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

FIRE LABS
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PÜZ-Stelle (LBO): BRA09

TEST CERTIFICATE

Reference:	FLT 3794723	(Translation of the German Prüfzeugnis - no guarantee for translation of technical terms)
Sponsor:	ADO Goldkante GmbH & Co. KG Zimmersmühlenweg 14-18 D – 61440 Oberursel	
Test order:	2019-02-07	**Arrived:** 2019-02-07
Description of sample:	One-sided coated polyester fabric, named article "**1045**". (for details see page 2)	
Delivered:	2019-02-19	
Content of request:	Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1	
Assessment:	The examined material meets the requirements of class B1 for "schwerentflammbare" (not easily flammable) building materials according to DIN 4102-1 if used in one layer, suspended freely or with distance of >40 mm to the same or other plain materials. (for details see page 5)	
Validity:	2024-02-29	
Sampling:	The samples have been sent to the laboratory by the manufacturer.	

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 is not regarded as the sole proof if the tested building material is used as building product within 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 serve as a basis for building supervisory procedures for:

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

This test certificate comprises 5 pages and 4 appendices.

Approved testing, inspection and certification body

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1 Description of test material

1.1 Test material (according to the manufacturer)

The material provided is a polyester fabric with a single-sided, flame-retardant acrylic coating and fibre flocking on the coated surface. The coated fabric is intended to be used indoor as curtain fabric or for decorative purposes and was named with the trade name "1045".

1.2 Description of the delivered samples

A sample of a one-sided coated and flocked fabric made of synthetic fibres with a length of approx. 6 m and a width of 1.39 m was sent to the testing laboratory for testing. The material was marked with the trade name, batch and colour designation of the manufacturer.
Colour: White fabric, coated on one side and white flocking.

Characteristic values: see passage 4.1; photos: see enclosures 1-3.
Further details are not known to the laboratory, information about the manufacturer and a retain sample have been deposited.

2 Preparation of samples

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) were cut in warp and weft direction of the fabric.

For the tests in the fire shaft ("Brandschacht") 6 specimens were assembled. The samples (dimensions 1000 mm x 190 mm) for test specimens A, C and E have been cut in warp direction, the samples for test specimens B, D and F in weft direction.

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 small burner tests ("Brennkasten") have been performed acc. DIN 4102-1, chapter 6.2.5 (building materials class B2). The tests in the fire shaft ("Brandschacht") have been performed acc. DIN 4102-1 and -16 (building materials class B1) without edge protection.

All tests were carried out in a single layer, in a freely suspended arrangement from the coated and the uncoated surface.

Period of testing: March 2019

4 Results

- section 4.1 Material characteristics
- section 4.2.1 Test results class B2
- section 4.2.2 Test results class B1

4.1 Material characteristics

Table 1

Trade name	Manufacturer's data		Measured values		
	Weight per unit area [g/m²]	Thickness [mm]	Weight per unit area [g/m²]	Thickness (m.v.) [mm]	[mm]
1045	250	0.35	256	0.37	0.008

m.v. mean value
s standard deviation
./. not received/not measured

4.2 Results of the fire behaviour

4.2.1 Test results class B2 (Brennkasten)

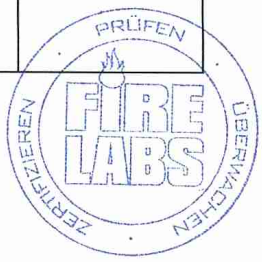
All building materials class B1 must also meet the requirements of materials class B2 (flammable). The material, tested in "Brennkasten" acc. DIN 50 050 meets the requirements of building materials class B2; the material did not show burning particles/droplets during these tests (results: see enclosure 4).

