

Test laboratory for the fire behavior of building materials, Dipl.-Ing. (FH) Andreas Hoch
Testing, supervising and certifying body, authorized by the building supervision authority

TEST REPORT

PZ-Hoch-151228-2

for the proof of Fire behaviour according to DIN 4102, part 1

Translation of the German test report – no guarantee for translation of technical terms

company	DATAPLOT GmbH Gutenbergstraße 15 D-24558 Henstedt-Ulzburg
description of samples	polyester fabric coated with PVC (colour: white)
name of the material	„EMBLEM Solvent Frontlit Banner 510 SM FR 2“
sampling	by the company itself
content of request	Proof of flammability to classify building materials to class B1 “schwerentflammbar” according to DIN 4102, part 1
validity of test report	30.09.2020
result	The examined product meets the requirements of class B1 for “schwerentflammbare” (hardly flammable) building materials according to DIN 4102, part 1 (May 1998), suspended freely or with distance of >40 mm to same or other plain materials.

This test report includes 4 pages and 4 enclosures.

Remark: If the above mentioned building material is not used as product according 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 underlie building supervisory procedures

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

This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.

1. Description of test material in condition as delivered

PN 22291: "EMBLEM Solvent Frontlit Banner 510 SM FR 2"

-white polyester fabric coated with PVC-
side B: a little bit glossier

characteristic values determined by the test laboratory:

area weight: about 521 g/m² thickness: about 0,42 mm

The testing laboratory is not provided with further details concerning composition of the tested building materials. Samples are deposited.

2. Preparation of samples

The samples were kept in climate chamber 23/50 until they reached constant weight. Samples with the dimensions 1000 mm height and 190 mm width were cut out from the material for fire testing.

3. Arrangement of samples mounting: freely suspended

#7101: flaming side A in warp direction
#7102: flaming side B in warp direction
#7103: flaming side B in weft direction

4. Date of test CW 41 in 2015

5. Results The test has been examined according to DIN 4102 (Mai 1998)

line	no.	Measurement	Result with the tested specimen				Dim.
		Test number	#7101	#7102	#7103	---	
		flaming direction / side	warp / A	warp / B	weft / B	---	
1		<u>Number of specimen arrangement</u> acc. to. DIN 4102/T15, schedule 1	1	1	1	---	
2		<u>Maximum flame height above bottom</u> edge of the specimen	50	40	50		cm
3		Time ¹⁾	0:09	0:06	0:07	---	min:s
4		<u>Burn through / melting</u> Time ¹⁾	0:07	0:08	0:08	---	min:s
		<u>Observations on the back side of the specimen</u>					
5		Flames / Glowing	./.	./.	./.	./.	min:s
		Time ¹⁾	./.	./.	./.	./.	
6		Change of colour	./.	./.	./.	./.	min:s
		Time ¹⁾	./.	./.	./.	./.	
7		<u>Falling of burning droplets</u> Start ¹⁾	./.	./.	./.	./.	min:s
		Extent	./.	./.	./.	./.	
8		sporadic falling of burning droplets ²⁾	./.	./.	./.	./.	min:s
9		continuous falling of burning droplets ²⁾	./.	./.	./.	./.	
10		<u>Falling of burning droplets</u> Start ¹⁾	./.	./.	./.	./.	min:s
		Extent	./.	./.	./.	./.	
11		sporadic falling of burning droplets ²⁾	./.	./.	./.	./.	
12		continuous falling of burning droplets ²⁾	./.	./.	./.	./.	

line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#7101	#7102	#7103	---	
	flaming direction / side	warp / A	warp / B	weft / B	---	
13	<u>Afterflame time at the bottom of the sieve (max.)</u>	./.	./.	./.	./.	min:s
14	<u>Impairment of the burner by dropping or falling material:</u> Time ¹⁾	./.	./.	./.	./.	min:s
15	<u>Premature end of test</u> Final occurrence of burning at the specimen ¹⁾	./.	./.	./.	./.	min:s
16	Time of eventually end of test ¹⁾	./.	./.	./.	./.	min:s
17	<u>Afterflame after end of test</u> Time ¹⁾	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	cm
19	Front side of specimen ²⁾	./.	./.	./.	./.	
20	Back side of specimen ²⁾	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	
22	<u>Afterglow after end of test</u> Time ¹⁾	./.	./.	./.	./.	min:s
23	Number of specimen	./.	./.	./.	./.	
	<u>Place of appearance</u>	./.	./.	./.	./.	
24	Lower half of the specimen ²⁾	./.	./.	./.	./.	
25	Upper half of the specimen ²⁾	./.	./.	./.	./.	
26	Front side of specimen ²⁾	./.	./.	./.	./.	
27	Back side of specimen ²⁾	./.	./.	./.	./.	
28	<u>Density of smoke</u> ≤ 400 % * min	26	27	26	---	% * min
29	> 400 % * min ⁴⁾	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	---	
31	<u>Residual lengths: individual value ³⁾</u>					
	Specimen 1	66	65	68	---	cm
	Specimen 2	67	64	65	---	cm
	Specimen 3	69	65	67	---	cm
	Specimen 4	66	66	67	---	cm
32	<u>Average value, individual test ³⁾</u>	67	65	67	---	
33	<u>Photo of specimen in enclosure no.</u>	1	2	3	---	
34	<u>Flue gas temperature</u>	115	116	117	---	°C
35	Maximum of average value Time ¹⁾	09:48	10:00	09:48	---	min:s
36	Diagram: encl. no.	1	2	3	---	
37	Remarks: - none -					

