reaction to fire, building materials class B1	Passed

\*) Deviation from the standard with extended temperature range

Designation as per DIN 18542

Sealing tape DIN 18542 - BG 1

ift Rosenheim

27.09.2019

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### Instructions for use

The present test report serves to demonstrate the above characteristics according to DIN 18542 : 2009-07.

### Validity

The data and results given relate solely to the tested and described specimen. The present test does not allow any statement to be made on further characteristics of the present sealing tape regarding performance and quality.

The validity of the evidence of performance ends after 5 years on July 2020 or by changes in the product.

### Notes on publication

The ift Guidance Sheet "Conditions and Guidance for the Use of ift Test Documents" applies.

The cover sheet can be used as an abstract.

The report contains a total of 11 pages.

## 1 Object

### 1.1 Description of test specimen

Product	Impregnated sealing tape made of cellular plastics
Manufacturer	original client
Product designation	Premium Expanding Tape 600
Material / Base	Flexible polyurethane foam
Density	(100 ± 15) kg/m <sup>3</sup> for $b_{\max} \leq 15$ mm (130 ± 15) kg/m <sup>3</sup> for $b_{\max} > 15$ mm
Impregnation	Acrylate-based
Adhesive layer	One-sided self-adhesive
Type of adhesive	Acrylate-based
Tested dimensions *)	20 / 9 – 20 (nominal joint width 12 mm)
( $t_F / b_{\min} - b_{\max}$ ) [mm]	25 / 9 – 20 (nominal joint width 12 mm) 30 / 9 – 20 (nominal joint width 12 mm) 8 / 1 – 2 12 / 2 – 6 15 / 6 – 15 20 / 11 – 25 30 / 24 – 42

The description is based on inspection of the test specimen at **ift** Rosenheim or at the client. Item designations/numbers as well as material specifications were given by the original client (Additional data provided by the original client are marked with \*)

## 2 Procedure

### 2.1 Sampling

The test specimens were selected by the original client.

Samples delivered:

Type	partly in rolls, partly pre-mounted in test devices
Delivered on	identified by ift
Registration No.	identified by ift

### 2.2 Method

The tests were performed as set out by DIN 18542 for exposure category 1 and are listed in Table 1.

**Table 1** Testing to exposure category DIN 18542 - BG 1

No.	Characteristics	Testing to DIN 18542, Clause	Basis
1	Coefficient of air infiltration $a < 1.0 \text{ m}^3/(\text{h m})$ at 10 Pa pressure difference Air permeability with $a < 1.0 \text{ m}^3/[\text{h m} (\text{daPa})^{2/3}]$	7 and 8.2	DIN EN 12114 : 2000-04, Thermal performances of buildings - Air permeability of building components and building elements - Laboratory test method DIN 18542 : 2009-07
2	Watertightness of joints at $\Delta p \geq 600 \text{ Pa}$	7 and 8.3	DIN EN 1027 : 2000-06, Windows and Doors – Watertightness – Test method
3	Watertightness of joint intersections at $\Delta p \geq 600 \text{ Pa}$	8.4	
4	Thermal shock resistance from $-20 \text{ }^\circ\text{C}$ to $+80 \text{ }^\circ\text{C}$	8.5	DIN 18542 : 2009-07
5	Light resistance and resistance to moisture penetration	8.6	DIN EN ISO 4892-2 : 1999-05, Plastics – Methods of exposure to laboratory light sources, Part 2: Xenon-arc lamps
6	Compatibility with adjoining building materials at up to $+80 \text{ }^\circ\text{C}$	8.7	DIN 18542 : 2009-07; ift-Guideline: Compatibility of glazing gaskets with wood finishes, 1983-08
8	Water vapour diffusion resistance	8.9	DIN EN ISO 12572 : 2001-09, Hygro-thermal performance of building materials and products – Determination of water vapour transmissions properties
9	Reaction to fire	8.10	DIN 4102-1 : 1998-05, Fire behaviour of building materials and building components, Part 1: Building materials - concepts – requirements and tests DIN 4102-16 : 1998-05, Fire behaviour of building materials and building components, Part 16: "Brandschacht" tests

Boundary conditions as specified by the standard requirements

Deviations Any deviations from the test methods or test conditions have been documented for the individual tests.