4.2.2 Test results class B1 ("Brandschacht")

Table 3

Test results "Brandschachtprüfung" (part 1)								
line no.		Test results						require-ments
		A	B	C	D	E	F	
1	Number of specimen arrangement acc. DIN 4102 –15 Table 1	1	1	1	1	1	1	
2	Maximal flame height above bottom edge ..... cm	50	50	60	60	80	70	*)
3	Time [1] ..... min	1	2	2	1	1	1	
4	Burning / melting through Time [1] ..... min	1	1	1	1	1	1	
	Back side of the specimens:							
5	Flames / glowing Time [1] ..... min:s	./.	./.	./.	./.	./.	./.	
6	Discolouring Time [1] ..... min:s	./.	./.	./.	./.	./.	./.	
	Falling of burning droplets	No	No	No	No	No	No	
7	Begin [1] ..... min							
	Extend:							
8	Sporadic falling of burning droplets							
9	Continuous falling of burning droplets							
	Falling of burning parts	Yes	Yes	Yes	Yes	Yes	Yes	
10	Begin [1] ..... min	1	1	1	1	1	1	
	Extend:							
11	Sporadic falling of burning parts	Yes	Yes	Yes	Yes	Yes	Yes	
12	Continuous falling of burning parts	No	No	No	No	No	No	
13	Afterflame time at the bottom of the sieve (max.) ..... min:s	0:04	0:08	0:08	0:06	0:04	0:12	
14	Impairment of the burner flames by dropping or falling Material Time [1] ..... min:s	No	No	No	No	No	No	
15	Premature end of test	No	No	No	No	No	No	
16	Final occurrence of burning at the specimen [1] ..... min	2	2	4	3	2	4	
	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 "Brandschachtprüfung" (part 2)								
line no.		Measured values specimen						require-ments
		A	B	C	D	E	F	
	Afterflame after end of test	No	No	No	No	No	No	
17	Time ..... min:s							
18	Number of specimen							
19	Front side of specimen							
20	Back side of specimen							
21	Flame length ..... cm							
	Afterglow after end of test	No	No	No	No	No	No	
22	Time ..... min:s							
23	Number of specimen							
	Place of appearance:							
24	Lower half of specimen							
25	Upper half of specimen							
26	Front side of specimen							
27	Back side of specimen							
	Smoke density							
28	≤ 400 % min	22.7	22.0	26.9	28.7	29.1	24.5	
29	≥ 400 % min (very strong smoke density)	./.	./.	./.	./.	./.	./.	
30	Diagram fig. no.	2	4	6	8	10	12	
	Residual length							
31	Individual value ..... cm	61 59 54 54	59 55 57 55	22 29 33 38	52 48 39 41	20 24 33 26	48 37 49 38	> 0
32	Average value ..... cm	**57**	**56**	**30**	**45**	**25**	**43**	≥ 15
33	Photo of the test specimen fig. no.	1	3	5	7	11	13	
	Flue gas temperature							
34	Maximum of average	115	111	120	107	129	111	≤ 200
35		9:40	9:36	0:22	9:54	0:22	0:26	
36		2	4	6	8	10	12	
37	Remarks: line 13: Afterflame time at the bottom of the sieve < 20 sec. is not rated as "falling of burning parts or droplets". line 32: Due to the remaining residual length of > 45 cm (test specimens A, B), further tests were not necessary (DIN 4102-16: 2015-09, 5.2 b)).							

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

Test specimen	Test-no.	Direction of samples	Tested surface
A	683619-001	warp	flocked surface
B	683619-002	weft	
C	683619-003	warp	uncoated surface
D	683619-004	weft	
E	683619-005	warp	
F	683619-006	weft	

5 Assessment

According to the test results in section 4.2 the material, described in section 1 and 4.1, fulfils the requirements of building materials class B1 according to DIN 4102-1 if the material is used suspended freely or with a distance of > 40 mm to the same or other plain materials.

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

The verification

- for outdoor usage (ageing behaviour by outdoor weathering)
- washing or dry cleaning

has not been proved.

6 Special remarks

The above results only apply to the building material described in section 1. In combination with other materials or with additional coatings or surfaces etc. the burning behaviour may differ.
This test certificate is not regarded as the sole proof if the tested building material is used as building product within the meaning of state building prescriptions (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.

This test certificate can serve as a basis for building supervisory procedures for:

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

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

This test certificate is valid until 2024-02-29, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 1st of February 2020

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

This translation was issued 3rd of February 2023, in a case of doubt the German version is valid solely.

