

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

Reference:	FLT 3761321	(Translation of the German Prüfzeugnis - no guarantee for translation of technical terms)
Client:	Antalis International 8, rue de Seine F – 92100 Boulogne-Billancourt	
Test order	2021-09-13	Arrived 2021-09-14
Description of samples:	White, self-adhesive plastic films made of PVC, named "Coala Quickstick S", "Coala Quickstick W" and "Coala Quickstick 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 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 5 enclosures.

Approved testing, inspection and certification body

This test certificate must not be published and copied preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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.



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CERTIFICATE
TEST



1 Test material

1.1 Description (according to the manufacturer)

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 "Coala Quickstick UV", as well as with an additional coating on the visible side (referred to as inkjet coating), named "Coala Quickstick S" and "Coala Quickstick 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. The self-adhesive surfaces of the films were covered with a white protective plastic film. The samples were each marked with the trade name, dimensions and batch and have been delivered in the following variants:

Trade name ¹⁾	Visible surface	Colour	Sample size	
			length [m]	width [m]
Coala Quickstick S	colour-coated	white	ca. 20	1.02
Coala Quickstick W				1.02
Coala Quickstick UV	uncoated			1.04

Trade names according to the client's specifications.

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

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 specimens 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.)
Coala Quickstick S	thickness	[mm]	0.35 ± 0.03	0.33 (s=0.007)
	mass per unit area	[g/m ²]	470 ± 20	452
Coala Quickstick W	thickness	[mm]	0.35 ± 0.03	0.35 (s=0.005)
	mass per unit area	[g/m ²]	450 ± 20	478
Coala Quickstick UV	thickness	[mm]	0.32 ± 0.03	0.29 (s=0.004)
	mass per unit area	[g/m ²]	440 ± 20	423
Siliconised film	thickness	[mm]	0.1 ± 0.005	0.06
	mass per unit area	[g/m ²]	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

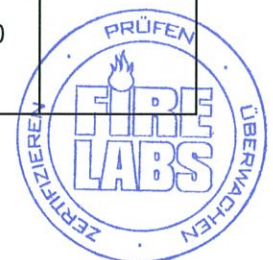
Test results (part 1)										
line no.		Test results of specimen								requirements
		A	B	C	D	E	F	G	H	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	7	7	7	7	7	7	7	7	
2	<u>Maximal flame height</u> above bottom edge cm	90	90	80	80	80	70	90	90	*)
3	Time ¹⁾ min	2	2	2	2	2	2	2	2	
4	<u>Burning / melting through</u> Time ¹⁾min	./.	./.	./.	./.	./.	./.	./.	./.	
5	<u>Rear 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:s	No	No	No	No	No	No	No	No	
8	Extend: Sporadic falling of burning droplets									
9	Continuous falling of burning droplets									
10	<u>Falling of burning parts</u> Begin ¹⁾min:s	No	No	No	No	No	No	No	No	
11	Extend: Sporadic falling of burning parts									
12	Continuous falling of burning parts									
13	<u>Afterflame time at the bottom of the sieve (max.)</u>min:s	./.	./.	./.	./.	./.	./.	./.	./.	
14	<u>Impairment of the burner flames by dropping or falling Material</u> Time ¹⁾min:s	No	No	No	No	No	No	No	No	
15	<u>Premature end of test</u> Final occurrence of burning at the specimen ¹⁾min	No	No	No	No	No	No	No	No	
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								requirements
		A	B	C	D	E	F	G	H	
17	<u>Afterflame after end of test</u>	No	No	No	No	No	No	No	No	
18	Timemin:s									
19	Number of specimen									
20	Front side of specimen									
21	Back side of specimen									
21	Flame lengthcm									
22	<u>Afterglow after end of test</u>	Nein	Nein	Nein	Nein	Nein	Nein	Nein	Nein	
23	Timemin:s									
24	Number of specimen									
24	<u>Place of appearance:</u>									
25	Lower half of specimen									
26	Upper half of specimen									
27	Front side of specimen									
27	Back side of specimen									
28	<u>Smoke density</u>									
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	
31	<u>Residual length</u>									
	Individual valuecm	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 valuecm	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	
34	<u>Flue gas temperature</u>									
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	<u>Remarks:</u> - 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	Coala Quickstick S	Aluminium
B	759621-002	transverse direction	Coala Quickstick S	
C	759621-003	longitudinal direction	Coala Quickstick W	
D	759621-004	transverse direction	Coala Quickstick W	
E	759621-001	longitudinal direction	Coala Quickstick UV	
F	759621-002	transverse direction	Coala Quickstick UV	
G	759621-001	longitudinal direction	Coala Quickstick S	
H	759621-002		Coala Quickstick S	

