

for the proof of fire behaviour according to DIN 4102-1



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Brandverhalten
von Baustoffen
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PÜZ-Stelle (LBO): BRA09

Reference: FLT 3688219 (Translation of the German Prüfzeugnis - no guarantee for translation of technical terms)

Sponsor: Convertec GmbH
Veredelungstechnologie
Heideweg 2-4
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Order 2019-03-06 **Arrived** 2019-03-08

Description of samples: On one side coated cotton-polyester blended fabric to be used as wall covering, named **Canvas Mosel Natur W**
(for details see page 2)

Delivered: 2019-03-08

Content of request: Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1

Assessment: The examined material, bonded to solid mineral substrates or to gypsum plaster boards, meets the requirements of class B1 for "schwerentflammbare" (not easily flammable) building materials according to DIN 4102-1.
(for details see page 5)

Validity: 2024-04-30

Sampling: The sample material was sent to the laboratory by the sponsor.

Remark: If the above-mentioned building material is not used as product according to MBO § 2, there is no need for a general building supervisory test certificate.
This test certificate shall not be used as the sole proof if the examined building material is used as product in the meaning of state building prescriptions (MBO § 17).

This test certificate does not replace an eventually necessary proof of applicability concerning building supervisory or building laws in the meaning of state building prescriptions. This has to be verified by:

- "allgemeine bauaufsichtliche Zulassung" (general building inspectorate approval) or by
- "allgemeines bauaufsichtliches Prüfzeugnis (general building inspectorate certificate) or by
- "Zustimmung im Einzelfall (exceptional approval).

This test certificate can underlie building supervisory procedures:

- for regulated building products for the pre scribed proofs of conformity
- for non-regulated building products for the needed proofs of applicability.

This test certificate includes 5 pages and 2 enclosures.

Approved testing, inspection and certification body

This test report must not be published and copied preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents. Agreement of the test laboratory has to be given in any case if norms in which the tests are based or other technical standards have changed.

CERTIFICATE
TEST



1 Description of test material

1.1 Description (according to the manufacturer)

The material is a fabric made of 65% polyester and 35% cotton with a flame-retardant acrylic coating and an additional coating (referred to as "Inkjet-coating") on the visible surface. The material is intended to be used inside of buildings as printable wall covering, bonded onto solid mineral substrates or gypsum plaster boards using a methylcellulose based adhesive. The material was named with the trade name "Canvas Mosel Natur W" by the sponsor.

1.2 Description of the delivered samples

For the tests, a sample roll of a one-sided colour-coated fabric approx. 15 m long and 106.9 cm wide was sent to the laboratory by the client. The sample was marked "Canvas Mosel Polycotton Natur FR, Wasser" and batch 180319.5 and was named with the trade name "Canvas Mosel Natur W" by the client.

Colour: light beige fabric, white coating on one side

Characteristic values: see table 1; photos: see enclosures

Other specifications are not known by the laboratory, a sample is stored.

2 Preparation of samples

For the tests in the fire shaft ("Brandschacht") 2 specimens were assembled. The samples (dimensions 1000 mm x 190 mm) of test specimen A were taken in the warp direction, the samples for the test specimen B in weft direction of the coated fabric. The tests were carried out glued on one side to 12.5 mm thick gypsum plasterboards (GKB, class DIN 4102-A2). A commercial wallpaper paste (methyl cellulose, 50 g/l water) with a wet application quantity of approx. 250 g/m² was applied to the gypsum plasterboards and the uncoated side of the fabric was glued to the boards.

For the small burner tests ("Brennkastenprüfungen") samples for edge flame exposure (dimensions 190 mm x 90 mm) and samples for surface flame exposure (dimensions 230 mm x 90 mm) have been cut in warp and weft direction of the coated fabric and were glued onto one side to gypsum plasterboards (GKB, thickness 12.5 mm, class DIN 4102-A2) of the same size in the same procedure.

All samples were kept in a climate chamber acc. DIN 50014-23/50-2 until they reached constant weight before testing.

3 Arrangement of samples

The tests in the fire shaft ("Brandschacht") have been performed acc. DIN 4102-1 and -16 (building materials class B1). The small burner tests ("Brennkastenprüfungen") have been performed acc. DIN 4102-1, chapter 6.2.5 (building materials class B2).