Test specimen A

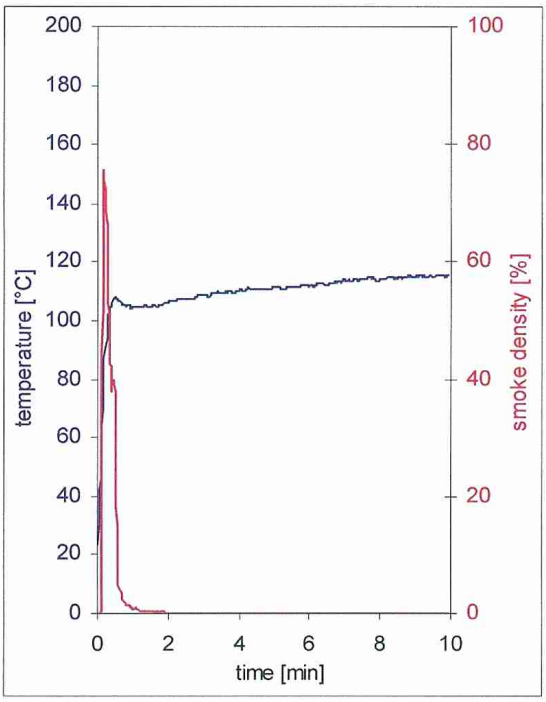


fig. 1
Graphs of the flue gas temperature and the smoke density

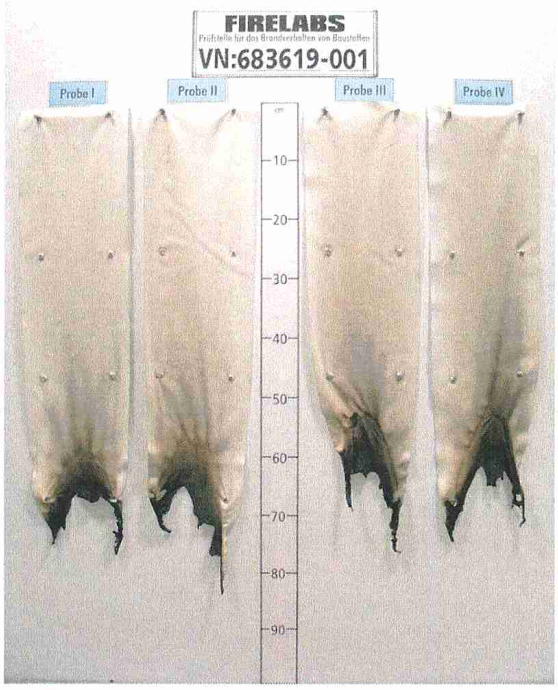


fig. 2
View of test specimen after the test

Test specimen B

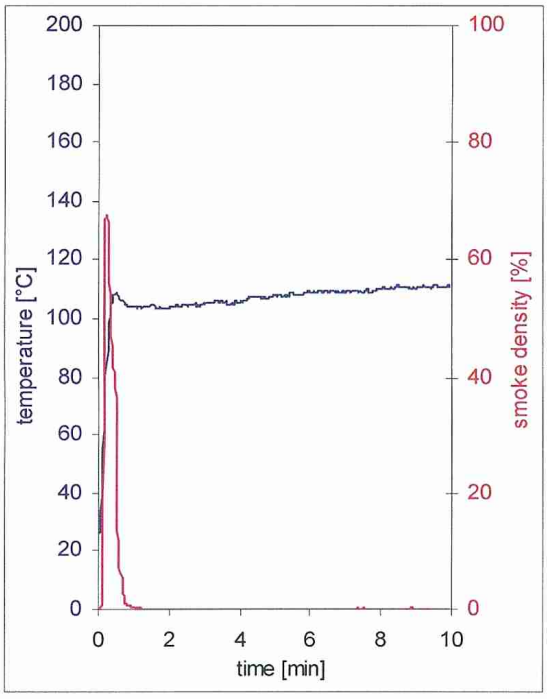


fig. 3