¹⁾ indication of times: from the begin of testing procedure ²⁾ checked off if applicable

³⁾ indication of carrier/foam layer separated in case of fire-proofing agents

⁴⁾ very strong development of smoke

6. Explanations concerning the testing procedure

There were no additional tests proceeded because of the residual length of more than 45 cm.

7. Summary of results and additional establishments to Fire Behaviour

lineno.	measurement	Result with the tested specimen				dimension
	test-no.	#7101 warp / A	#7102 warp / B	#7103 weft / B	---	
1	residual length	67	65	67	---	cm
2	max. smoke temperature	115	116	127	---	°C
3	density of smoke - integral	26	27	26	---	%min
4	remarks: -none-					

According to DIN 4102, part 1, "schwerentflammbare" (hardly flammable) building materials must meet the requirements of class B2.

Pursuant to additional tests in the ignitability apparatus this can be determined (appendix 4).

8. 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 grounds etc. the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions.
- This test report is not valid, as soon as the fabric 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, in particular private proprietary rights.
- For legal interests only the German original version is relevant.
- 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

9. Validity

This test report is valid until the mentioned date on page 1. The test report becomes invalid in case the standards on which the tests are based are changed.

Fladungen, 19.04.2016

clerk in charge:



(Silke Biendara)

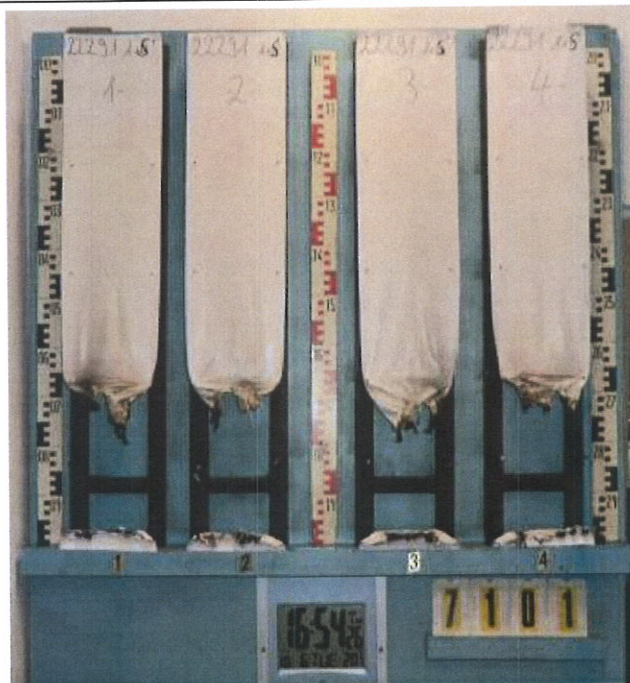


Head of the test laboratory:



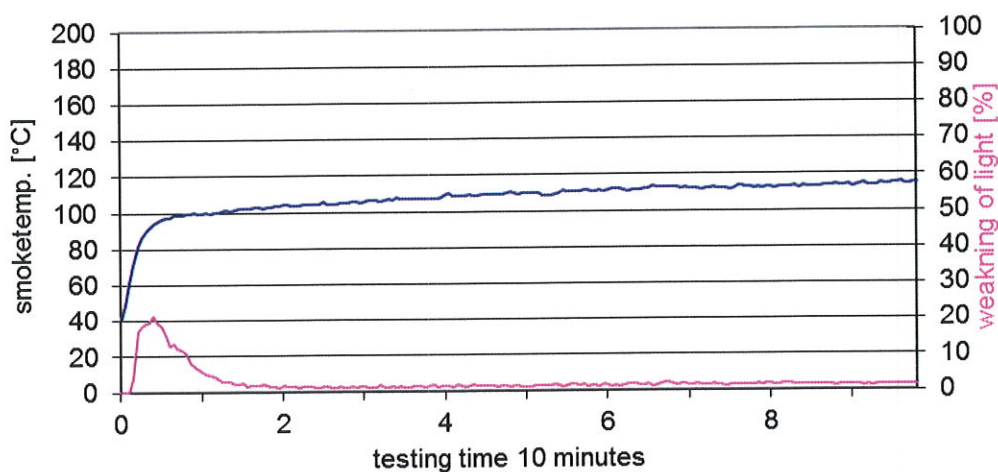
(Dipl.-Ing.(FH) Andreas Hoch)

