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 3759621 (Translation of the German Prüfzeugnis - no guarantee for translation of technical terms)
Sponsor:	Convertec Veredelungstechnologie GmbH Heideweg 2-4 D – 77880 Sasbach
Order	2021-09-13 **Arrived** 2021-09-14
Description of samples:	White, self-adhesive plastic films made of PVC, named "**Quickstick EXTRA S**", "**Quickstick EXTRA W**" and "**Quickstick EXTRA UV**". (for details see page 2)
Delivered:	2021-09-14
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 on metal substrates. (for details see page 5)
Validity:	2026-09-30
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 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 5 enclosures.

PRÜFEN · ÜBERWACHEN · ZERTIFIZIEREN · FIRE LABS

1 Test material

1.1 Description (according to the sponsor)

The materials delivered are self-adhesive plastic films consisting of an approx. 0.35 mm thick white PVC film and an acrylic adhesive applied to the back, named "Quickstick EXTRA UV", as well as with an additional coating on the visible side (referred to as inkjet coating), named "Quickstick EXTRA S" and "Quickstick EXTRA W". The self-adhesive surfaces of the films were covered with a one-sided siliconised poly-propylene film. The self-adhesive films are to be used inside buildings on metal surfaces.

1.2 Description of the delivered samples

For the tests, 3 sample rolls of self-adhesive, white plastic film were sent to the laboratory by the client. The self-adhesive surfaces of the films were covered with a white protective plastic film. The samples were each marked with the trade name and dimensions and were deliverd in the following variants:

Trade name	Visible surface	Colour	Batch	Sample size	
				length [m]	width [m]
Quickstick EXTRA S	colour-coated	white	210426.5	ca. 20	1.02
Quickstick EXTRA W			210611.1		1.02
Quickstick EXTRA UV	uncoated		-		1.04

Characteristic values: see table 1; photos: see enclosures.
Other specifications are not known by the laboratory, samples are stored.

2 Preparation of specimen

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 and bonded on one side to uncoated aluminium sheets of a thickness of 1 mm.

For the fire shaft ("Brandschacht") tests 8 specimen have been prepared. The samples (each 1000 mm x 190 mm) of the specimens A, C, E, G and H were cut in longitudinal direction, those of the specimens B, D and F from the transverse direction of the material and glued on one side to uncoated aluminium sheets of a thickness of 1 mm.

Afterwards all samples were kept in a climate acc. DIN 50014-23/50-2 until they reached constant weight.

3 Test procedure

The small burner tests have been performed acc. DIN 4102-1, chapter 6.2.5 (building materials class B2). The tests in the fire shaft have been performed acc. DIN 4102-1 and -16 (building materials class B1). There was no additional substrate arranged behind the material compound.

Examination period: October 2021

4 Results

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

4.1 Material characteristics

Table 1

Characteristic value			Manufacturer´s data	Measured values (m.v.)
Quickstick EXTRA S	thickness	[mm]	0.35 ± 0.03	0.33 (s=0.007)
	mass per unit area	[g/m²]	470 ± 20	452
Quickstick EXTRA W	thickness	[mm]	0.35 ± 0.03	0.35 (s=0.005)
	mass per unit area	[g/m²]	450 ± 20	478
Quickstick EXTRA UV	thickness	[mm]	0.32 ± 0.03	0.29 (s=0.004)
	mass per unit area	[g/m²]	440 ± 20	423
Siliconised film	thickness	[mm]	0.1 ± 0.005	0.06
	mass per unit area	[g/m²]	70 ± 10	ca. 66

m.v. mean value
s standard deviation

4.2 Results of the fire behaviour

4.2.1 Test results class B2 (Brennkasten)

According DIN 4102-1 all building materials class B1 must also meet the requirements of materials class B2 (low flammable). The material compound tested in "Brennkasten" acc. DIN 50 050 meets the requirements class B2; the materials did not show burning particles / droplets. (Results: see enclosure 5)

