

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-170022-3

**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**

<b>company</b>	<b>Vescom B.V.</b> St. Jozefstraat 20 NL-5753 Deurne
<b>description of samples</b>	fabric consisting of 100% Polyester FR in 3 different colours
<b>name of the material</b>	„Tavira”
<b>sampling</b>	by the company itself (black) and by Prüfinstitut Hoch on 05 October 2018 (beige, red-brown / grey) by Prüfinstitut Hoch on 26 January 2021 (prolongation)
<b>content of request</b>	Proof of flammability to classify building materials to class B1 “schwerentflammbar” according to DIN 4102, part 1
<b>validity of test report</b>	31.03.2026
<b>result</b>	<b>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 &gt;40 mm to same or other plain materials.</b>

This test report includes 5 pages and 10 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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 24769:** "Tavira" Dessin: 8009  
black fabric consisting of 100% Polyester FR  
side A: smoother surface  
characteristic values determined by the test laboratory:  
area weight: about 293 g/m<sup>2</sup>      thickness: about 0,67 mm
- PN 28162:** "Tavira" Dessin: 800903  
beige fabric consisting of 100% Polyester FR  
side B: smoother surface  
characteristic values determined by the test laboratory:  
area weight: about 294 g/m<sup>2</sup>      thickness: about 0,66 mm
- PN 28163:** "Tavira" Dessin: 800905  
red-brown / grey fabric consisting of 100% Polyester FR  
side A: red-brown  
side B: grey, smoother surface  
characteristic values determined by the test laboratory:  
area weight: about 297 g/m<sup>2</sup>      thickness: about 0,70 mm

**To prolong the certificate see also ÜZB-Hoch-210116:**

- PN 32734:** "Tavira"  
green-yellow fabric consisting of 100% Polyester FR  
side A: green-yellow (rough weaving structure)  
side B: green-yellow (fine weaving structure)  
characteristic values determined by the test laboratory:  
area weight: about 292 g/m<sup>2</sup>      thickness: about 0,64 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

#8643	flaming side A in warp direction	black
#8644	flaming side B in warp direction	black
#8645	flaming side B in weft direction	black
#1759	flaming side A in warp direction	beige
#1760	flaming side A in warp direction	red-brown / grey
#4291	flaming side A in weft direction	green-yellow

## 4. Date of test      CW 02 in 2017 and CW 43 in 2018 and CW 09 in 2021



## 5. Results

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

line no.	Measurement	Result with the tested specimen						Dim.
	Test number	#8643	#8644	#8645	#1759	#1760	#4291	
	flamed direction	warp	warp	weft	warp	warp	weft	
	flamed side	A	B	B	A	A	A	
	<u>colour of fabric</u>	black			beige	red-brown	green-yellow	
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	1	1	1	1	1	1	
2	Maximum flame height above bottom edge of the specimen	30	30	30	30	30	30	cm
3	Time <sup>1)</sup>	0:02	0:02	0:02	0:02	0:02	0:02	min:s
4	Burn through / melting Time <sup>1)</sup>	0:04	0:04	0:04	0:05	0:04	0:05	min:s
	<u>Observations on the back side of the specimen</u>							
5	Flames / Glowing Time <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
6	Change of color Time <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
7	Falling of burning droplets Start <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
	Extent	./.	./.	./.	./.	./.	./.	
8	sporadic falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
9	continuous falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	./.	./.	min:s
10	Falling of burning droplets Start <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
	Extent	./.	./.	./.	./.	./.	./.	
11	sporadic falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
12	continuous falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
13	Afterflame time at the bottom of the sieve (max.)	./.	./.	./.	./.	./.	./.	min:s
14	Impairment of the burner by dropping or falling material: Time <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
15	Premature end of test Final occurrence of burning at the specimen <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
16	Time of eventually end of test <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
17	Afterflame after end of test Time <sup>1)</sup>	./.	./.	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	./.	./.	
19	Front side of specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
20	Back side of specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	./.	./.	cm

