

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-220388

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	SAINT CLAIR TEXTILES 415 Avenue de Savoie F – 38110 SAINT CLAIR DE LA TOUR
description of samples	fabric consisting of polyester with pvc-coating in 3 different colours
name of the material	„SUNBLOCK“
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	30.04.2027
result	The examined product meets in any colour 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 8 pages and 9 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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 34931:** „SUNBLOCK“ colour: white
-polyester fabric with pvc-coating-
side A: matt
characteristic values determined by the test laboratory:
area weight: about 874 g/m² thickness: about 0,63 mm
- PN 34932:** „SUNBLOCK“ colour: red
-polyester fabric with pvc-coating-
side A: matt
characteristic values determined by the test laboratory:
area weight: about 872 g/m² thickness: about 0,62 mm
- PN 34933:** „SUNBLOCK“ colour: grey (mosaic)
-polyester fabric with pvc-coating-
side A: matt
characteristic values determined by the test laboratory:
area weight: about 875 g/m² thickness: about 0,70 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.

3. Arrangement of samples mounting: freely suspended

#5319:	PN34931	flaming side A in warp direction	white
#5320:	PN34931	flaming side B in warp direction	white
#5321:	PN34931	flaming side B in weft direction	white
#5322:	PN34932	flaming side B in weft direction	red
#5323:	PN34933	flaming side B in weft direction	grey
#5325:	PN34931	flaming side B in weft direction	white
#5326:	PN34931	flaming side B in weft direction	white

4. Date of test CW 14 in 2022

5. Results

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

line no.	Measurement	Result with the tested specimen					Dim.
	Test number	#5319	#5320	#5321	#5322	#5323	
	colour of fabric	white			red	grey	
	flaming direction / side	warp / A	warp / B	weft / B	weft / B	weft / B	
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	1	1	1	1	1	
2	Maximum flame height above bottom edge of the specimen	70	70	80	70	80	cm
3	Time ¹⁾	0:10	0:21	0:09	0:10	0:03	min:s
4	Burn through / melting Time ¹⁾	0:16	0:18	0:18	0:17	0:19	min:s
	Observations on the back side of the specimen						
	Flames / Glowing	---	---	---	---	---	
5	Time ¹⁾	./.	./.	./.	./.	./.	min:s
	Change of colour	---	---	---	---	---	
6	Time ¹⁾	./.	./.	./.	./.	./.	min:s
7	Falling of burning droplets Start ¹⁾	./.	./.	./.	./.	./.	min:s
	Extent						
8	sporadic falling of burning droplets ²⁾	---	---	---	---	---	
9	continuous falling of burning droplets ²⁾	---	---	---	---	---	min:s
10	Falling of burning droplets Start ¹⁾	./.	./.	0:33	./.	./.	min:s
	Extent						
11	sporadic falling of burning droplets ²⁾	---	---	x	---	---	
12	continuous falling of burning droplets ²⁾	---	---	---	---	---	
13	After flame time at the bottom of the sieve (max.)	./.	./.	0:54	./.	./.	min:s
14	Impairment of the burner by dropping or falling material: Time ¹⁾	./.	./.	./.	./.	./.	min:s
15	Final occurrence of burning at the specimen ¹⁾	0:37	2:49	2:56	2:51	9:49	min:s
16	Time of eventually end of test ¹⁾	./.	./.	./.	./.	./.	min:s
17	After flame after end of test Time ¹⁾	./.	./.	0:34	./.	./.	min:s
18	Number of specimen	---	---	1	---	---	
19	Front side of specimen ²⁾	---	---	---	---	---	
20	Back side of specimen ²⁾	---	---	x	---	---	
21	flame length	---	---	---	---	---	cm

