

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

Reference:	FLT 3463714 (Translation of the German test report - no guarantee for translation of technical terms)		
Sponsor:	DATAPLOT GmbH Gutenbergstrasse 15 D – 24558 Henstedt-Ulzburg		
Order:	2014-05-09	Arrived:	2014-05-09
Description of samples:	Coated polyester fabric, named with "EMBLEM TREND Textil Banner Lite FR 2". (for details see page 2)		
Delivered:	2014-05-12		
Content of request:	Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1		
Assessment:	The examined product 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 of test report:	2019-05-31		
Sampling:	The test material was provided by the sponsor itself		

Remark:

If the above-mentioned building material is not used as product acc. to MBO § 2, Abs. 9, Ziffer 1, there is no need for a general building supervisory test report.

This test report is not valid if the examined building material is used as product in the meaning of state building prescriptions (MBO § 17, Abs. 3).

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

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

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This test report must not be published and copied preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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



Prüfstelle für das
Brandverhalten
von Baustoffen
Dipl.-Ing. Uwe Kühnast

Steinstrasse 18
D - 14822 Borkheide
Fon: +49 33845 90901
Fax: +49 33845 90909
Mail: info@firelabs.de

PÜZ-Stelle (LBO): BRA09

TEST REPORT



1 Description of test material

1.1 Test material (according to the sponsor)

The material provided is a fabric made from polyester, with a flame-retardant acrylic coating. The material is intended to be used freely suspended, inside of buildings for banners or for decorative purposes and was named by the sponsor with the trade name "EMBLEM TREND Textil Banner Lite FR 2".

1.2 Description of the material delivered

For the tests the laboratory was provided with a sample of a plastic coated fabric in plain weave and dimensions of app. 6,5 m length and 1,275 m width. The material was named with "TTBLFR2".

Identification: ITEM 16088, BATCH NO 2013.10

Colour: white, no printings; characteristic values: see table 4.1; photos: see enclosure 1.

Further details are not known by the laboratory, a sample is stored.

2 Preparation of samples

For the small burner test (Brennkastenprüfung) samples for the edge flame exposure (dimensions 190 mm x 90 mm) and samples for the surface flame exposure (dimensions 230 mm x 90 mm) were cut in warp and in weft orientation.

For the fire shaft test (Brandschachtprüfung) 2 specimens were assembled. The samples (dimensions 1000 mm x 190 mm) for the test specimen A were cut in warp orientation, the samples for the test specimen B were cut in weft orientation of the fabric.

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

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) without edge protection.

Arrangement of all samples: freely suspended, single-layered

Period of testing: June 2014

4 Results

- Section 4.1 Material characteristics
- Section 4.2.1 Test results class B2 (Brennkasten)
- Section 4.2.2 Test results class B1 (Brandschacht)

4.1 Material characteristics

Table 1

Kennwerte		Specifications by manufacturer	Measured values	
			m.v.	s
Thickness	[mm]	./.	0,19	<0,005
Weight per square meter	[g/m ²]	155	158	

./. 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 class B2; the material did not show burning particles/droplets during these tests. Flame impingement to front or rear side did not influence the fire behaviour.

(Results: see enclosure 2)



4.2.2 Test results class B1 (Brandschacht)

Table 3

Test results (part 1)						
line no.		Test results				requirements
		A	B	C	D	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	1	1	-	-	
2	<u>Maximal flame height</u> above bottom edge cm	30	30	-	-	*)
3	Time ¹⁾ min	1	1	-	-	
4	<u>Burning / melting through</u> Time ¹⁾min	1	1	-	-	
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:s	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	-	-	
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</u> <u>Material</u> Time ¹⁾ min:s	./.	./.	-	-	
15	<u>Premature end of test</u> Final occurrence of burning at the specimen ¹⁾min	4	4	-	-	
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



Test results (part 2)						
line no.		Test results				requirements
		A	B	C	D	
17	<u>Afterflame after end of test</u> Timemin:s	No	No	-	-	
18	Number of specimen					
19	Front side of specimen					
20	Back side of specimen					
21	Flame lengthcm					
22	<u>Afterglow after end of test</u> Timemin:s	No	No	-	-	
23	Number of specimen					
24	<u>Place of appearance:</u> Lower half of specimen					
25	Upper half of specimen					
26	Front side of specimen					
27	Back side of specimen					
28	<u>Smoke density</u> ≤ 400 % min	7,8	4,4	-	-	
29	≥ 400 % min (very strong smoke density)					
30	Diagram fig. no.	1	3	-	-	
31	<u>Residual length</u> Individual valuecm	65 61 55 58	61 70 62 59	- - - -	- - - -	> 0
32	Average valuecm	59	63	-	-	≥ 15
33	Photo of test specimen fig. no.	2	4	-	-	
34	<u>Flue gas temperature</u> Maximum of average value...°C	125	121	-	-	≤ 200
35	Time ¹⁾min:s	9:40	9:56	-	-	
36	Diagram fig. no.	1	3	-	-	
37	<u>Remarks:</u> line 32: There were no additional tests proceeded, because of the residual length of more then 45 cm. (DIN 4102-16:1998, 5.2 b))					

Test specimen A (VN 463714-001): sampling in warp orientation
 Test specimen B (VN 436714-002): sampling in weft orientation

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



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 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 of

- outdoor applicability (aging under outdoor weathering)

has not been tested.

