

TEST REPORT

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

Nr. PZ-Hoch-090508

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

company:	Sihl AG Bolligenstrasse 93 CH-3006 Bern SWITZERLAND
description of the samples:	polyester-fabric coated on both sides with vinyl (colour: white)
name of the material:	“3960 Banner Vinyl WF 380 matt”
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:	June 30 th 2014 ^{*)}
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. The material shows burning droplets.

This test report includes 4 pages and 3 enclosures.

Remark: If the above mentioned building material is not used as product according to MBO § 2, Abs. 9, Ziffer1, 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.

*) prolongation on request.

line No.	Measurement	Result with the tested specimen						Dim.
		#9210 A/K	#9211 B/S	#9215 B/K	#9217 A/S	#9257 A/S	#9258 A/S	
13	Afterflame time at the bottom of the sieve (max.)	0:43	0:26	0:46	./.	./.	./.	min:s
14	Impairment of the burner by dropping or falling material: Time ¹⁾	./.	./.	./.	./.	./.	./.	min:s
15	Premature end of test Final occurrence of burning at the specimen ¹⁾	./.	./.	./.	./.	./.	./.	min:s
16	Time of eventually end of test ¹⁾	./.	./.	./.	./.	./.	./.	min:s
17	Afterflame after end of test Time ¹⁾	./.	./.	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	./.	./.	
19	Front side of specimen ²⁾	./.	./.	./.	./.	./.	./.	
20	Back side of specimen ²⁾	./.	./.	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	./.	./.	cm
22	Afterglow after end of test Time ¹⁾	./.	./.	./.	./.	./.	./.	min:s
23	Number of specimen	./.	./.	./.	./.	./.	./.	
24	Place of appearance 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	51	34	53	52	48	48	% * min
29	> 400 % * min ⁴⁾	./.	./.	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	---	1	---	---	2	---	
31	Residual lengths: individual value ³⁾ Specimen 1 Specimen 2 Specimen 3 Specimen 4	40 37 36 39	47 55 49 54	50 52 45 53	28 39 45 28	28 31 20 12	29 28 26 18	cm cm cm cm
32	Average value, individual test ³⁾	38	51	50	35	23	25	
33	Photo of specimen in enclosure no.	---	1	---	---	2	---	
34	Flue gas temperature Maximum of average value	116	121	122	122	133	122	°C
35	Time ¹⁾	0:22	09:33	10:00	0:27	0:27	0:22	min:s
36	Diagram: encl. no.	---	1	---	---	2	---	
37	Remarks: - none -							

1) indication of times: from the begin of testing procedure

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

2) checked off if applicable

4) very strong development of smoke

6. Explanations concerning the testing procedure:

-none-

7. Summary of results and additional establishments to Fire Behaviour:

line no	Measurement test-no.	Result with the tested specimen						Dim.
		#9210 A/K	#9211 B/S	#9215 B/K	#9217 A/S	#9257 A/S	#9258 A/S	
1	residual length	38	51	50	35	23	25	cm
2	max. smoke temperature	116	121	122	122	133	122	°C
3	density of smoke - integral	51	34	53	52	48	48	%min
4	remarks: During the Brandschacht-test #9210, #9211 and #9215 the material shows burning droplets.							

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 3).

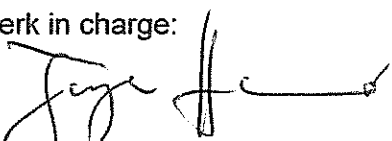
8. Special remarks:

- 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, im 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

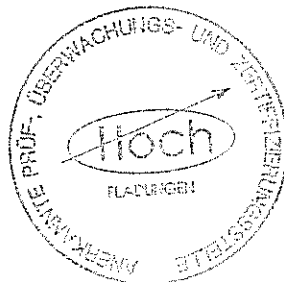
9. Validity: This test report is valid until the mentioned date on page 1. The test report becomes invalid in case the standards on which the tests are based are changed.!

Fladungen, June 29th 2009

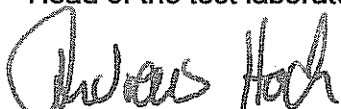
clerk in charge:



(Dipl.-Ing. (FH) Jürgen Hammer)



Head of the test laboratory:

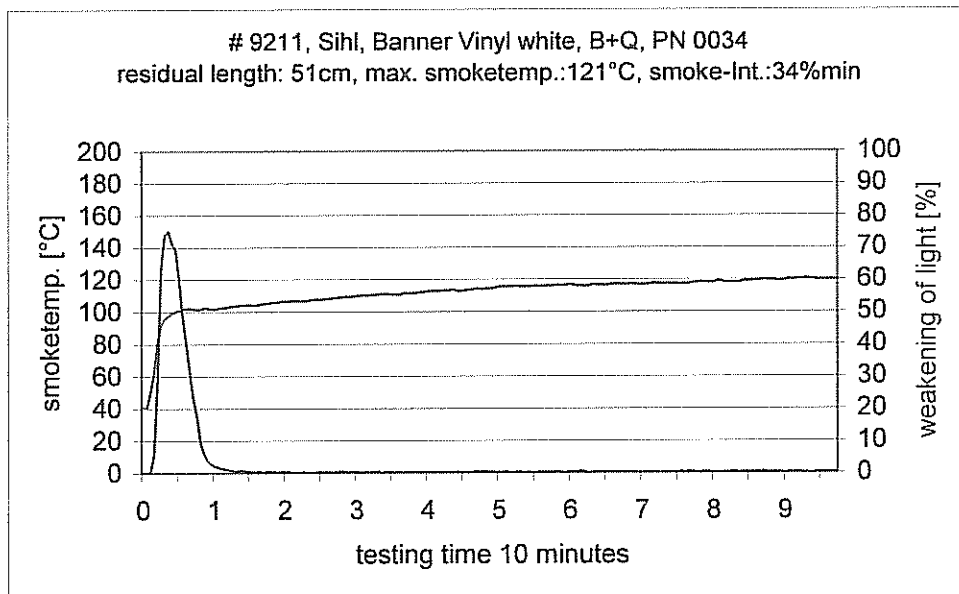


(Dipl.-Ing.(FH) Andreas Hoch)

„Brandschacht“-test #9211



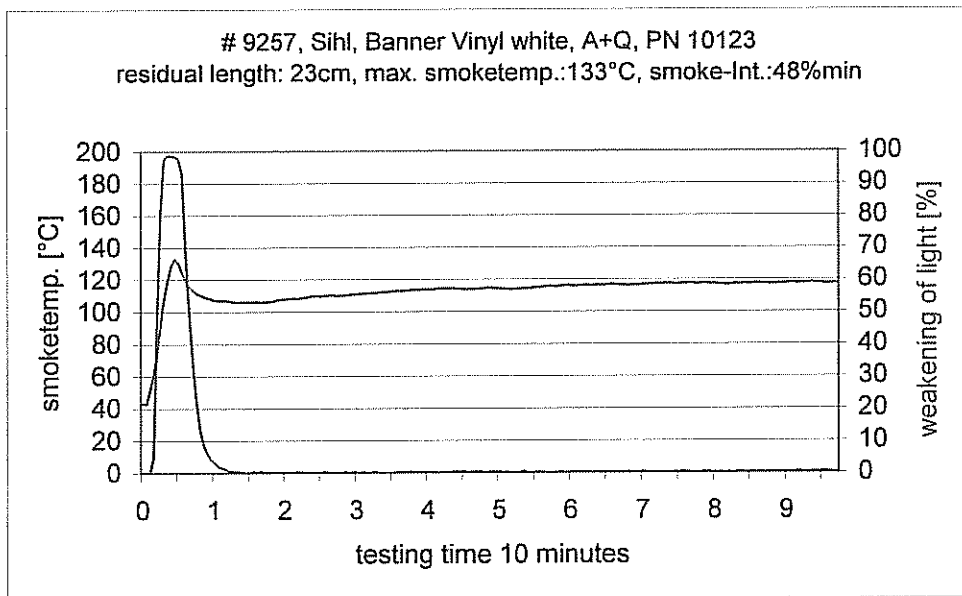
measurement



„Brandschacht“-test #9257



measurement



**Test for normal flammability
classifying B2 according to DIN 4102**

- Description of test material in condition as delivered look at page 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.
- Arrangement of samples: freely suspended
flaming in warp and in weft direction / flaming side A and side B
- Date of test week 24 in 2009
- Results:

PN 10034 and PN 10123	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	1	4	4	--	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	./.	./.-	./.	./.	--	--	--	--	s
max. flame height	5	8	6	5	5	7	6	6	--	--	--	--	cm
time	4	12	9	7	7	7	8	8	--	--	--	--	
self cessation of the flames end of afterflame ¹⁾	15	15	12	13	11	12	16	15	--	--	--	--	s
end of glowing ¹⁾	16	16	17	18	16	17	./.	./.					
flames were extinguished after ¹⁾	./.	./.	./.	./.	./.	./.	./.	./.	--	--	--	--	s
smoke development (visual)	very heavy						heavy						
dropping of burning material during 20 s ¹⁾	./.	./.	./.	./.	./.	./.	./.	./.	--	--	--	--	s
Appearance after test: burned out till max. height 8 cm x width 2,5 cm													

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

- Remarks and explanations to the testing procedure: - none -
- Opinion concerning the dropping of burning material:
The test for normal flammability shows no dropping burning material.