„Brandschacht“-test #7101

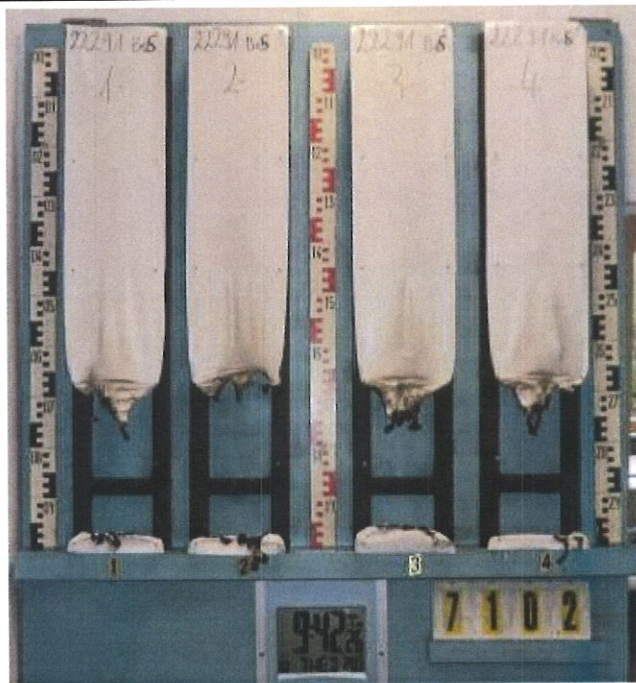


measurement

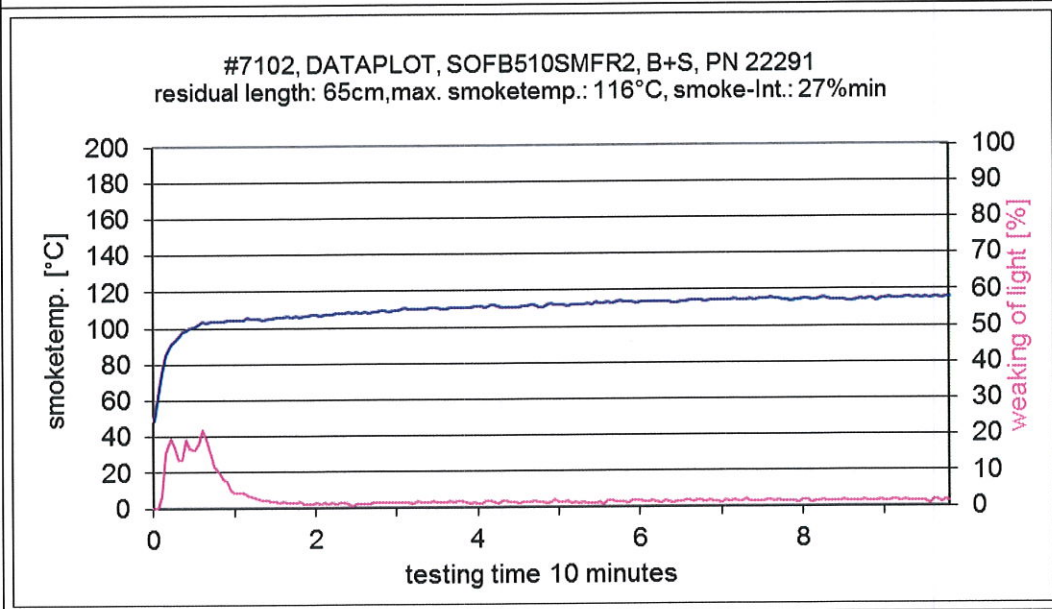
#7101, DATAPLOT, SOFB510SMFR2, A+S, PN 22291
residual length: 67cm, max. smoketemp.: 115°C, smoke-Int.: 26%/min