line no.	Measurement	Result with the tested specimen						Dim.
	Test number	#8643	#8644	#8645	#1759	#1760	#4291	
	flamed direction	warp	warp	weft	warp	warp	weft	
	flamed side	A	B	B	A	A	A	
22	<u>Afterglow after end of test</u>	./.	./.	./.	./.	./.	./.	min:s
	Time <sup>1)</sup>	./.	./.	./.	./.	./.	./.	
23	Number of specimen	./.	./.	./.	./.	./.	./.	
	<u>Place of appearance</u>	./.	./.	./.	./.	./.	./.	
24	Lower half of the specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
25	Upper half of the specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
26	Front side of specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
27	Back side of specimen <sup>2)</sup>	./.	./.	./.	./.	./.	./.	
28	<u>Density of smoke</u>							
	≤ 400 % * min	1	1	2	1	1	1	% * min
29	> 400 % * min <sup>4)</sup>	./.	./.	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	4	5	6	
31	<u>Residual lengths: individual value <sup>3)</sup></u>							
	Specimen 1	67	63	68	64	62	67	cm
	Specimen 2	66	65	62	67	64	61	cm
	Specimen 3	67	68	68	72	62	61	cm
	Specimen 4	65	64	66	69	59	70	cm
32	<u>Average value, individual test <sup>3)</sup></u>	<b>66</b>	<b>65</b>	<b>66</b>	<b>68</b>	<b>62</b>	<b>65</b>	
33	<u>Photo of specimen in enclosure no.</u>	1	2	3	4	5	6	
34	<u>Flue gas temperature</u>	118	117	119	111	114	118	°C
35	Maximum of average value Time <sup>1)</sup>	09:57	09:54	09:48	10:00	09:54	09:52	min:s
36	Diagram: encl. no.	1	2	3	4	5	6	
37	Remarks: - none -							

<sup>1)</sup> indication of times: from the begin of testing procedure

<sup>2)</sup> checked off if applicable

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

<sup>4)</sup> very strong development of smoke



## 6. Explanations concerning the testing procedure

There were no additional tests proceeded because of the residual length of  $\geq$  than 45 cm.

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

line no.	measurement	Result with the tested specimen						Dim.
	test-no.	#8643	#8644	#8645	#1759	#1760	#4291	
	flamed direction flamed side	warp A	warp B	weft B	warp A	warp A	weft A	
	colour of fabric	black			beige	red-brown	green-yellow	
1	residual length	66	65	66	68	62	65	cm
2	max. smoke temperature	118	117	119	111	114	118	°C
3	density of smoke - integral	1	1	2	1	1	1	%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 7 - 10).

## 8. Special remarks

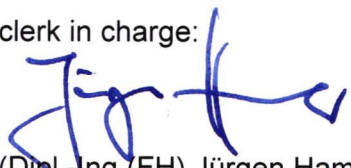
- This report is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or grounds etc. the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions, washing or cleaning with chemicals.
- 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, 14.07.2021

clerk in charge:

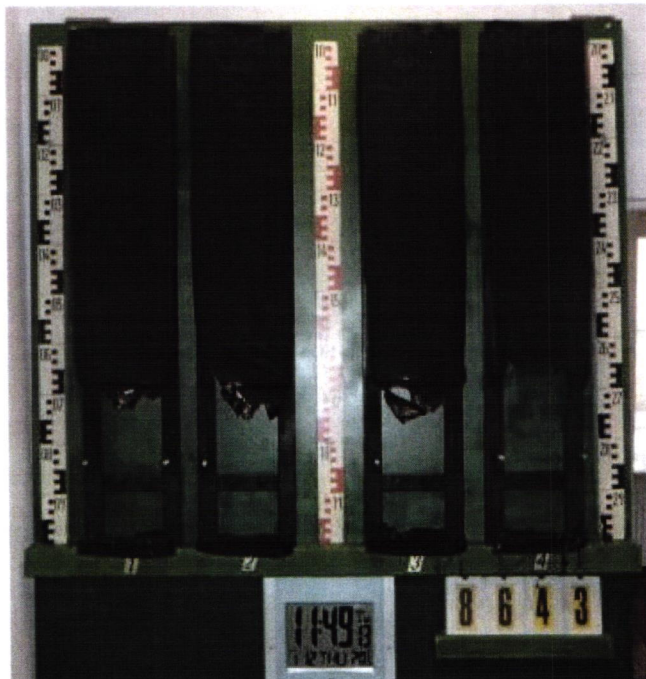
  
(Dipl.-Ing.(FH) Jürgen Hammer)