line no.	Measurement	Result with the tested specimen					Dim.
	Test number	#5319	#5320	#5321	#5322	#5323	
	colour of fabric	white			red	grey	
	flaming direction / side	warp / A	warp / B	weft / B	weft / B	weft / B	
	<u>Afterglow after end of test</u>	---	---	---	---	---	
22	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⁾	---	---	---	---	---	
	<u>Density of smoke</u>						
28	≤ 400 % * min	43	68	76	62	68	% * min
29	> 400 % * min ⁴⁾	./.	./.	./.	./.	./.	% * min
	<u>Residual lengths:</u> individual value ³⁾						
30	Specimen 1	49	46	38	51	47	cm
	Specimen 2	48	43	39	46	37	cm
	Specimen 3	48	46	42	52	48	cm
	Specimen 4	49	49	45	54	49	cm
31	<u>Average value, individual test</u> ³⁾	49	46	41	51	45	
32	<u>Flue gas temperature</u>	116	115	124	120	123	°C
33	Maximum of average value Time ¹⁾	10:01	00:25	00:31	09:45	09:48	min:s
34	Foto and Diagram: encl. no.	1	2	3	4	5	
35	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

line no.	Measurement	Result with the tested specimen					Dim.
	Test number	#5319	#5320	-	-	-	
	colour of fabric	white					
	flaming direction / side	weft / B	weft / B	-	-	-	
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	1	1	-	-	-	
2	Maximum flame height above bottom edge of the specimen	80	80				cm
3	Time ¹⁾	0:05	0:06	-	-	-	min:s
4	Burn through / melting Time ¹⁾	0:21	0:21	-	-	-	min:s
5	Observations on the back side of the specimen Flames / Glowing Time ¹⁾	---	---				min:s
6	Change of colour Time ¹⁾	---	---	-	-	-	min:s
7	Falling of burning droplets Start ¹⁾	./.	./.				min:s
8	Extent						
9	sporadic falling of burning droplets ²⁾	---	---				
10	continuous falling of burning droplets ²⁾	---	---	-	-	-	min:s
11	Falling of burning droplets Start ¹⁾	./.	./.				min:s
12	Extent						
13	sporadic falling of burning droplets ²⁾	---	---				
14	continuous falling of burning droplets ²⁾	---	---	-	-	-	min:s
15	After flame time at the bottom of the sieve (max.)	./.	./.	-	-	-	min:s
16	Impairment of the burner by dropping or falling material: Time ¹⁾	./.	./.	-	-	-	min:s
17	Final occurrence of burning at the specimen ¹⁾	2:52	0:52	-	-	-	min:s
18	Time of eventually end of test ¹⁾	./.	./.	-	-	-	min:s
19	After flame after end of test Time ¹⁾	./.	0:25				min:s
20	Number of specimen	---	1				
21	Front side of specimen ²⁾	---	---				
22	Back side of specimen ²⁾	---	x				
23	flame length	---	---	-	-	-	cm

line no.	Measurement	Result with the tested specimen					Dim.
	Test number	#5319	#5320	-	-	-	
	colour of fabric	white					
	flaming direction / side	weft / B	weft / B	-	-	-	
22	Afterglow after end of test Time ¹⁾						min:s
23	Number of specimen	---	---				
	Place of appearance	./.	./.				
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	Density of smoke ≤ 400 % * min	161	69				% * min
29	> 400 % * min ⁴⁾	./.	./.	-	-	-	% * min
30	Residual lengths: individual value ³⁾						
	Specimen 1	46	47				cm
	Specimen 2	42	39				cm
	Specimen 3	47	45				cm
	Specimen 4	49	47	-	-	-	cm
31	Average value, individual test ³⁾	46	45	-	-	-	
32	Flue gas temperature	127	120				°C
33	Maximum of average value Time ¹⁾	08:04	10:00				min:s
34	Foto and Diagram: encl. no.	6	7	-	-	-	
35	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 additional tests proceeded because of the residual length of less than 45 cm. Flaming debris for more than 20 seconds occurred in the fire shaft test #5321. Since this did not happen in two repetition tests this note be mentioned in the classification.

7. Summary of results and additional establishments to Fire Behaviour

lineno.	measurement	Result with the tested specimen					dimension
	test-no.	#5319 A/warp	#5320 B/warp	#5321 B/weft	#5322 B/weft	#5323 B/weft	
	colour of fabric	white			red	grey	
1	residual length	49	46	41	51	45	cm
2	max. smoke temperature	116	115	124	120	123	°C
3	density of smoke - integral	43	68	76	62	68	%min
4	remarks: -none-						

lineno.	measurement	Result with the tested specimen					dimension
	test-no.	#5325 B/weft	#5326 B/weft	-	-	-	
	colour of fabric	white					
1	residual length	46	45	-	-	-	cm
2	max. smoke temperature	127	120	-	-	-	°C
3	density of smoke - integral	161	69	-	-	-	%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 8 & 9).