## 2.3 Test equipment

**Table 2** Test equipment

No.	Testing to DIN 18542, Clause	Test equipment	Device No.
1	8.2	Test rig for windows. The test rig was calibrated by the <b>ift</b> Rosenheim annually	26010
2	8.3		
3	8.4		
4	8.5	Oven Freezer Standard climate Calliper gauge	22159 22824 22040 20089
5	8.6	The test was performed at SKZ – TeConA GmbH. See test report No. 115293/15-I dated 19.05.2015 by the original client.	--
6	8.7	Oven Standard climate	22159 22040
8	8.9	The test was performed at MFPA Leipzig GmbH. See test report No. 4.1/14-052-02 dated 13.03.2014 by the original client.	--
9	8.10	The test was performed at the ift Rosenheim, Brandschutzzentrum Nuremberg. See National Technical Test certificate No. P-10-001723-PR02-ift (K08-01-de-02) dated 04.11.2014 by the original client.	--

## 2.4 Testing

Date/Period October 2013 to May 2015

Test engineer Wolfgang Jehl, Dipl.-Ing. (FH)

### 3 Detailed results

#### 3.1 Air permeability

The test specimens were manufactured by the original client according to DIN 18542, Clause 8.2 and Fig. 5.

Air permeability of the sealing tape Premium Expanding Tape 600 was tested according to DIN EN 12114 at maximum joint width  $b_{\max}$  with pressure ranges of 50/100/150/200/250/300/450/600 Pa as set out by DIN 18542, Annex A.

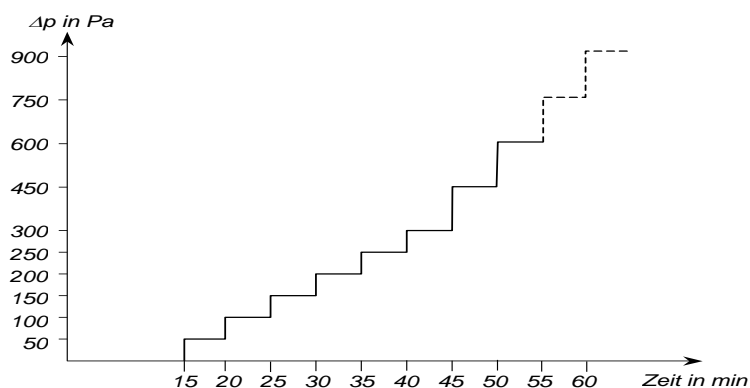
The detailed results are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

The requirements for the coefficient of air infiltration ( $a$ -value) were fulfilled by  $a < 1.0 \text{ m}^3/[\text{h m (daPa)}^n]$ , and those for air permeability were fulfilled by  $a < 1.0 \text{ m}^3/[\text{h m (daPa)}^{2/3}]$  for all tested dimensions of the sealing tape.

#### 3.2 Watertightness of joints

Test specimen as described in Section 3.1.

Watertightness of joints sealed with sealing tape PREMIUM EXPANDING TAPE 600 was tested for a maximum joint width. Testing was performed by application of pressure pulses according to DIN EN 1027 (Fig 1).



**Fig 1** Representation of the pressure pulses and the chronological sequence

The detailed results are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

At a pressure differential of  $\Delta p = 600 \text{ Pa}$  no water penetration to the inside was detected. The minimum requirement for watertightness for exposure category BG 1 was fulfilled.

### 3.3 Watertightness of joint intersections

The test specimens were manufactured by the original client according to DIN 18542, Clause 8.4 and Fig.6. The nominal joint width  $b_N$  specified by the manufacturer for the sealing tape dimensions was 12 mm.

Watertightness of joint intersections sealed with sealing tape Premium Expanding Tape 600 was tested at a maximum joint width  $b_{max}$  on the intersection variant featuring continuous vertical sealing tape. Testing was performed by application of pressure pulses according to DIN EN 1027 (Fig. 1).