Examination period: April-May 2019

4 Results

- section 4.1 Material characteristics
- section 4.2.1 Test results of the small burner tests
- section 4.2.2 Test results of the tests in the fire shaft

4.1 Material characteristics

Table 1

Type	Manufacturer's data		Measured values		
	Weight per unit area [g/m ²]	Thickness [mm]	Weight per unit area [g/m ²]	Thickness (m.v.) [mm] [s]	
"Canvas Mosel Natur W"	350 ± 30	0,45 ± 0,03	357	0,53	0,009

./.: not received/not measured

m.v.: mean value

s: standard deviation



4.2 Results of the fire behaviour

4.2.1 Test results class B2 (Brennkasten)

All building materials class B1 must also meet the requirements of materials class B2 (flammable). The material, tested in "Brennkasten" acc. DIN 50 050 meets the requirements of building materials of class B2; the material did not show burning particles / droplets during these tests. (Results: see enclosure 2)

4.2.2 Test results class B1 (Brandschacht)

Table 3

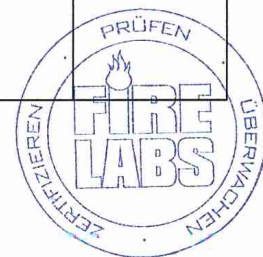
Test results "Brandschachtprüfung" (part 1)						
line no.		Specimen				requirements
		A	B	C	D	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	7	7	-	-	
2	<u>Maximal flame height</u> above bottom edge cm	70	70	-	-	*)
3	Time ¹⁾ min	2	2	-	-	
4	<u>Burning / melting through</u> Time ¹⁾ min	./.	./.	-	-	
5	<u>Back side of the specimens:</u> <u>Flames / glowing</u> Time ¹⁾ min:s	./.	./.	-	-	
6	<u>Discolouring</u> Time ¹⁾ min:s	./.	./.	-	-	
7	<u>Falling of burning droplets</u> Begin ¹⁾ min	No	No	-	-	
8	Extend:					
9	Sporadic falling of burning droplets					
10	<u>Falling of burning parts</u> Begin ¹⁾ min:s	No	No	-	-	
11	Extend:					
12	Sporadic falling of burning parts					
13	Continuous falling of burning parts					
14	<u>Afterflame time at the bottom of thesieve (max.)</u> min:s	./.	./.	-	-	
15	<u>Impairment of the burner flames by dropping or falling Material</u> Time ¹⁾ min:s	No	No			
16	<u>Premature end of test</u> Final occurrence of burning at the specimen ¹⁾ min	No	No	-	-	
17	Time of eventually end of test ¹⁾ min:s	./.	./.	-	-	

¹⁾ Indication of time: from the beginning of testing procedure

- Not tested

./. Not occurred

*) No cause for complaint



Test results (part 2)						
line no.		Specimen				requirements
		A	B	C	D	
17	<u>Afterflame after end of test</u>	No	No	-	-	
18	Time min:s					
19	Number of specimen					
20	Front side of specimen					
21	Back side of specimen					
21	Flame length cm					
22	<u>Afterglow after end of test</u>	Yes	Yes	-	-	
23	Time min:s	1:50	2:05	-	-	
23	Number of specimen	4	4	-	-	
24	<u>Place of appearance:</u>					
24	Lower half of specimen	Yes	Yes	-	-	
25	Upper half of specimen	No	No	-	-	
26	Front side of specimen	Yes	Yes	-	-	
27	Back side of specimen	No	No	-	-	
28	<u>Smoke density</u>					
28	≤ 400 % min	11,8	13,8	-	-	
29	≥ 400 % min (very strong smoke density)	./.	./.	-	-	
30	Diagram fig. no.	1	3	-	-	
31	<u>Residual length</u>					
	Individual values cm	44 46 44 47	52 51 49 47	- - - -	- - - -	> 0
32	Average value cm	45	49	-	-	≥ 15
33	Photo of the test specimen fig. no.	2	4	-	-	
34	<u>Flue gas temperature</u>					
34	Maximum of average value...°C	142	131	-	-	≤ 200
35	Time ¹⁾ min:s	2:02	2:20	-	-	
36	Diagram fig. no.	1	3	-	-	
37	<u>Remarks:</u> line 32: Due to the residual length of ≥ 45 cm, further tests were not necessary. (DIN 4102-16: 2015-09, 5.2 b))					

Test specimen	Test-no.	Trade name	Orientation	Substrate
A	688219-001	Canvas Mosel	Warp	Gypsum plaster boards
B	688219-002	Natur W	Weft	

- 1) indication of time: from the beginning of testing procedure
 - not tested
 ./ not occurred
 *) no cause for complaint



5 Assessment

According to the test results in section 4.2 the material, described in section 1 and 4.1, fulfils the requirements of a building material class B1 according to DIN 4102-1, if the material is used on solid mineral substrates with a gross density $\geq 650 \text{ kg/m}^3$ and a thickness $\geq 11 \text{ mm}$ or gypsum plaster boards (non-perforated).