4.2.2 Test results class B1 (Brandschacht)

Table 3

Test results (part 1)										
line no.		Test results of specimen								
		A	B	C	D	E	F	G	H	require-ments
1	Number of specimen arrangement acc. DIN 4102 –15 Table 1	7	7	7	7	7	7	7	7	
2	Maximal flame height above bottom edge ..... cm	90	90	80	80	80	70	90	90	*)
3	Time [1] ..... min	2	2	2	2	2	2	2	2	
4	Burning / melting through Time [1] .....min	./.	./.	./.	./.	./.	./.	./.	./.	
5	Rear side of the specimens: Flames / glowing Time [1] .....min:s	./.	./.	./.	./.	./.	./.	./.	./.	
6	Discolouring Time [1] .....min:s	./.	./.	./.	./.	./.	./.	./.	./.	
7	Falling of burning droplets Begin [1].....min:s	No	No	No	No	No	No	No	No	
8	Extend: Sporadic falling of burning droplets									
9	Continuous falling of burning droplets									
10	Falling of burning parts Begin [1].....min:s	No	No	No	No	No	No	No	No	
11	Extend: Sporadic falling of									
12	burning parts Continuous falling of burning parts									
13	Afterflame time at the bottom of the sieve (max.). .....min:s	./.	./.	./.	./.	./.	./.	./.	./.	
14	Impairment of the burner flames by dropping or falling Material Time [1] .....min:s	No	No	No	No	No	No	No	No	
15	Premature end of test Final occurrence of burning at the specimen [1].....min	No 10	No 10	No 10	No 10	No 10	No 10	No 10	No 10	
16	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

Ergebnisse der Brandschachtprüfung (Teil 2)										
Zeile Nr.		Test results of specimen								
		A	B	C	D	E	F	G	H	require-ments
	Afterflame after end of test	No	No	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	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	
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	83.4	80.4	76.8	73.6	85.8	82.6	78,0	89.5	
29	≥ 400 % min (very strong smoke density)	./.	./.	./.	./.	./.	./.	./.	./.	
30	Diagram fig. no.	1	3	5	7	9	11	13	15	
	Residual length									
31	Individual value .....cm	31	35	41	40	35	35	33	35	
		30	36	42	41	36	32	33	34	
		35	33	40	40	34	34	33	32	> 0
		33	37	40	40	35	35	35	35	
32	Average value .....cm	**32**	**35**	**40**	**40**	**35**	**34**	**33**	**34**	≥ 15
33	Photo of the test specimen fig. no.	2	4	6	8	10	12	14	16	
	Flue gas temperature									
34	Maximum of average value...°C	140	144	132	136	138	135	142	144	≤ 200
35	Time [1] .....min:s	2:08	1:48	1:58	1:58	1:58	1:58	1:42	1:46	
36	Diagram fig. no.	1	3	5	7	9	11	13	15	
37	Remarks: - Diagrams and Photos see enclosures 1-4									

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

Test	Test-no.:	Direction of Samples	Trade name	Substrate
A	759621-001	longitudinal direction	Quickstick EXTRA S	Aluminium
B	759621-002	transverse direction		
C	759621-003	longitudinal direction	Quickstick EXTRA W	
D	759621-004	transverse direction		
E	759621-001	longitudinal direction	Quickstick EXTRA UV	
F	759621-002	transverse direction		
G	759621-001	longitudinal direction	Quickstick EXTRA S	
H	759621-002			

5 Assessment

Section 4.2 lists the test results of the composite which is described in section 1 and compares the results with the requirements for not easily flammable building materials acc. DIN 4102-1. According to the test results the self-adhesive plastic film, fulfil the requirements of building materials class B1 according to DIN 4102-1, if used on one side onto metal surfaces:
- with a density ≥ 2025 kg/m^3, a melting point ≥ 500 °C and a thickness ≥ 0,8 mm
- with a density ≥ 5890 kg/m^3, a melting point ≥ 1000 °C and a thickness ≥ 0,6 mm

and if the composite is mounted in 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 by outdoor weathering)

is not proved with this test certificate.

This test certificate is not valid, if the materials described in section 1 are used freely suspended.