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 $\geq 2025 \text{ kg/m}^3$, a melting point $\geq 500 \text{ °C}$ and a thickness $\geq 0,8 \text{ mm}$
- with a density $\geq 5890 \text{ kg/m}^3$, a melting point $\geq 1000 \text{ °C}$ and a thickness $\geq 0,6 \text{ mm}$

and if the composite is mounted in a distance of $> 40 \text{ mm}$ 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, 19th November 2021



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

This translation was issued 19th November 2021, in a case of doubt the German version is valid solely.

Test specimen A

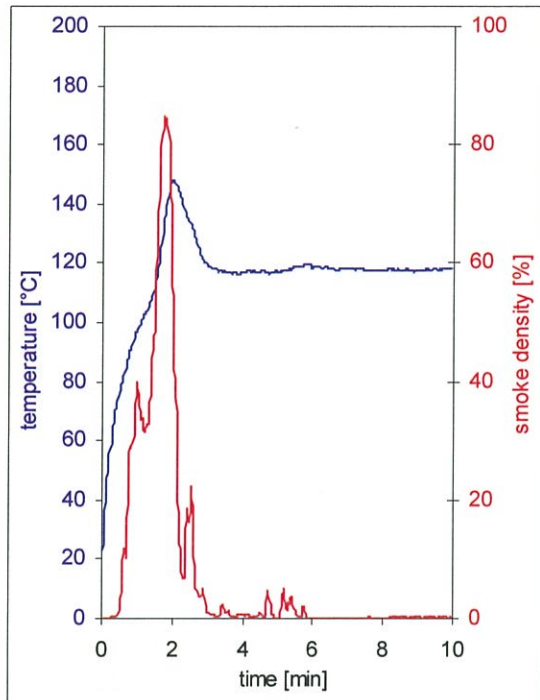


fig. 1
Graphs of the flue gas temperature and the smoke density

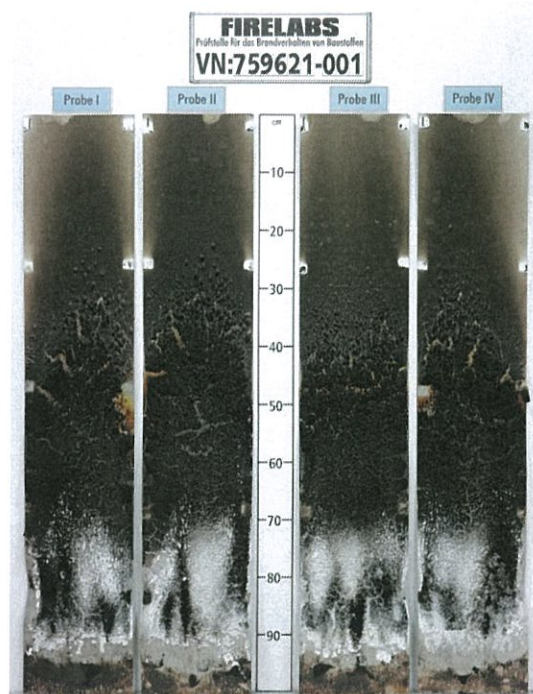


fig. 2
Photo of the test specimen after the test

Test specimen B

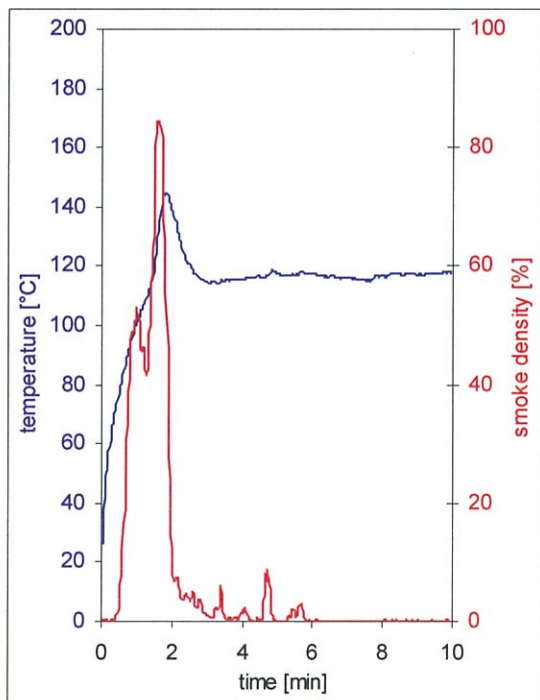


fig. 3
Graphs of the flue gas temperature and the smoke density

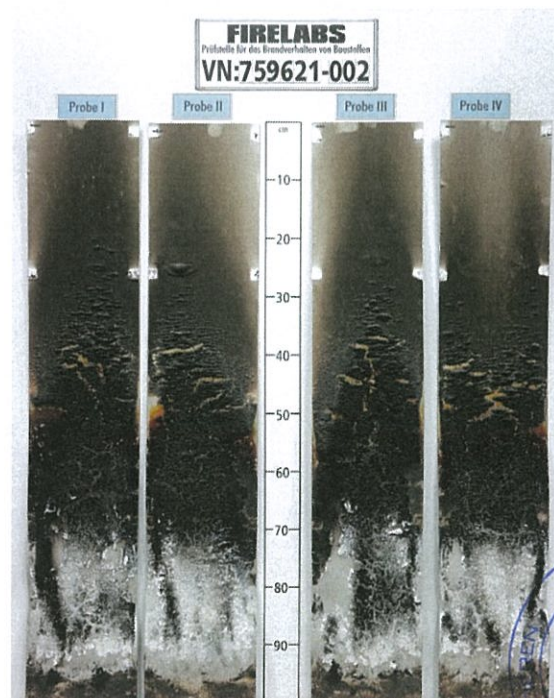


fig. 4
Photo of the test specimen after the test



Test specimen C

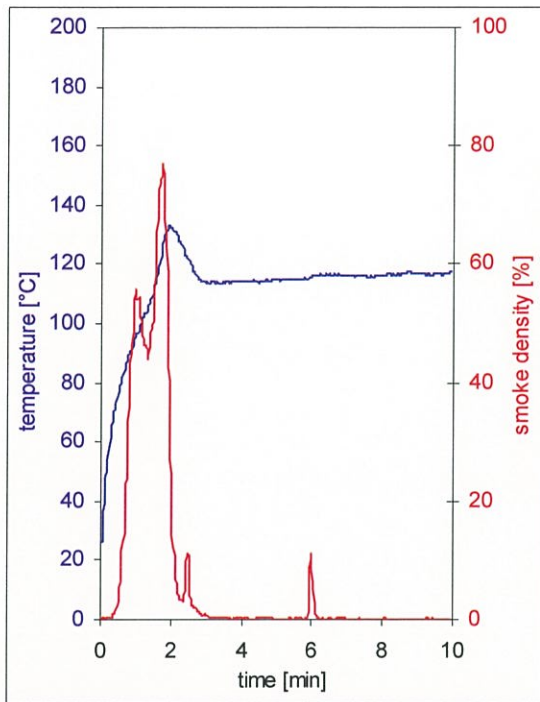