The requirements of building materials class B2 are also fulfilled. No falling of burning parts or droplets occurred during these tests.

This test report is not valid

- for the exposure to outdoor climate conditions
- with printed surface.

This test certificate does not apply if the material described in section 1 is used in a freely suspended arrangement.

6 Special remarks

This test certificate is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or surfaces etc. the burning behaviour may differ.

This test certificate is not valid as soon as the product is used as a building product in the sense of the "Landesbauordnungen" (state building requirements, MBO § 17).

This test certificate is no substitute for a General Building Inspectorate Certificate. This test certificate is granted without prejudice to the rights of third parties, or particular private proprietary rights.

In General Building Inspectorates procedures this test certificate can be based for

- regulated building materials for the required proof of accordance
- for not regulated building materials for the required proof of applicability

The explanations given in DIN 4102-1 app. D, especially concerning an external production control has to be considered.

This test certificate is valid until 2024-04-30, provided the test methods, classification rules and technology do not change during this period.

Borkheide, 5th of May 2019

Head of the test laboratory
(Dipl.-Ing. Uwe Kühnast)

This translation was issued 5th of May 2019, in a case of doubt the German version is valid solely.

Test specimen A

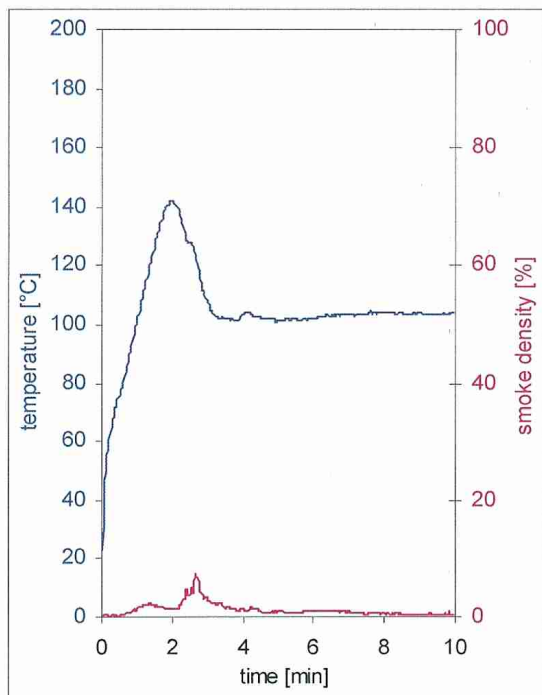


fig. 1
Graphs of the flue gas temperature and the smoke density