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 2026-09-30, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 18th October 2021

PRÜFEN ZERTIFIZIEREN FIRE LABS ÜBERWACHEN

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

This translation was issued 18th October 2021, in a case of doubt the German version is valid solely.

Test specimen A

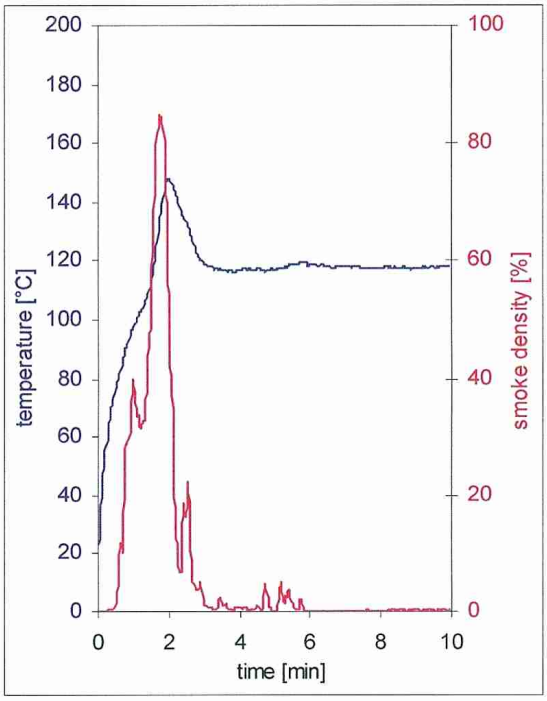

fig. 1
Graphs of the flue gas temperature and the smoke density

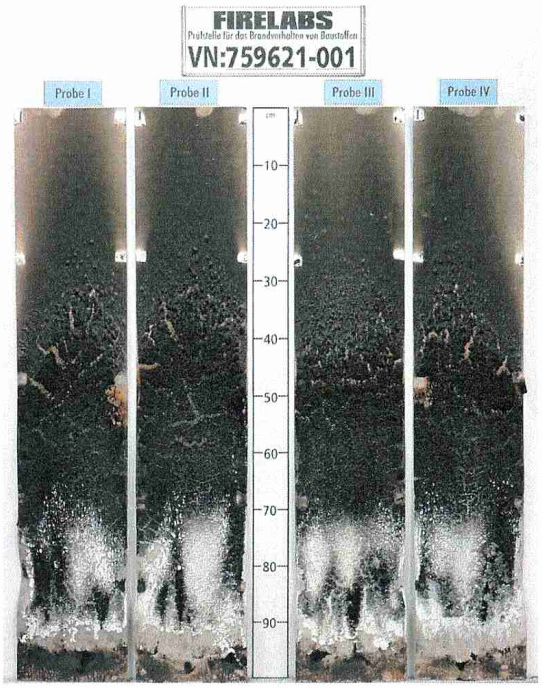

fig. 2
Photo of the test specimen after the test

Test specimen B

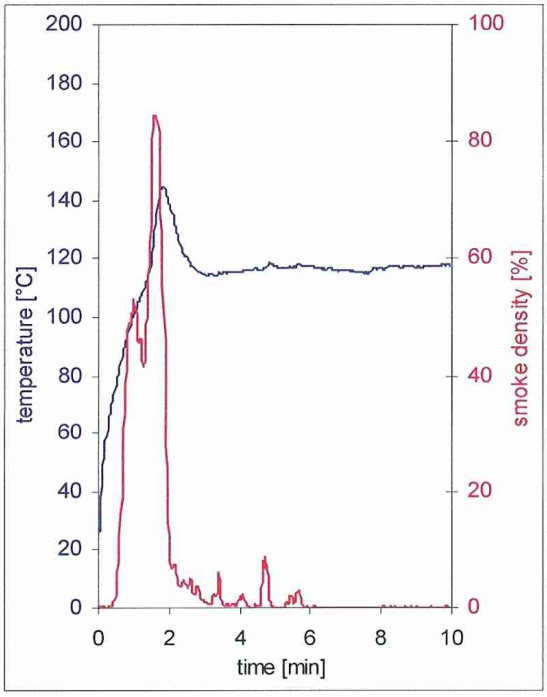

fig. 3
Graphs of the flue gas temperature and the smoke density

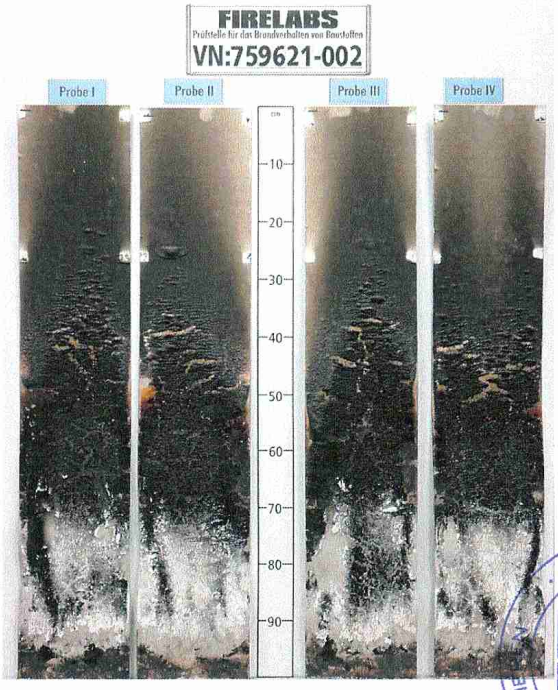

fig. 4