fig. 5
Graphs of the flue gas temperature and the smoke density

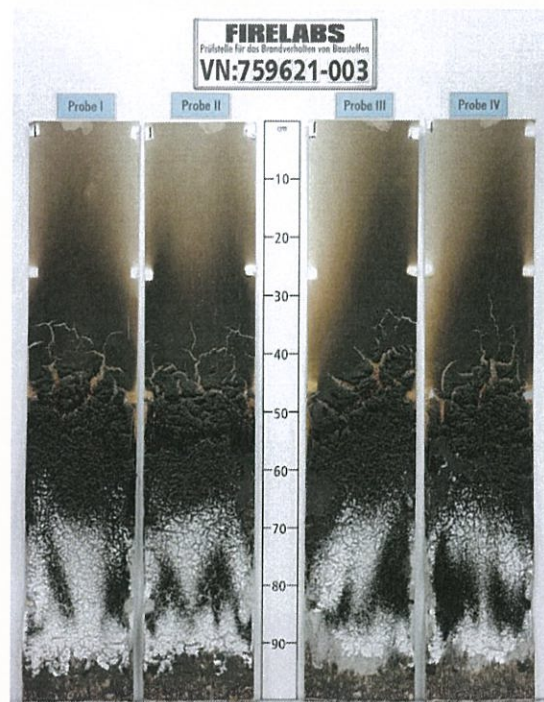


fig. 6
Photo of the test specimen after the test

Test specimen D

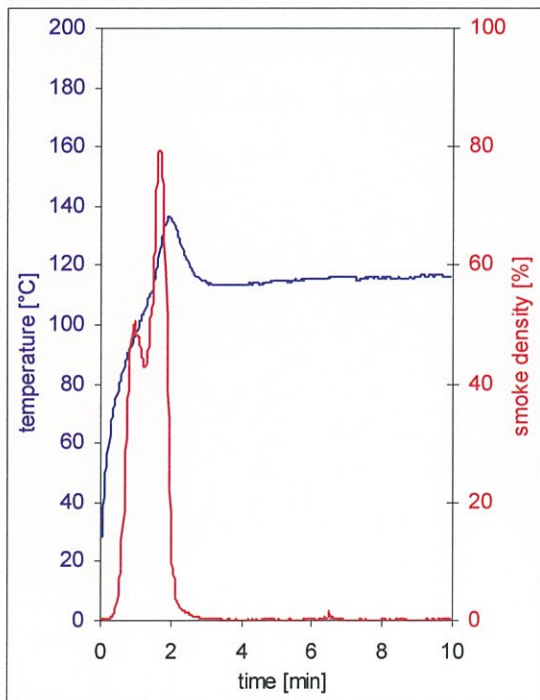


fig. 7
Graphs of the flue gas temperature and the smoke density

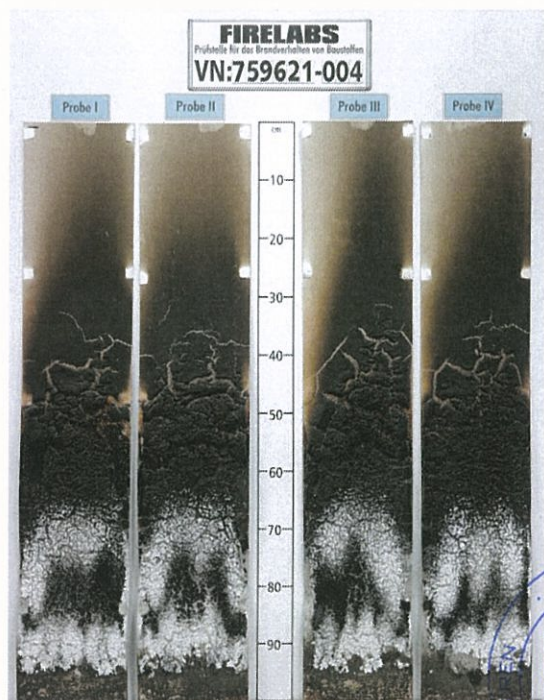


fig. 8
Photo of the test specimen after the test

Test specimen E

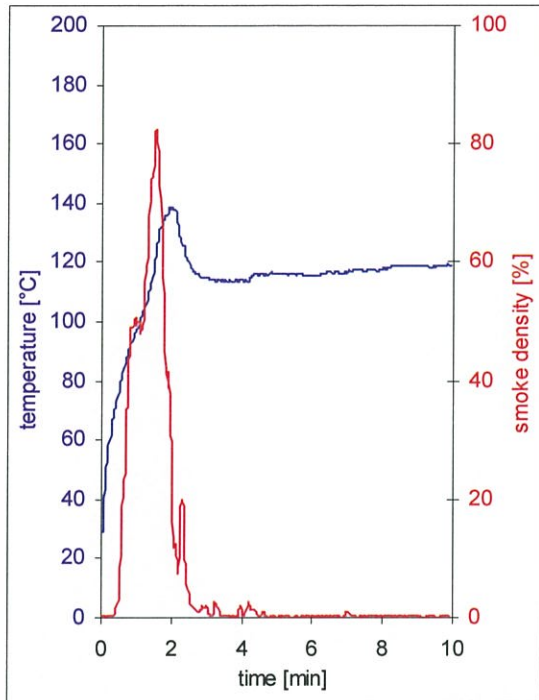


fig. 9
Graphs of the flue gas temperature and the smoke density

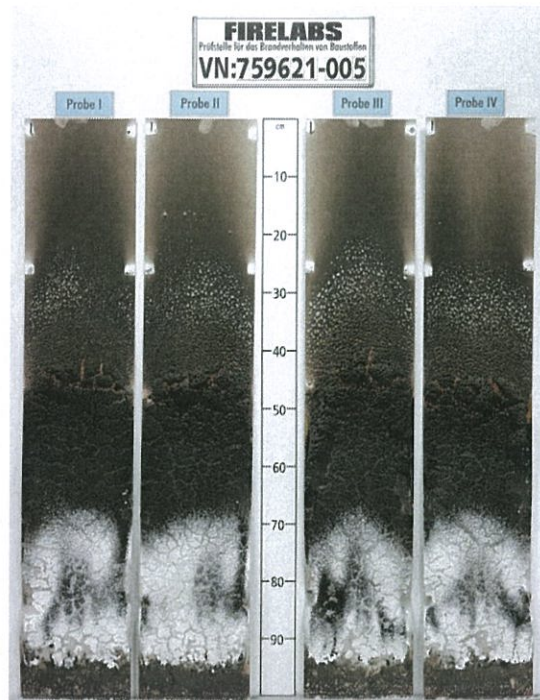