The detailed results are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

At a test pressure differential of  $\Delta p = 600$  Pa no water penetration to the inside was detected. The minimum requirement for watertightness of joint intersections for exposure category 1 (BG 1) was fulfilled.

### 3.4 Thermal shock resistance

The test specimens were produced by the original client according to DIN 18542, Clause 8.5 and Fig. 7.

Differing to the standard, the thermal shock resistance was tested at an extended temperature range from  $-30$  °C to  $+90$  °C at a minimum joint width  $b_{min}$ .

Following the test and one day of storage at standard atmosphere neither any discolorations nor any changes were detected on the contact faces. Any migration of impregnation material was not observed. Six hours after opening the test specimen, the average recovery of the tested sealing tape Premium Expanding Tape 600 was above the maximum joint width  $b_{max}$ .

The detailed results are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

The requirements of exposure category 1 (BG 1) for the thermal shock resistance were fulfilled.

### 3.5 Light resistance and resistance to moisture penetration

The light resistance and resistance to moisture penetration test was conducted for the nominal joint width  $b_N$  specified by the manufacturer. In deviation from the standard only one side was subjected to accelerated ageing.

Referring to this test, test report No. 115293/15-I dated 19.05.2015 and prepared by SKZ – TeConA GmbH, Würzburg, was submitted by the original client.

This test report confirms that the sealing tape Premium Expanding Tape 600 tested at a nominal joint width of 12 mm fulfils the requirements for light resistance and resistance to moisture penetration according to DIN 18542. Six hours after opening the test specimen, the average recovery of the tested sealing tape Premium Expanding Tape 600 was above the maximum joint width  $b_{max}$ .

The detailed results are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

The requirements of exposure category 1 (BG 1) for light resistance and resistance to moisture penetration was fulfilled.

### **3.6 Compatibility with adjoining building materials**

The test specimens of a nominal joint width of 12 mm were produced by the ift Rosenheim according to DIN 18542, Clause 8.7. Supplementary to the standard requirements, compatibility with acrylic glass made of PMMA, with bright steel, galvanised steel, stainless steel, copper and aluminium was tested.

The detailed results of testing the compatibility of the sealing tape Premium Expanding Tape 600 with adjoining building materials are documented in the test record (14-000709-PR01 (PB-01-K08-0209-01)) dated 28.10.2015 by the original client.

No changes to the contact face nor to the direct edge area of the sealing tape were detected that may have a negative effect on the function. The requirement for compatibility with adjoining building materials was fulfilled.

### **3.7 Water vapour permeability**

Water vapour permeability of the sealing tape Premium Expanding Tape 600 was tested for a joint width of 12 mm according to DIN 18542, Clause 8.9.

Referring to this test, test report No 4.1/14-052-02 dated 13.03.2014 of MFPA Leipzig GmbH, Leipzig, was submitted by the original client.

The requirement for water vapour permeability of exposure category 1 (BG 1) was fulfilled by the impregnated joint sealing tape with  $s_d \leq 0.5$  m.

### 3.8 Reaction to fire

Referring to this test, the national technical certificate P-10-001723-PR02-ift (K08-01-de-02) dated 04.11.2014 by the ift Rosenheim, Brandschutzzentrum Nuremberg, was presented by the original client. According to this certificate, the sealing tape Premium Expanding Tape 600 fulfils the requirements for fire behaviour as set out by DIN 4102-1 for building materials class.

The requirement of exposure category 1 (BG 1) for reaction to fire was fulfilled.