Photo of the test specimen after the test

Test specimen C

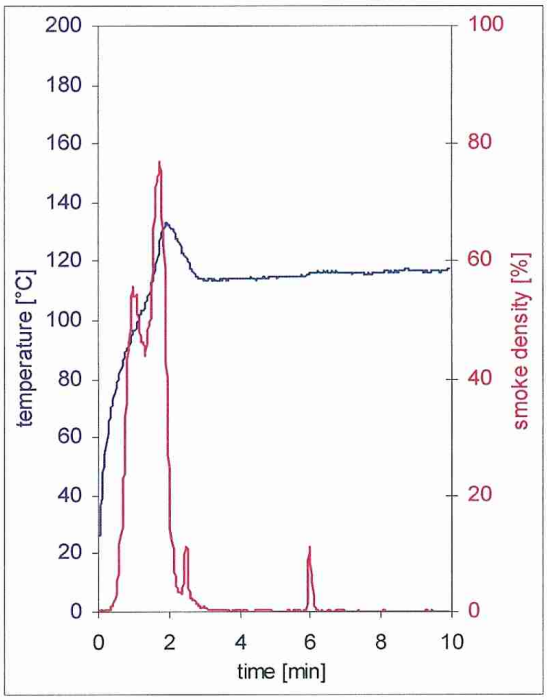

fig. 5
Graphs of the flue gas temperature and the smoke density

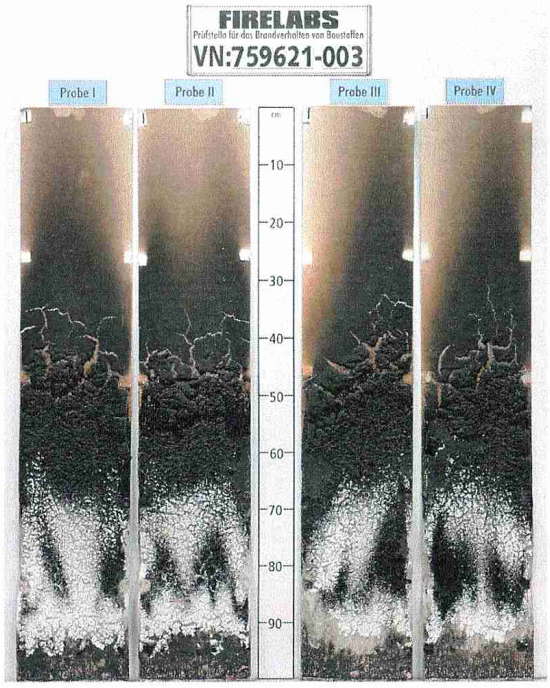

fig. 6
Photo of the test specimen after the test

Test specimen D

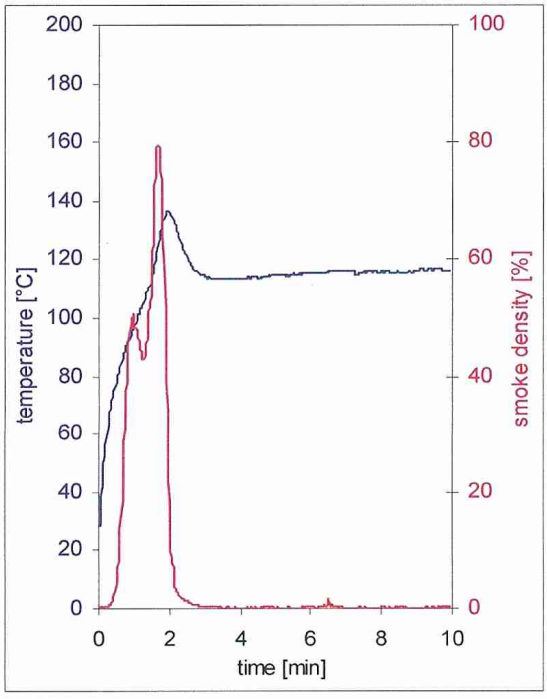

fig. 7
Graphs of the flue gas temperature and the smoke density

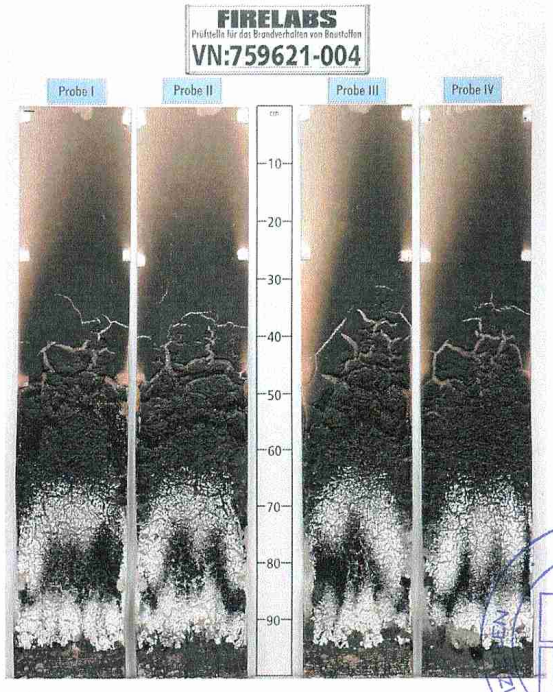

fig. 8
Photo of the test specimen after the test

Test specimen E

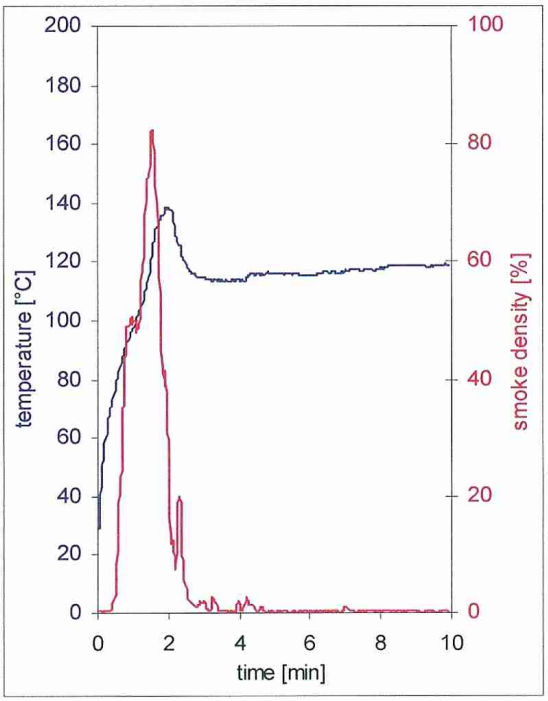

fig. 9
Graphs of the flue gas temperature and the smoke density

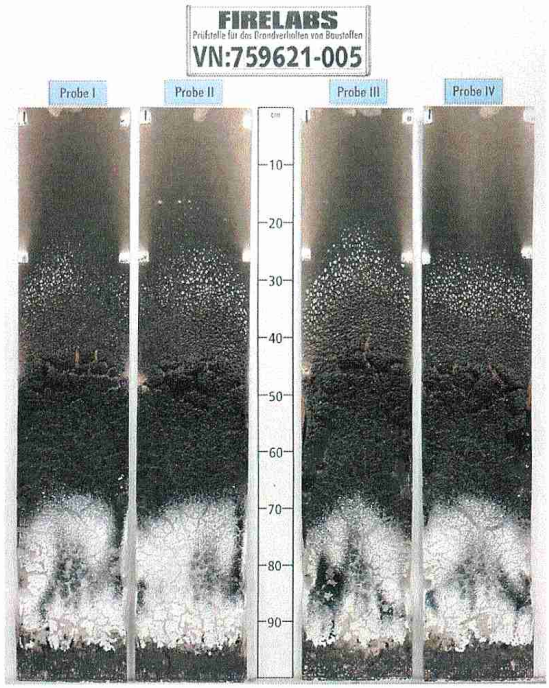

fig. 10
Photo of the test specimen after the test

Test specimen F