fig. 10
Photo of the test specimen after the test

Test specimen F

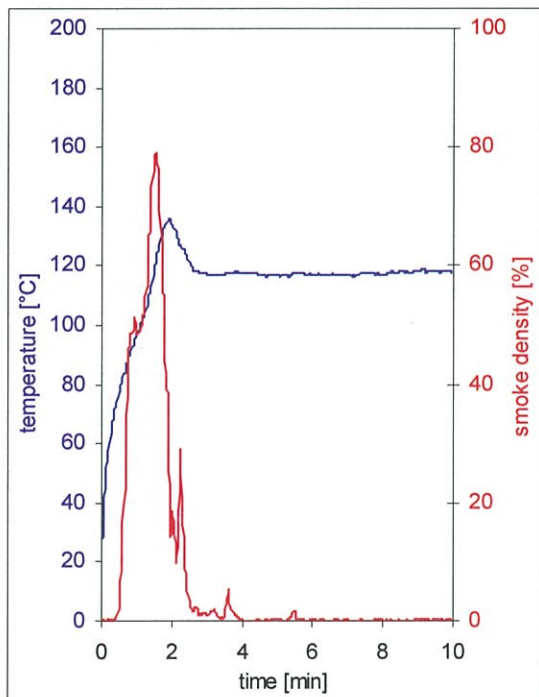


fig. 11
Graphs of the flue gas temperature and the smoke density

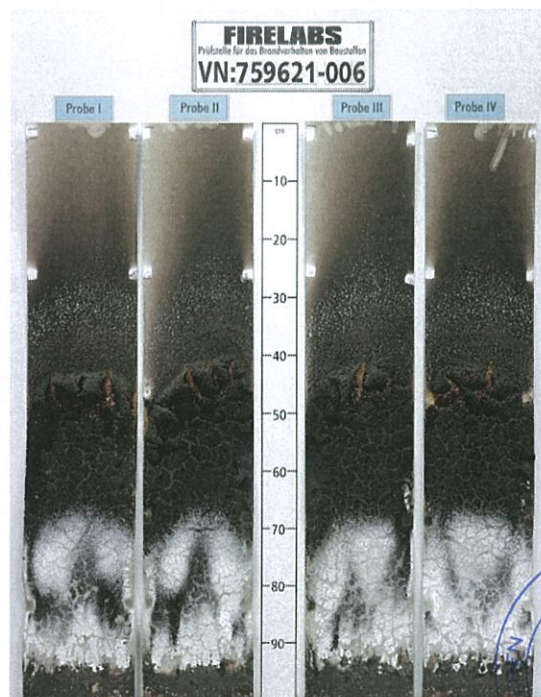


fig. 12
Photo of the test specimen after the test



Test specimen G

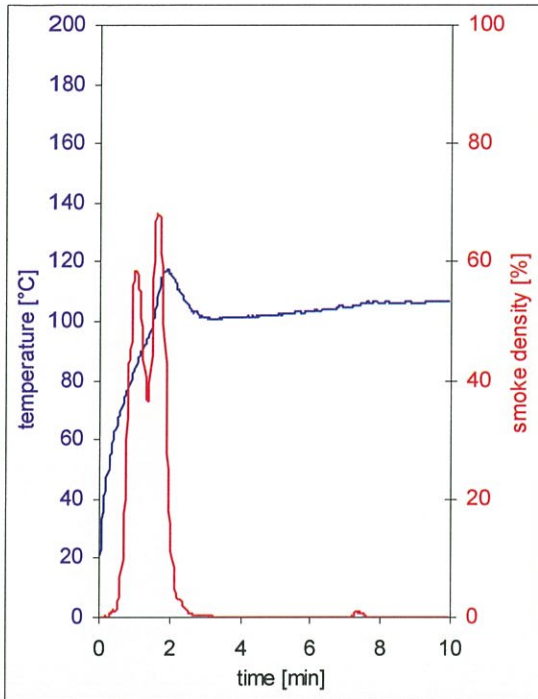


fig. 13
Graphs of the flue gas temperature and the smoke density

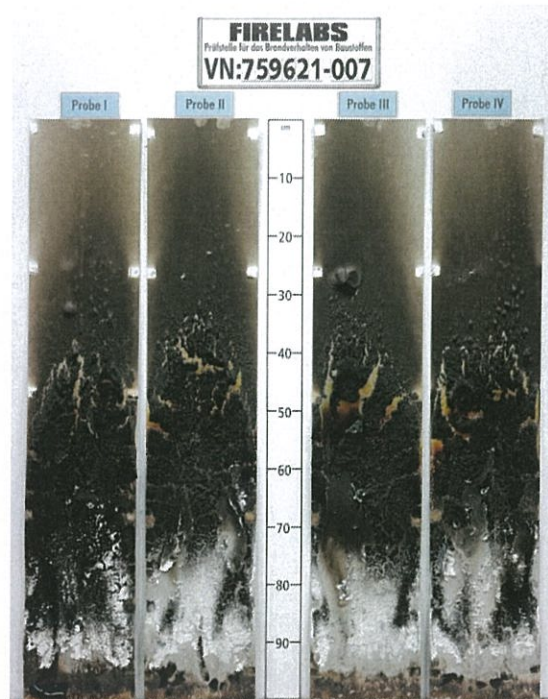


fig. 14
Photo of the test specimen after the test

Test specimen H