Graphs of the flue gas temperature and the smoke density

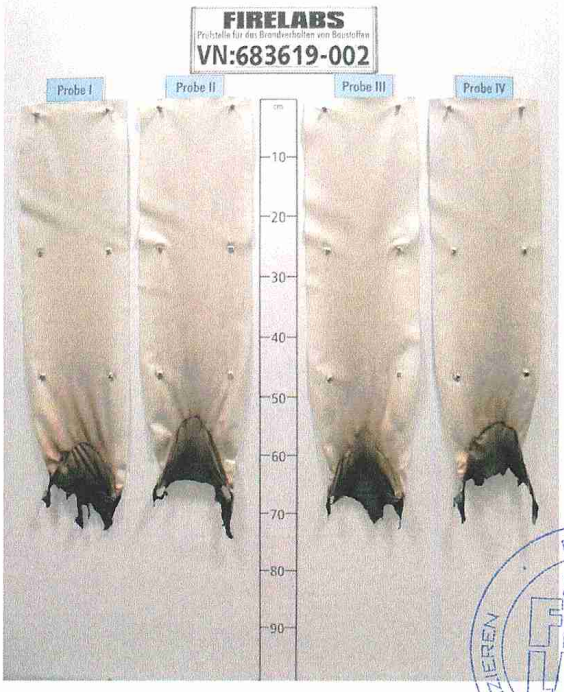


fig. 4
View of test specimen after the test

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Test specimen C

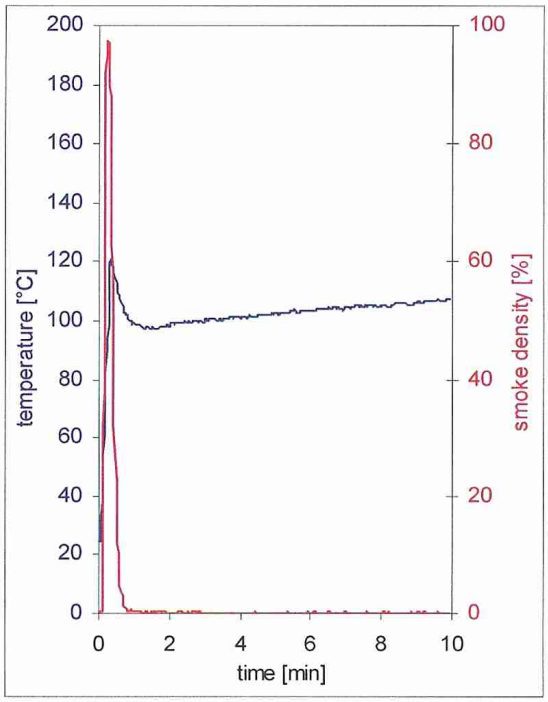


fig. 5
Graphs of the flue gas temperature and the smoke density