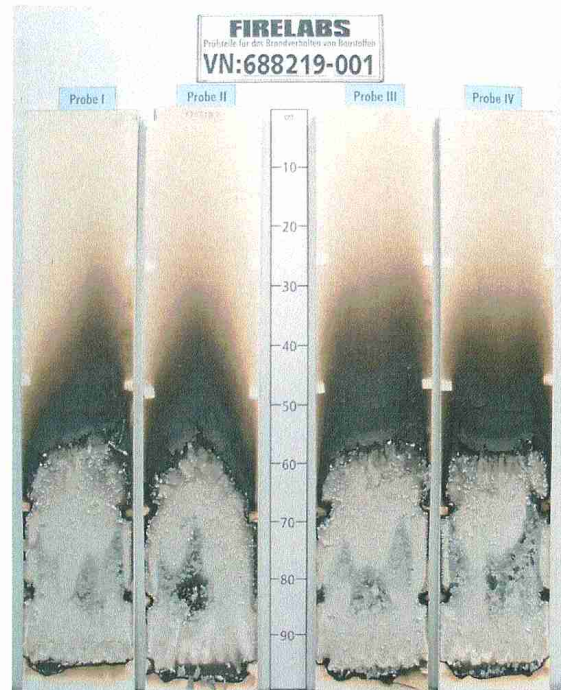


fig. 2
Photo of the test specimen after the test

Test specimen B

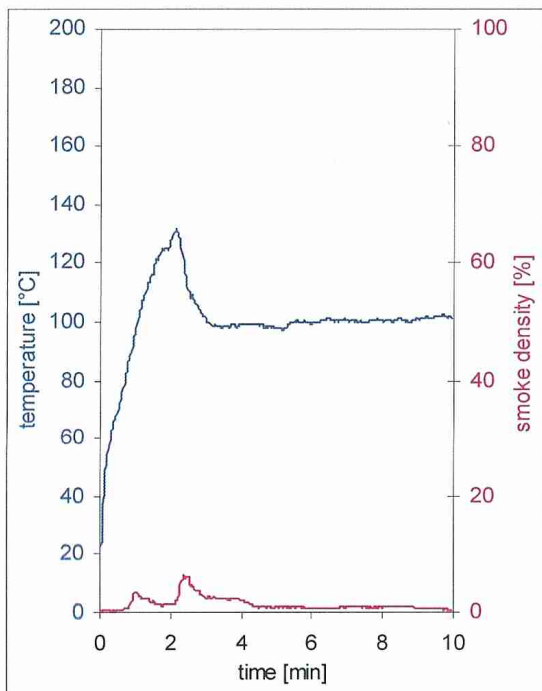


fig. 3
Graphs of the flue gas temperature and the smoke density

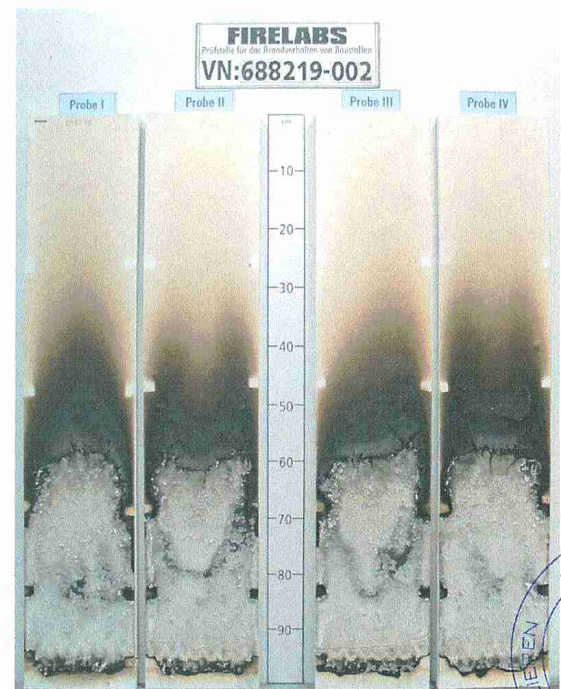
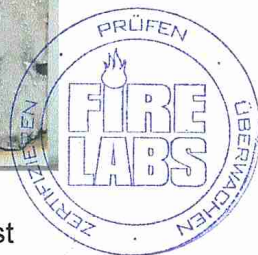


fig. 4
Photo of the test specimen after the test



Test results small burner test

Table 2

	warp direction							weft direction							dim.	requirements
Sample-No.	1	2	3	4	5	6	-	1	2	3	4	5	6	-	-	-
Ignition of the sample	8	7	5	9	10	./.	-	6	6	5	8	7	./.	-	s	-
Maximum flame height	2	2	2	2	2	./.	-	2	2	2	2	3	./.	-	cm	-
Time of the maximum	15	15	15	15	15	./.	-	15	15	15	15	15	./.	-	s	-
Flame tip reached the 150 mm mark	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	≥ 20
Flame extinguished	16	16	16	16	16	./.	-	16	16	16	16	16	./.	-	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	1)
Smoke density (visual)	very low							very low							-	-
Afterburning time	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	-
Flames were extinguished after	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	-
View of the samples after the test (20 seconds after exposure the flame):																
- the sample's surfaces were destroyed in the area of the flame application point up to a maximum height of approx. 1 cm and a width of approx. 1 cm and discoloured above approx. 2,5 cm.																

Samples 1-5: Edge flame exposure

Samples 6: Surface flame exposure

1) No ignition within 20 seconds

./. Not occurred

dim. Dimension

Indication of time: from the beginning of testing procedure

Indication of measurements: from reference line of the flame