### 3.9 Application/extrapolation

Based on testing selected sealing tape dimensions as per DIN 18542, Clauses 8.2 and 8.3, the results can be applied to the product range specified by the manufacturer for the sealing tape Premium Expanding Tape 600 (Annex 1) for exposure category 1 (BG 1) in conformity with the extrapolation rules set out by DIN 18542, Clause 7. The product range and the tested dimensions of the sealing tape are plotted in Fig. 2

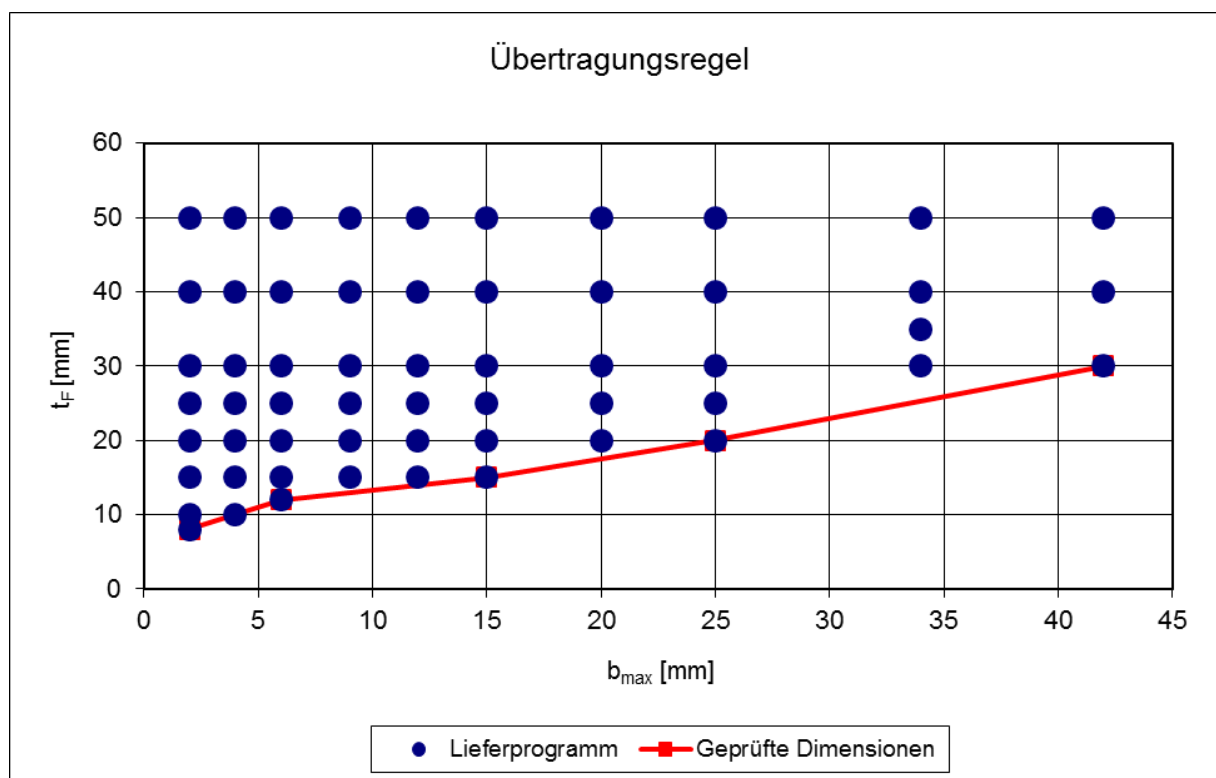


Fig. 2 Application of extrapolation rule as per DIN 18542, Clause 7, Fig. 4



## 4 Evaluation

### 4.1 Comparison of requirements and detailed results

Evaluation of the detailed results is listed in Table 3.

**Table 3** Overview of requirements and results related to sealing tape Premium Expanding Tape 600

Testing to DIN 18542 Clause	Characteristics	Requirements according to DIN 18542 for BG 1	Tested joint cross section $t_F$ / b in mm	Results of test
7 8.2	Air permeability coefficient $a$ at 10 Pa	$a < 1.0 \text{ m}^3 / [\text{h}\cdot\text{m}\cdot(\text{daPa})^n]$	8 / 2 12 / 6	Passed
	Air permeability	$a < 1.0 \text{ m}^3 / [\text{h}\cdot\text{m}\cdot(\text{daPa})^{2/3}]$	15 / 15	
7 8.3	Watertightness of joints at $\Delta p$	$\Delta p \geq 600 \text{ Pa}$	20 / 25 30 / 42	Passed
8.4	Watertightness of joint intersections at $\Delta p$	$\Delta p \geq 600 \text{ Pa}$	20 / 20	Passed
8.5	Thermal shock resistance	from (-20 to +80) °C	30 / 9	Passed *)
8.6	Light resistance and resistance to moisture penetration	must be guaranteed	30 / 12	Passed
8.7	Compatibility with adjoining building materials	at up to +80 °C	20 / 12	Passed
8.9	Water vapour diffusion resistance $s_d = (\mu \times t_F)$	$s_d \leq 0.5 \text{ m}$	25 / 12	Passed
8.10	Reaction to fire	B1	50 / 63 80 / 20 80 / 30	Passed