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, 14.04.2022

clerk in charge:

A blue ink signature of Silke Biendara.

(Silke Biendara)



Head of the test laboratory:

A red ink signature of Andreas Hoch.

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

„Brandschacht“-test #5319

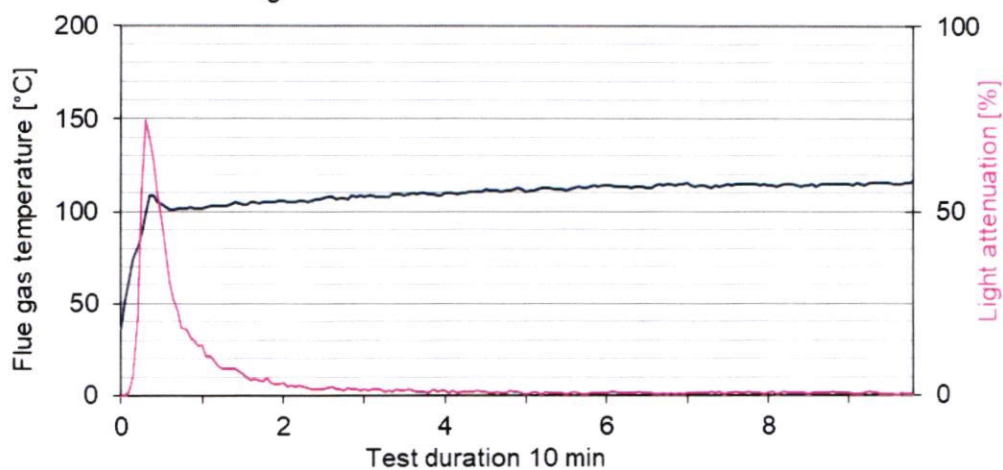


measurement

#5319, PN34931: Sunblock weiss, A + K

Max. flue temperature: 116°C, Smoke density integral: 43%/min

Residual length: 49 cm



„Brandschacht“-test #5320

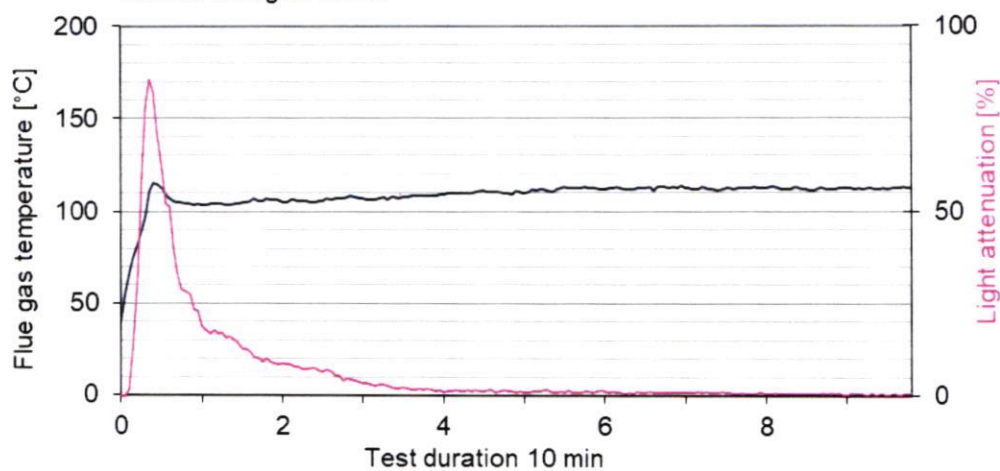


measurement

#5320, PN34931: Sunblock weiss, B + K

Max. flue temperature: 115°C, Smoke density integral: 68%min

Residual length: 46 cm



„Brandschacht“-test #5321

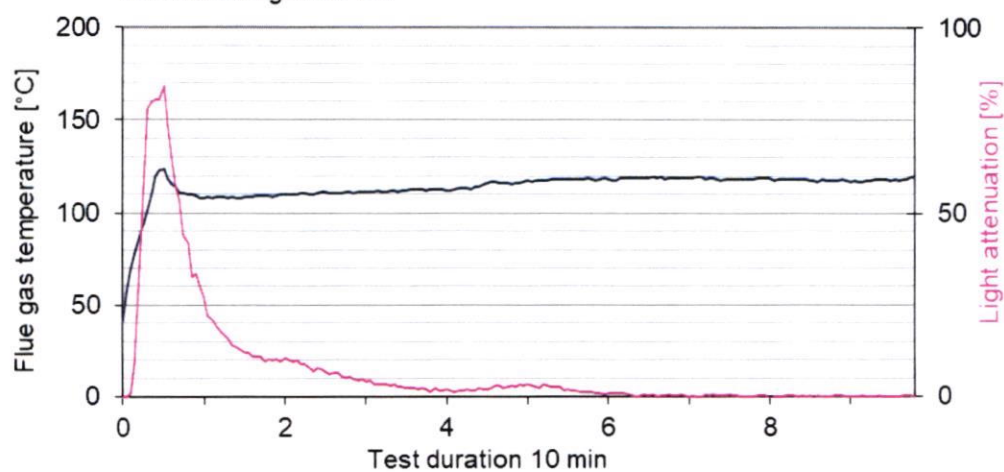


measurement

#5321, PN34931: Sunblock weiss, B + S

Max. flue temperature: 124°C, Smoke density integral: 76%min

Residual length: 41 cm



„Brandschacht“-test #5322

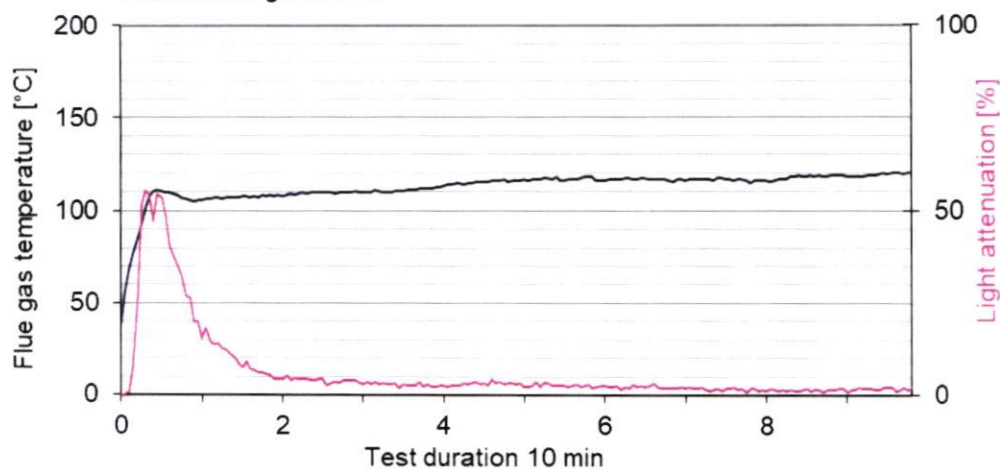


measurement

#5322, PN34932: Sunblock rot, B + S

Max. flue temperature: 120°C, Smoke density integral: 62%min

Residual length: 51 cm



„Brandschacht“-test #5323

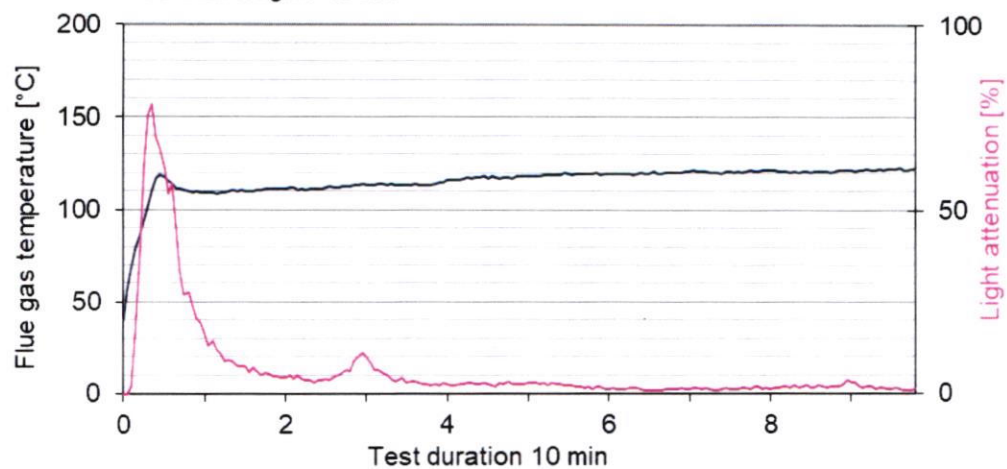