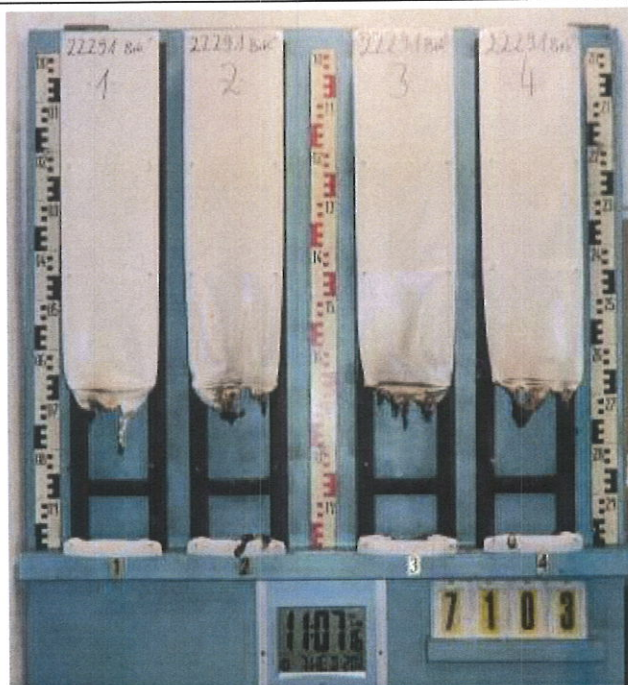
„Brandschacht“-test #7102



measurement

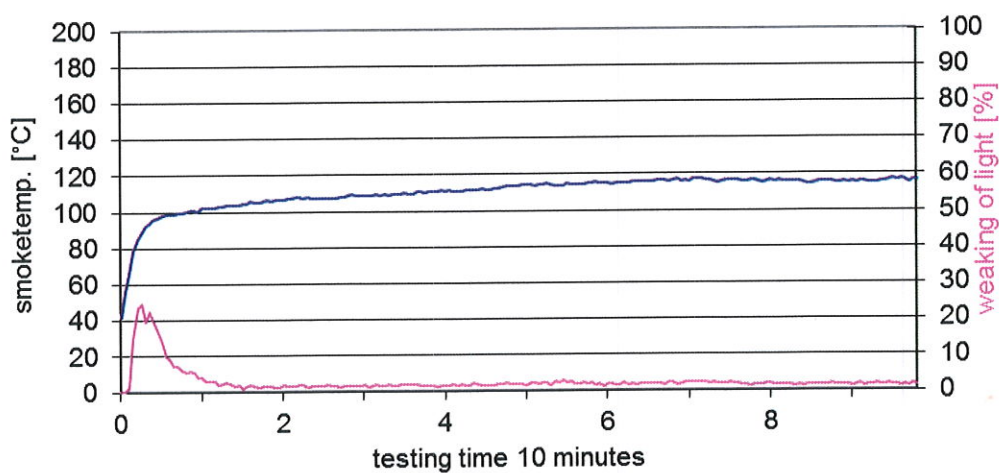


„Brandschacht“-test #7103



measurement

#7103, DATAPLOT, SOFB510SMFR2, B+K, PN 22291
residual lenght: 67cm, max. smoketemp.: 117°C, smoke-Int.: 26%/min



Test for normal flammability classifying B2 according to DIN 4102

 1. Description of test material in condition as delivered look at page 2

 2. Preparation of samples

Out of the material there have been cut samples for the ignitability apparatus.
The samples were kept in a climate 23/50 until they reached constant weight.

 3. Arrangement of samples -freely suspended-

Flaming in warp and weft direction / Flaming side A and side B

 4. Date of test CW 40 in 2015

 5. Results

PN 22291: flaming side B in warp	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	1	1	1	1	1	--	7	--	--	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
max. flame height	12	14	14	14	14	--	12	--	--	--	--	--	cm
Time	12	20	15	15	14	--	15	--	--	--	--	--	
self cessation of the flames end of afterflame ¹⁾	14	./.	16	20	15	--	15	--	--	--	--	--	s
end of glowing ¹⁾	20	30	17	16	16	--	15	--	--	--	--	--	s
flames were extinguished after ¹⁾	./.	30	./.	./.	./.	--	./.	--	--	--	--	--	s
smoke development (visual)	very heavy						very-heavy						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
Appearance after test: burned out till max. height 2 cm x width 16 cm													

PN 22291: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	1	1	1	--	--	--	6	6	6	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
max. flame height	11	12	11	--	--	--	12	12	11	--	--	--	cm
time	13	13	12	--	--	--	20	15	15	--	--	--	
self cessation of the flames end of afterflame ¹⁾	15	14	14	--	--	--	22	24	16	--	--	--	s
end of glowing ¹⁾	21	22	20	--	--	--	22	19	19	--	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
smoke development (visual)	very heavy						very-heavy						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
Appearance after test: burned out till max. height 2 cm x width 16 cm													

¹⁾ time mentioned from the beginning of the test ²⁾ during 20 Sec -/- no appearance -- no information

 6. Remarks and explanations to the testing procedure - none -

 7. Opinion concerning the dropping of burning material

The test for normal flammability shows no burning dripping material.