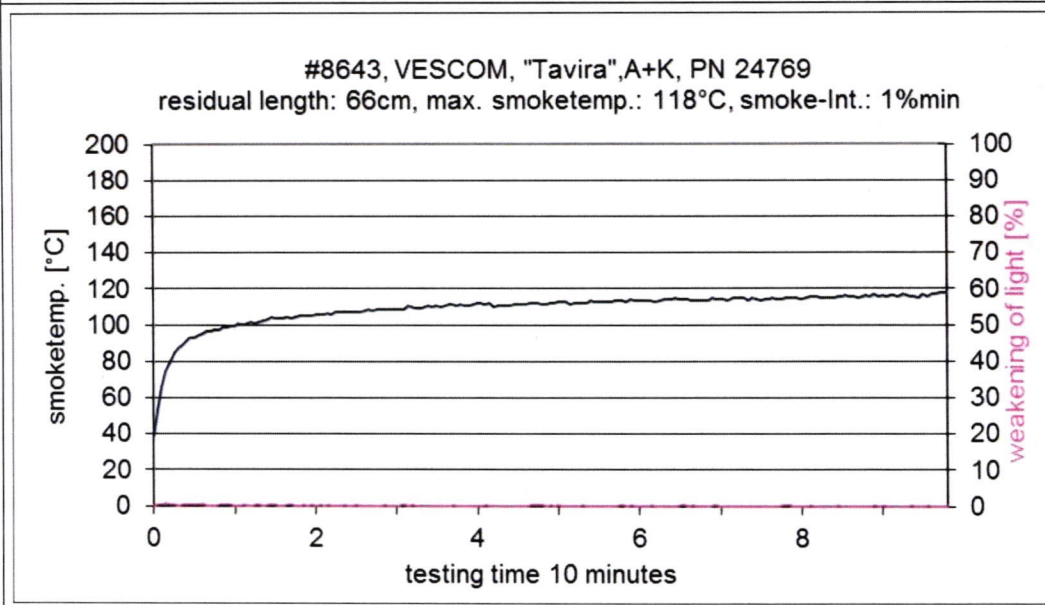
Head of the test laboratory:

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

**„Brandschacht“-test #8643**

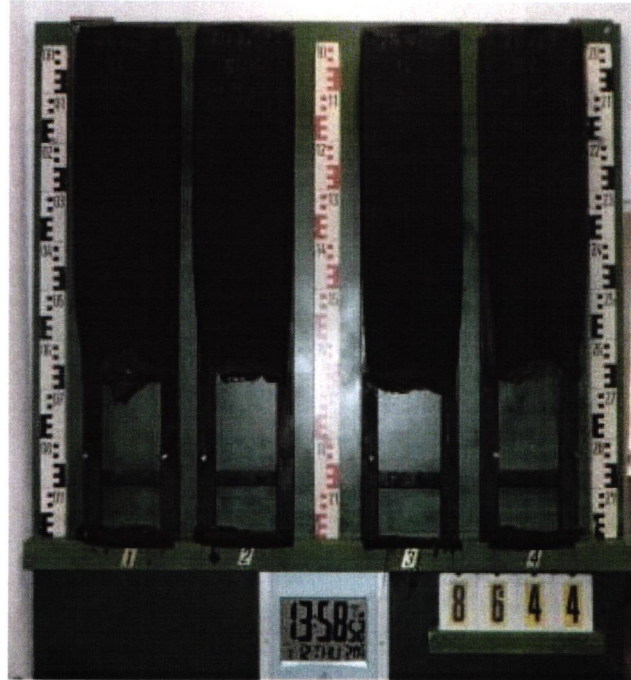


**measurement**

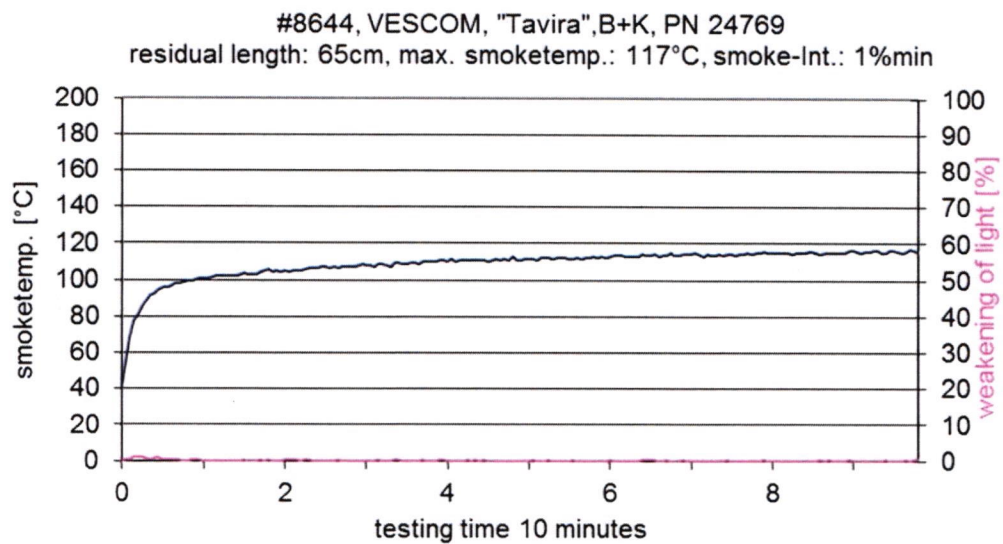




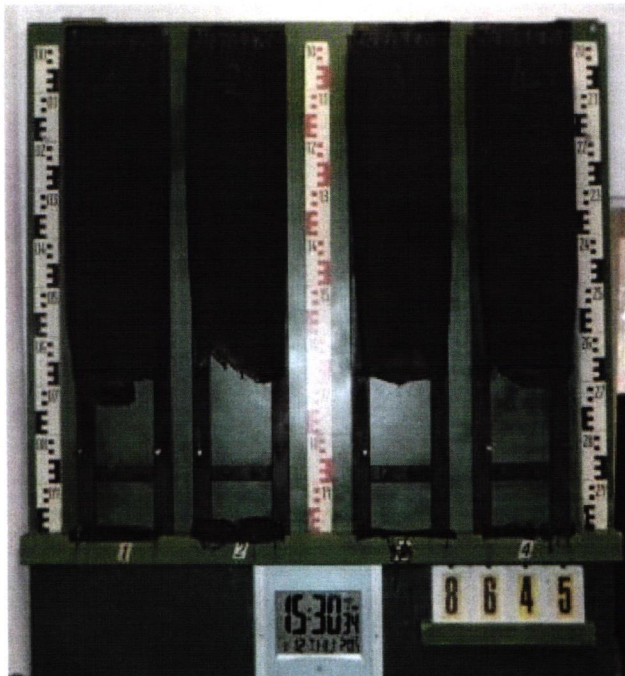
**„Brandschacht“-test #8644**



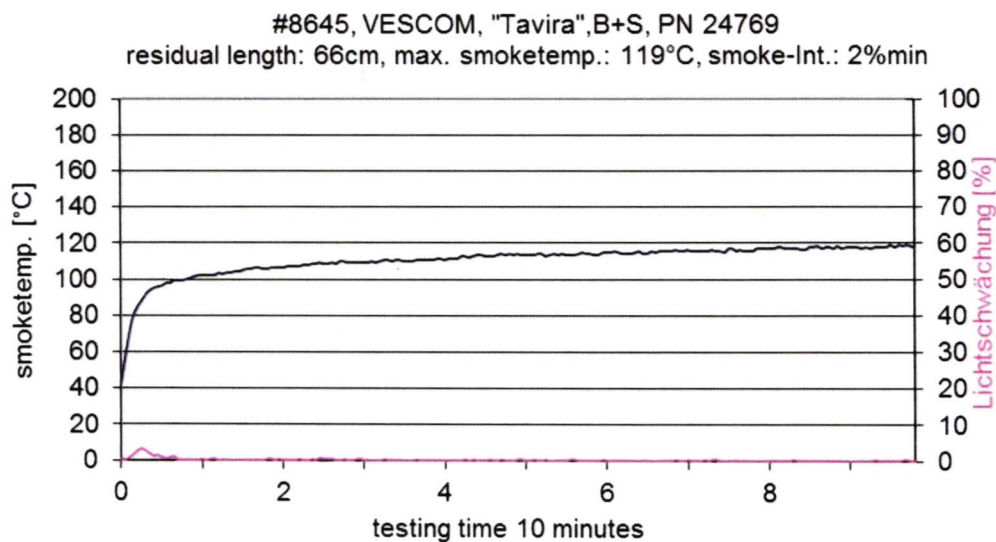