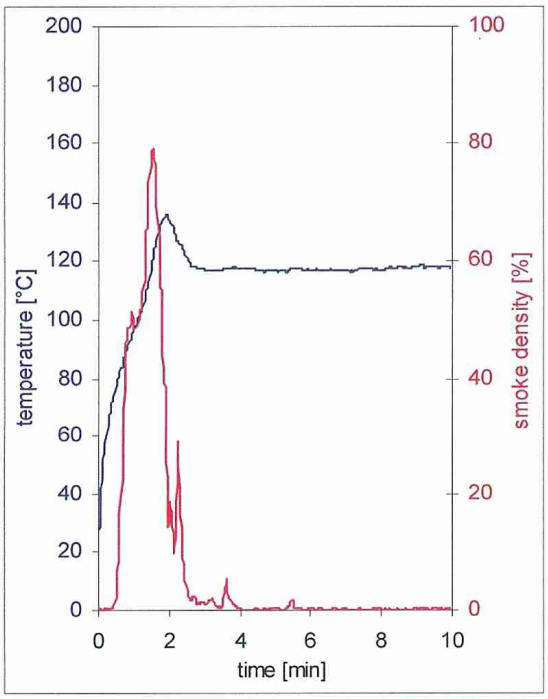

fig. 11
Graphs of the flue gas temperature and the smoke density

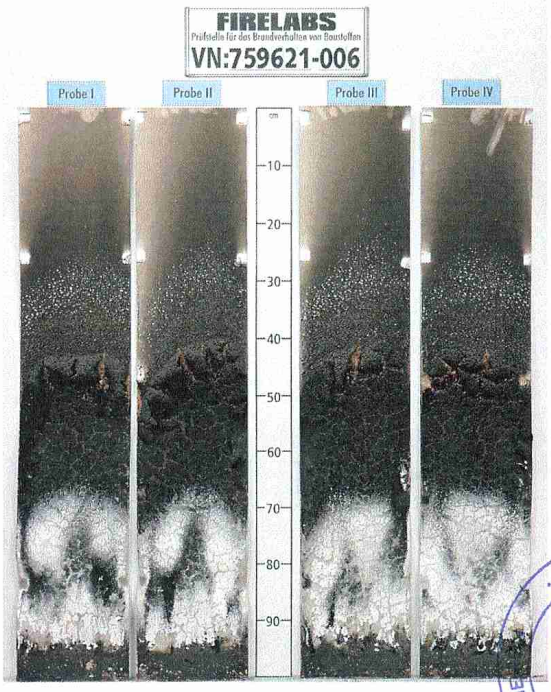

fig. 12
Photo of the test specimen after the test

Test specimen G

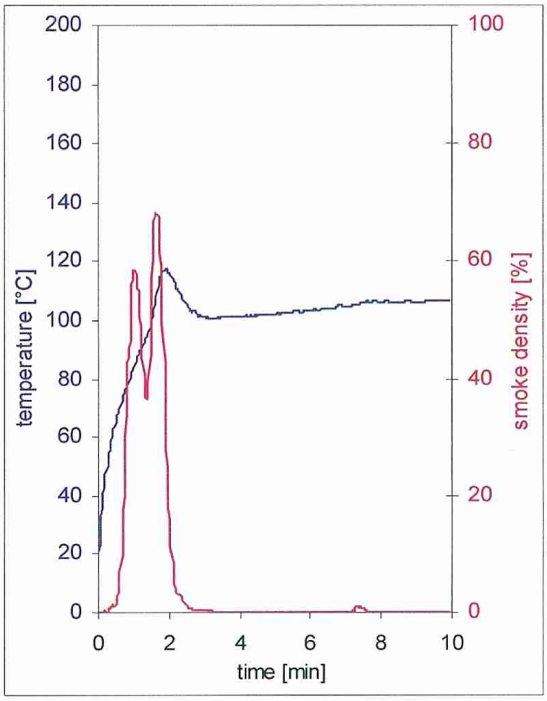

fig. 13
Graphs of the flue gas temperature and the smoke density

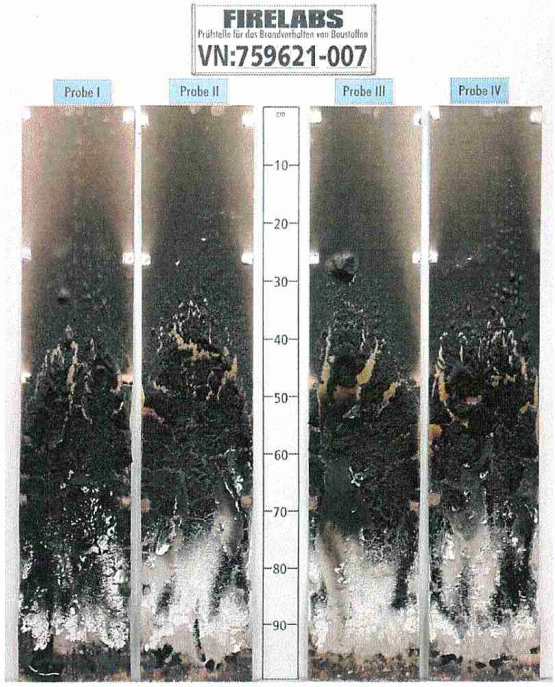

fig. 14
Photo of the test specimen after the test

Test specimen H

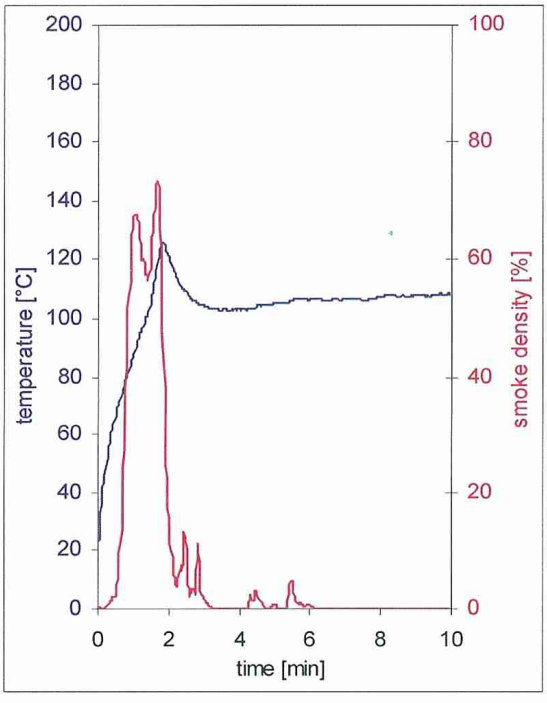

fig. 15
Graphs of the flue gas temperature and the smoke density

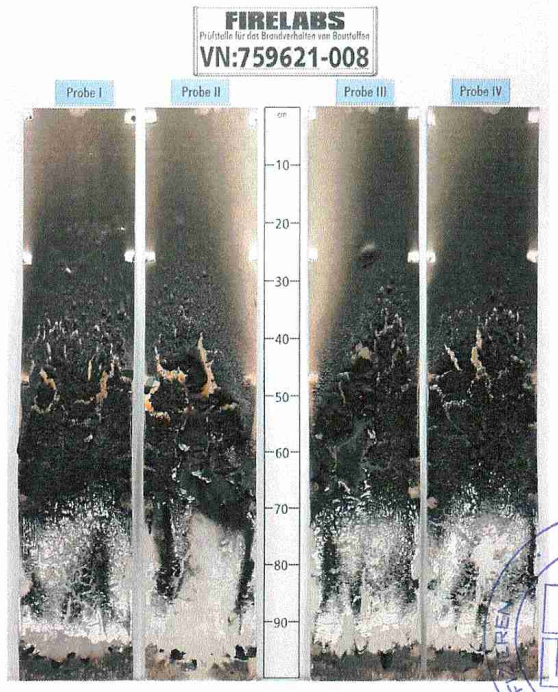

fig. 16
Photo of the test specimen after the test

Test results class B2 (Brennkasten)

Table 2.1 (complete set of samples)