\*) Deviation from the standard with extended temperature range (-30 °C to +90 °C)

### 4.2 Designation

Based on the results the sealing tape Premium Expanding Tape 600 fulfils the requirements of DIN 18542 for the exposure category 1. Therefore it is allowed to be designated as follows

#### Sealing tape DIN 18542 – BG 1

**Evidence of Performance**

Requirements according to DIN 18542 für BG 1

Test Report 19-004099-PR01 (PB 01-K08-0209-en-01) dated 27.09.2019

Client Krimelte OÜ, 13619 Tallinn (Estonia)



The table below shows the product range specified by the original client for sealing tape Premium Expanding Tape 600 (BG 1) and the most unfavourable dimensions selected for the test, according to Clause 7.

**Table** Product range of Premium Expanding Tape 600 and tested sealing tape dimensions (bold)

Designation	$t_F$ [mm]	$b_{min} - b_{max}$ [mm]	$t_F / b_{max}^*$ [-]
<b>8/1-2</b>	<b>8</b>	1 - 2	<b>4</b>
10/1-2	10		5
15/1-2	15		7.5
20/1-2	20		10
25/1-2	25		12.5
30/1-2	30		15
40/1-2	40		20
50/1-2	50		25
10/1-4	10	1 - 4	2.5
15/1-4	15		3.75
20/1-4	20		5
25/1-4	25		6.25
30/1-4	30		7.5
40/1-4	40		10
50/1-4	50		12.5
<b>12/2-6</b>	<b>12</b>	2 - 6	<b>2</b>
15/2-6	15		2.5
20/2-6	20		3.33
25/2-6	25		4.17
30/2-6	30		5
40/2-6	40		6.67
50/2-6	50		8.33
15/4-9	15	4 - 9	1.67
20/4-9	20		2.22
25/4-9	25		2.78
30/4-9	30		3.33
40/4-9	40		4.44
50/4-9	50		5.55
15/5-12	15	5 - 12	1.25
20/5-12	20		1.67
25/5-12	25		2.08
30/5-12	30		2.5
40/5-12	40		3.33
50/5-12	50		4.17
<b>15/6-15</b>	<b>15</b>	6 - 15	<b>1</b>
20/6-15	20		1.33
25/6-15	25		1.67
30/6-15	30		2
40/6-15	40		2.67
50/6-15	50		3.33

**Evidence of Performance**

Requirements according to DIN 18542 für BG 1

Test Report 19-004099-PR01 (PB 01-K08-0209-en-01) dated 27.09.2019

Client Krimelte OÜ, 13619 Tallinn (Estonia)



Designation	$t_F$ [mm]	$b_{min} - b_{max}$ [mm]	$t_F / b_{max}^*$ [-]
20/9-20	20	9 - 20	1
25/9-20	25		1.25
30/9-20	30		1.5
40/9-20	40		2
50/9-20	50		2.5
<b>20/11-25</b>	<b>20</b>	11 - 25	<b>0.8</b>
25/11-25	25		1
30/11-25	30		1.2
40/11-25	40		1.6
50/11-25	50		2
30/18-34	30	18 - 34	0.88
35/18-34	35		1.03
40/18-34	40		1.18
50/18-34	50		1.47
<b>30/24-42</b>	<b>30</b>	24 - 42	<b>0.71</b>
40/24-42	40		0.95
50/24-42	50		1.19

\*) The selected and tested dimensions of the sealing tape include the most unfavourable (highest) compression value.