**measurement**



**„Brandschacht“-test #8645**



**measurement**





**„Brandschacht“-test #1759**

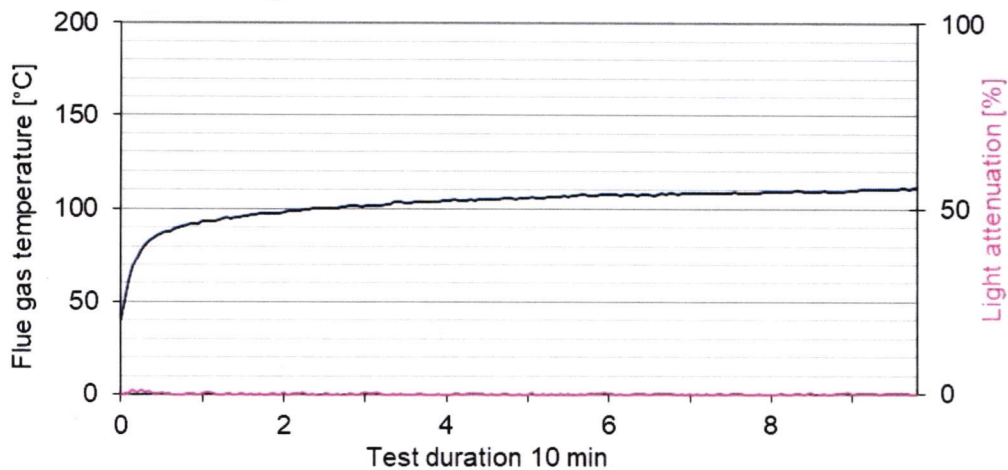


**measurement**

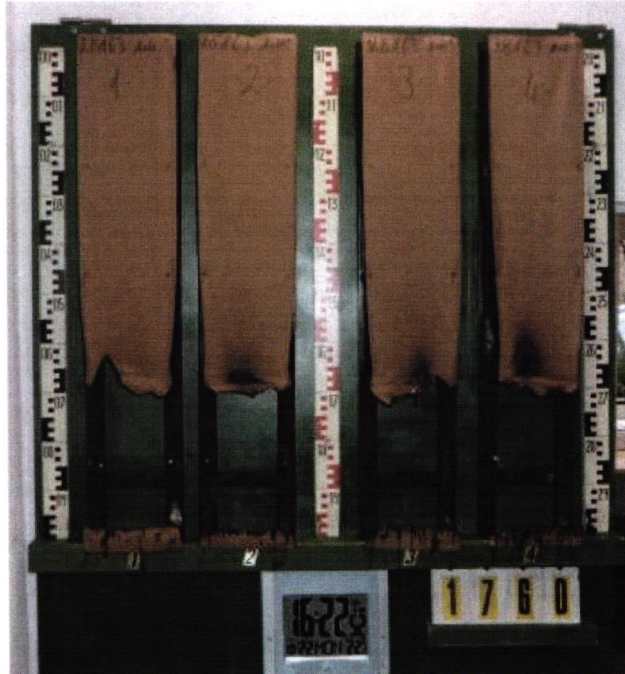
**#1759, PN28162: VESCOM, "Tavira", A+K**