6 Special remarks

This report 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 report 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, par. 3).

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

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

- regular building materials for the required proof of accordance
- for not regular 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 report is valid until 2019-05-31, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 16th of June 2014



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



In charge for testing
(Dipl.-Ing. Manfred Sailer)

Test specimen A

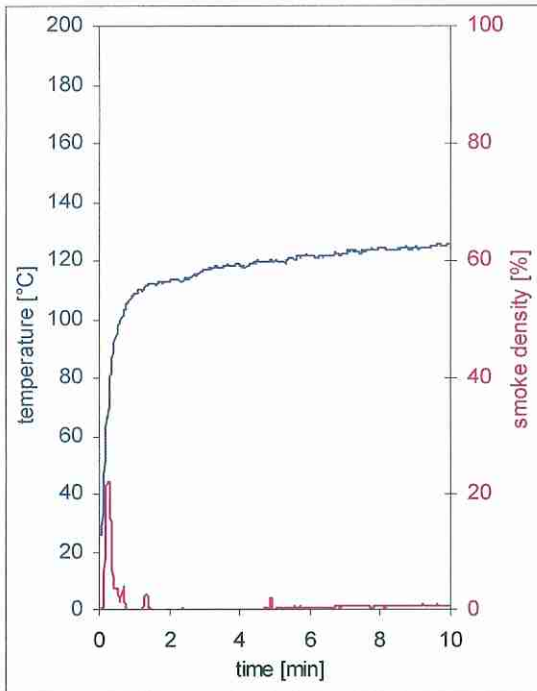


Fig. 1
Graphs of the flue gas temperature and the smoke density

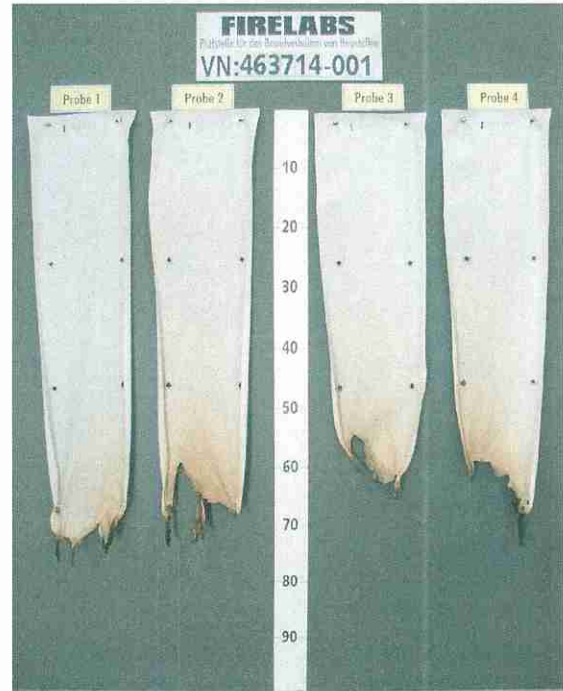


Fig. 2
View of test specimen after the test

Test specimen B

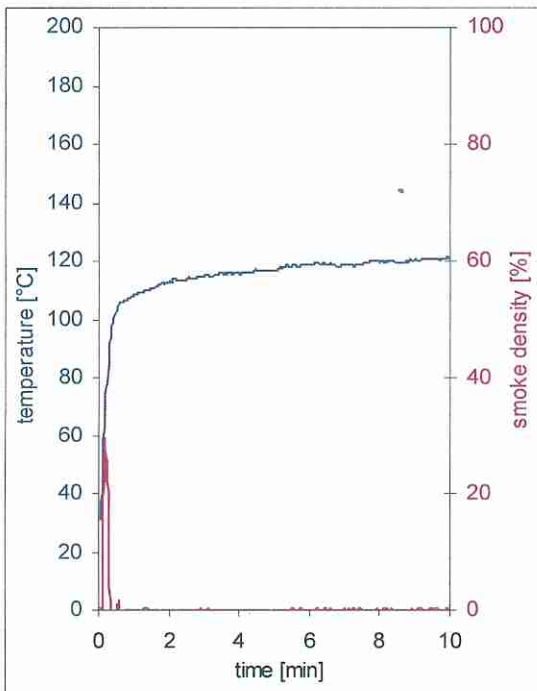


Fig. 3
Graphs of the flue gas temperature and the smoke density



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



Test results small burner test (Brennkastenprüfung)

Table 2

Sample-No.	longitudinal direction							transversal direction							dim.	requirements
	1	2	3	4	5	6	7	1	2	3	4	5	6	7		
Flaming of the sample	1	2	2	2	2	2	3	1	2	2	2	2	2	3	s	-
Maximum flame height	3	5	6	5	7	6	5	7	7	6	8	7	7	7	cm	-
Time of the maximum	3	5	6	5	7	6	5	5	5	5	5	4	5	6	s	-
Flame tip reached the 150 mm mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching 150mm mark	3	10	11	8	11	10	7	6	12	12	12	11	11	7	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density (visual)	moderate							moderate							-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-

View of the samples after the tests (20 seconds from beginning of the test):

After testing (20 seconds from the start of the test)

- longitudinal and transversal direction: At point of flame impingement the material showed a destroyed length of app. 8 cm and a width of app. 2,5 cm, sooted up to sample upper edge.

Samples 1: edge flame exposure

Samples 2-6: surface flame exposure (front side)

Samples 7: surface flame exposure (rear side)

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