Quickstick EXTRA W	longitudinal direction							transverse direction							dim.	require-ments
Sample-No.	1	2	3	4	5	6	-	1	2	3	4	5	6	-	-	-
Ignition of the sample	1	1	1	1	1	./.	-	1	1	1	1	1	./.	-	s	-
Maximum flame height	1	2	2	2	1	./.	-	2	2	2	1	2	./.	-	cm	-
Time of the maximum	2	2	2	2	2	./.	-	4	5	3	2	4	./.	-	s	-
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	≥ 20
Flames 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							-	-
Flames have been extinguished	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	-
View of the samples after the test (20 seconds after exposure the flame): The samples were destroyed at flame impingement area up to a max height of about 1 cm and approx. 1.5 cm in width, slightly soot above about 3 cm. Surface flame exposure: no ignition of the sample surface																

Samples 1-5: edge flame exposure
Samples 6: surface flame exposure (no ignition)

Table 2.2

	Quickstick EXTRA S								Quickstick EXTRA UV								dim.	require-ments
Sample-No.	1	2	3	4	5	6	-	-	1	2	3	4	5	6	-	-	-	-
Ignition of the sample	1	1	./.	1	1	./.	-	-	1	1	./.	1	1	./.	-	-	s	-
Maximum flame height	2	1	./.	2	2	./.	-	-	1	1	./.	1	1	./.	-	-	cm	-
Time of the maximum	2	2	./.	4	5	./.	-	-	1	2	./.	1	1	./.	-	-	s	-
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	-	-	./.	./.	./.	./.	./.	./.	-	-	s	> 20
Flames extinguished	16	16	./.	16	16	./.	-	-	16	16	./.	16	16	./.	-	-	s	s
Ignition of filter paper	./.	./.	./.	./.	./.	./.	-	-	./.	./.	./.	./.	./.	./.	-	-	s	[1]
Smoke density (visual)	very low								very low								-	-
Flames have been extinguished	./.	./.	./.	./.	./.	./.	-	-	./.	./.	./.	./.	./.	./.	-	-	s	-
View of the samples after the test (20 seconds after exposure the flame): The samples were destroyed at flame impingement area up to a max height of about 1 cm and 1.5 cm in width, slightly soot above about 3 cm. Surface flame exposure: no ignition of the sample surface																		

Samples 1, 2: edge flame exposure longitudinal direction
Samples 3: surface flame exposure transverse direction
Samples 4, 5: edge flame exposure longitudinal direction
Samples 6: surface flame exposure transverse direction

[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