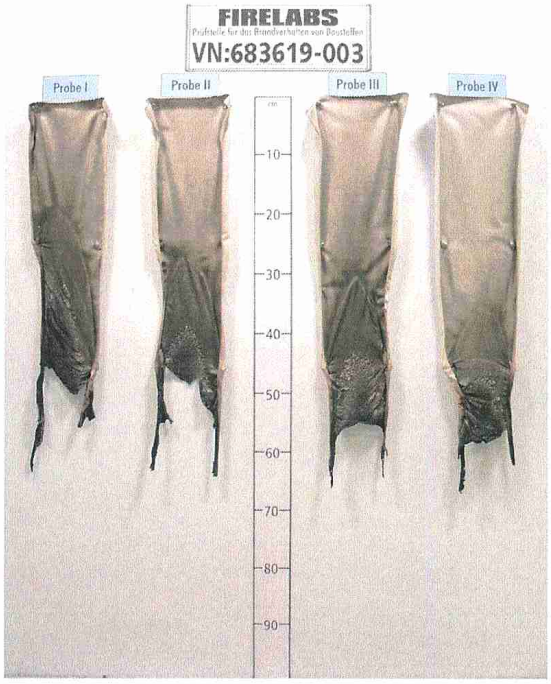


fig. 6
View of test specimen after the test

Test specimen D

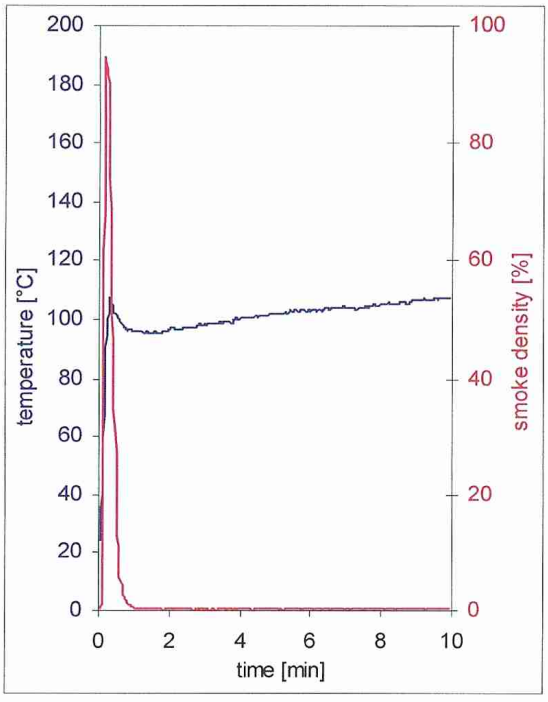


fig. 7
Graphs of the flue gas temperature and the smoke density

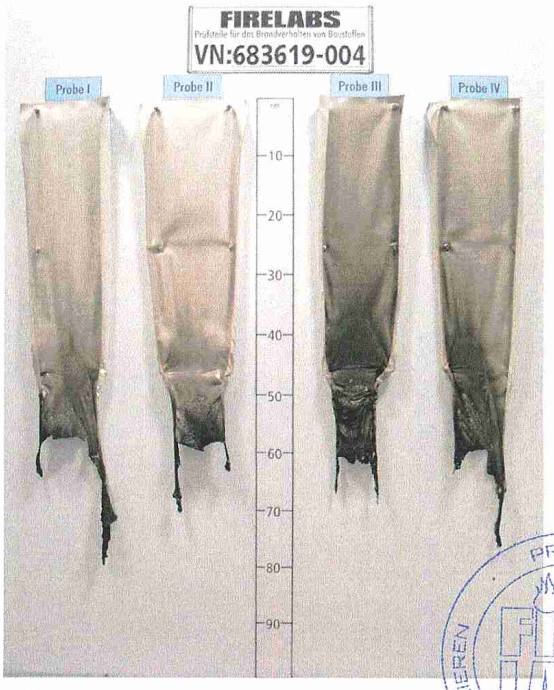
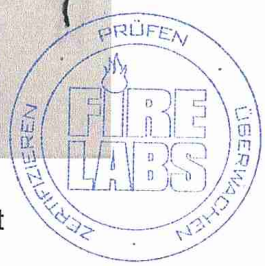