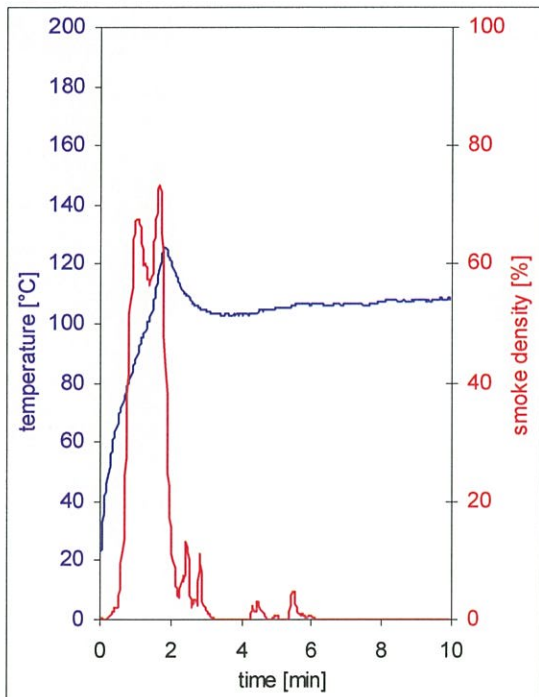


fig. 15
Graphs of the flue gas temperature and the smoke density

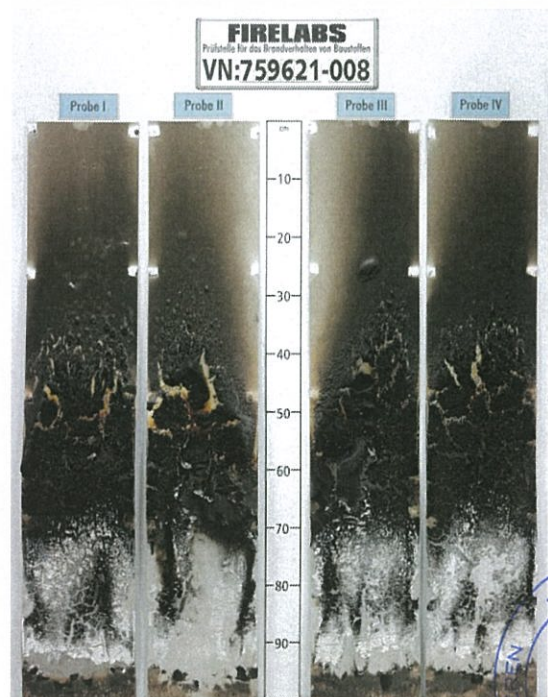


fig. 16
Photo of the test specimen after the test



Test results class B2 (Brennkasten)

Table 2.1 (complete set of samples)

Coala Quickstick W	longitudinal direction							transverse direction							dim.	requirements	
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

	Coala Quickstick S								Coala Quickstick UV								dim.	requirements
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