measurement

#5323, PN34933: Sunblock grau, B + S

Max. flue temperature: 123°C, Smoke density integral: 68%min

Residual length: 45 cm



„Brandschacht“-test #5325

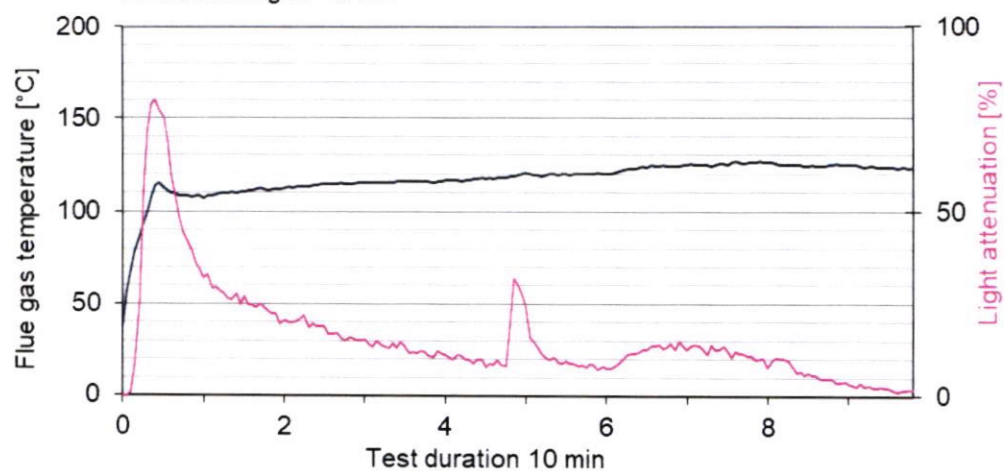


measurement

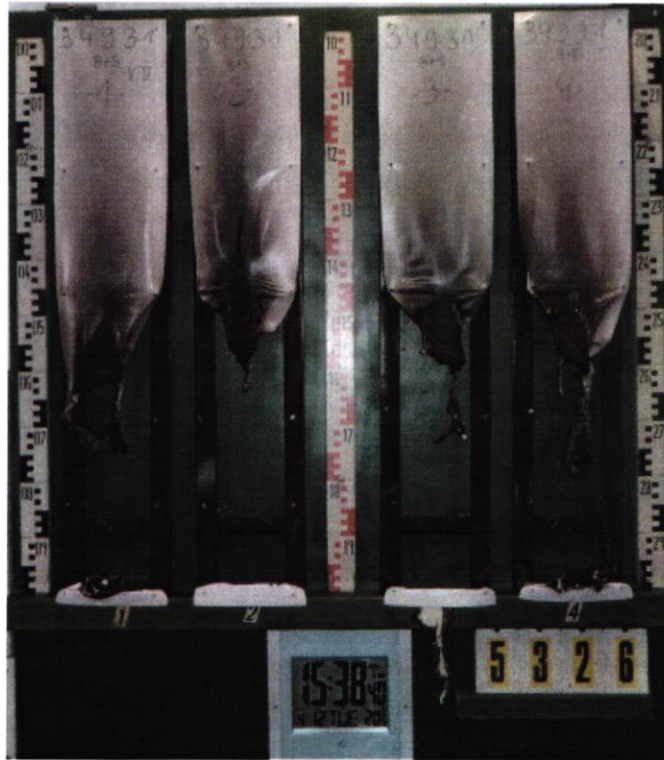
#5325, PN34931: Sunblock weiss, B + S

Max. flue temperature: 127°C, Smoke density integral: 161%min

Residual length: 46 cm



„Brandschacht“-test #5326

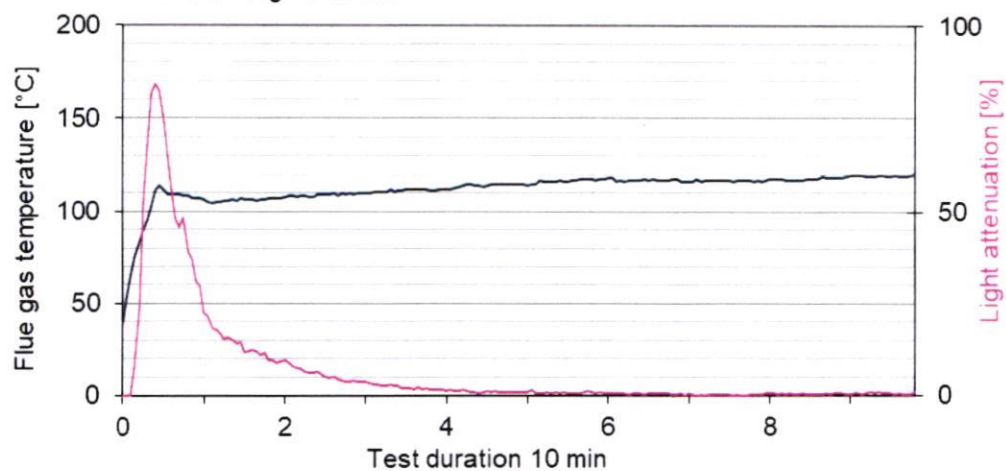


measurement

#5326, PN34931: Sunblock weiss, B + S

Max. flue temperature: 120°C, Smoke density integral: 69%min

Residual length: 45 cm



**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 13 and CW 14 in 2022

5. Results

PN 34931: flaming side A in weft	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	--	2	--	--	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	S
max. flame height	11	8	7	8	7	--	5	--	--	--	--	--	cm
time	12	12	10	9	10	--	15	--	--	--	--	--	
self cessation of the flames end of afterflame ¹⁾	16	15	15	15	15	--	15	--	--	--	--	--	s
end of glowing ¹⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
smoke development (visual)	moderate						moderate						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