fig. 8
View of test specimen after the test



Test specimen E

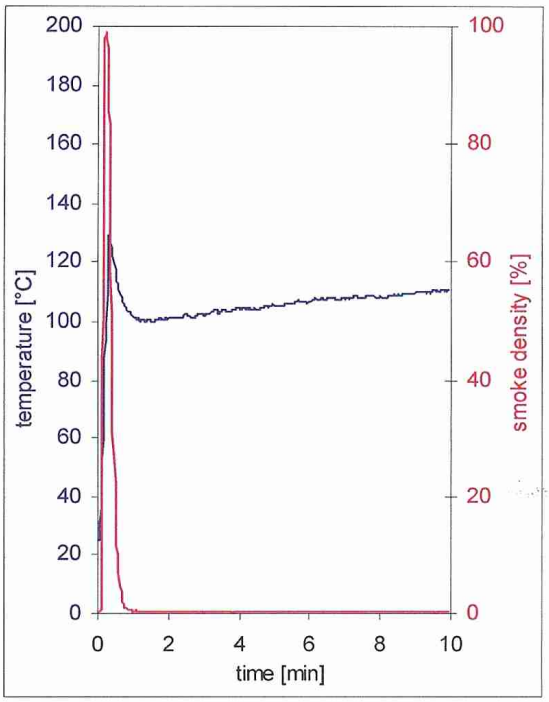


fig. 9
Graphs of the flue gas temperature and the smoke density

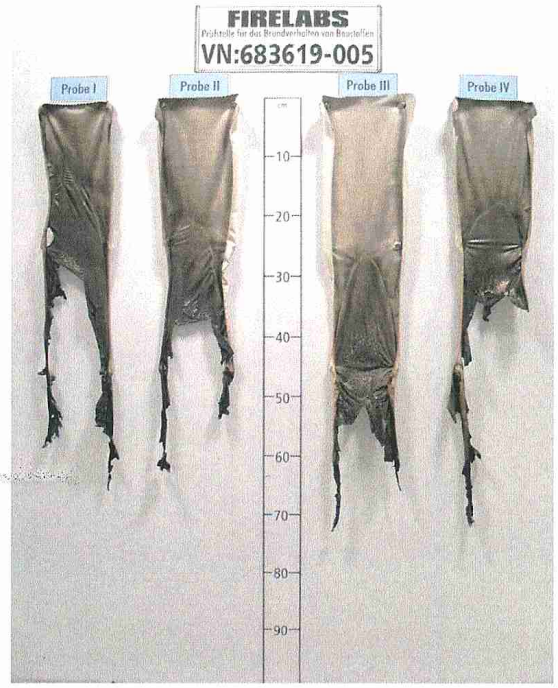


fig. 10
View of test specimen after the test

Test specimen F

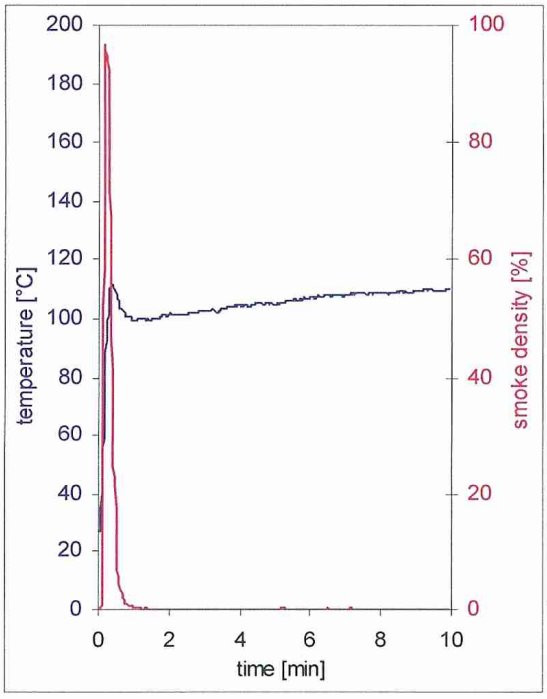


fig. 11
Graphs of the flue gas temperature and the smoke density

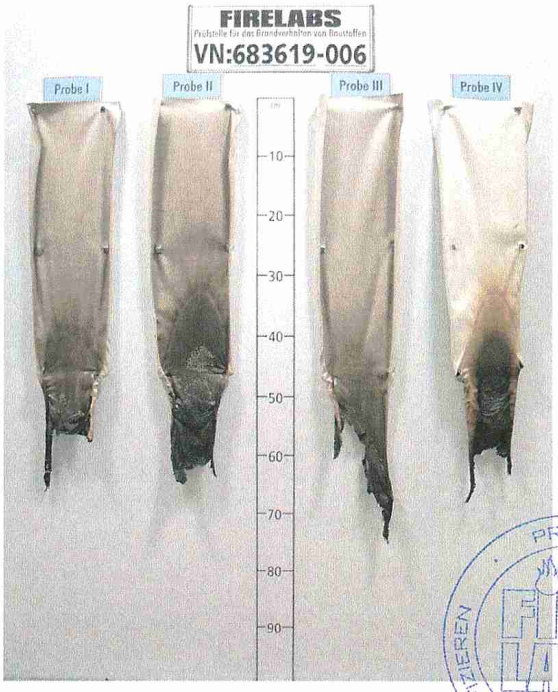


fig. 12
View of test specimen after the test (sample 4: rear side)

Test results small burner ("Brennkasten") tests

Table 2

1045	Warp direction							Weft direction							Dim.	Require-ments
Sample-No.	1	2	3	4	5	6	7	1	2	3	4	5	6	7	n	-
Ignition of the sample	1	1	1	1	1	4	4	1	1	1	1	1	4	4	s	-
Maximum flame height	13	7	12	9	10	8	8	12	8	13	12	13	13	11	cm	-
Time of the maximum	9	7	6	7	6	7	13	7	5	6	7	6	12	10	s	-
Flame tip reached the 150 mm mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Self-extinguishing of flames	10	8	10	8	8	16	16	7	8	6	10	7	14	15	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	[1]
Smoke density (visual)	moderate							moderate							-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
Flames were extinguished after	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test (20 seconds after exposure the flame): The samples were destroyed in the area of the flame exposure up to a max height of approx 6 cm and approx 2 cm in width, soot above until top edge of the samples.																

Samples 1-5: edge flame exposure
Samples 6: surface flame exposure of the flocked surface
Samples 7: surface flame exposure of the uncoated surface

[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