Appearance after test: burned out till max. height 10cm x width 2,5cm													

PN 34931: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
arrangement of samples side / direction	A/K	B/K	B/S	--	--	--	A/K	B/K	B/S	--	--	--	
ignition ¹⁾	1	1	1	--	--	--	2	2	2	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
max. flame height	11	11	11	--	--	--	5	5	5	--	--	--	cm
time	12	12	12	--	--	--	15	15	15	--	--	--	
self cessation of the flames end of afterflame ¹⁾	16	16	16	--	--	--	15	15	15	--	--	--	s
end of glowing ¹⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
smoke development (visual)	moderate						moderate						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
Appearance after test: burned out till max. height 10 cm x width 2,5 cm													

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

K: warp / S: weft

PN 34932: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
arrangement of samples side / direction	A/K	B/K	A/S	B/S	--	--	A/K	B/K	A/S	B/S	--	--	
ignition ¹⁾	1	1	1	1	--	--	2	2	2	2	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
max. flame height	11	11	11	11	--	--	5	5	5	5	--	--	cm
time	12	12	12	12	--	--	15	15	15	15	--	--	
self cessation of the flames end of afterflame ¹⁾	15	15	16	16	--	--	15	15	15	15	--	--	s
end of glowing ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
smoke development (visual)	moderate						moderate						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
Appearance after test: burned out till max. height 10 cm x width 2,5 cm													

PN 34933: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
arrangement of samples side / direction	A/K	B/K	A/S	B/S	--	--	A/K	B/K	A/S	B/S	--	--	
ignition ¹⁾	1	1	1	1	--	--	2	2	2	2	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
max. flame height	11	11	11	11	--	--	5	5	5	5	--	--	cm
time	10	12	10	10	--	--	15	15	15	15	--	--	
self cessation of the flames end of afterflame ¹⁾	18	17	17	18	--	--	15	15	15	15	--	--	s
end of glowing ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
smoke development (visual)	moderate						moderate						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
Appearance after test: burned out till max. height 10 cm x width 2,5 cm													

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

K: warp / S: weft

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.