Max. flue temperature: 111°C, Smoke density integral: 1%/min

Residual length: 68 cm



**„Brandschacht“-test #1760**

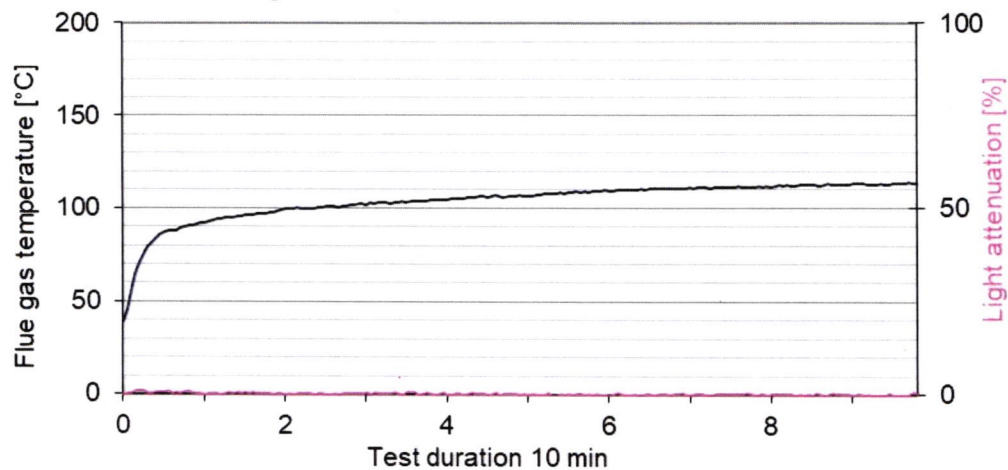


**measurement**

**#1760, PN28163: VESCOM, "Tavira", A+K**

Max. flue temperature: 114°C, Smoke density integral: 1%/min

Residual length: 62 cm





**„Brandschacht“-test #4291**

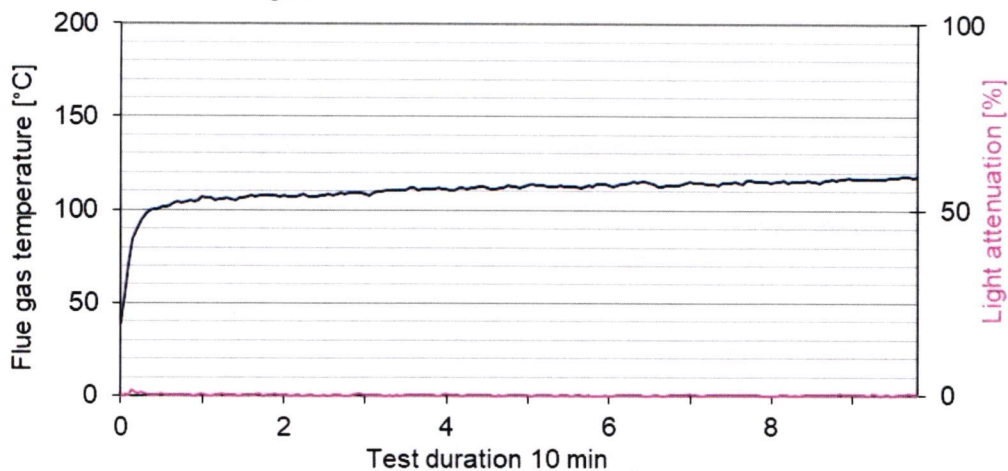


**measurement**

**#4291, PN32734: VESCOM, "Tavira", A+S**

Max. flue temperature: 118°C, Smoke density integral: 1%/min

Residual length: 65 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 / side A and side B
4. Date of test CW 02 in 2017 and CW 43 in 2018 and CW 09 2021
5. Results

PN 24769: flaming side B in warp direction	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	1	1	--	2	--	--	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
max. flame height	5	3	4	5	5	--	4	--	--	--	--	--	cm
time	13	3	5	4	7	--	6	--	--	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	14	4	7	5	8	--	9	--	--	--	--	--	s
end of glowing <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	
smoke development (visual)	little						little						./.
dropping of burning material during 20 s <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
Appearance after test: burned out till max. height 4,5 cm x width 1,8 cm													

PN 24769: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	--	--	--	2	2	2	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
max. flame height	3	4	4	--	--	--	2	3	2	--	--	--	cm
time	4	3	4	--	--	--	6	5	7	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	6	5	5	--	--	--	8	8	9	--	--	--	s
end of glowing <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
smoke development (visual)	little						little						
dropping of burning material during 20 s <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
Appearance after test: burned out till max. height 4,5cm x width 1,8cm													

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



PN 28162: flaming side B in weft direction		edge-test						surface-test						Dim
samples no.		1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>		1	1	1	1	1	--	3	--	--	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>		-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
max. flame height		11	12	12	11	10	--	7	--	--	--	--	--	cm
time		13	15	15	15	15	--	12	--	--	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>		15	27	18	21	16	--	23	--	--	--	--	--	s
end of glowing <sup>1)</sup>		-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>		-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	
smoke development (visual)		moderate						moderate						./.
dropping of burning material during 20 s <sup>1)</sup>		-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
Appearance after test: burned out till max. height 9 cm x width 2 cm														

PN 28162: additional tests		edge-test						surface-test						Dim
samples no.		1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>		1	1	1	--	--	--	3	3	3	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>		-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
max. flame height		5	5	10	--	--	--	6	8	6	--	--	--	cm
time		6	6	12	--	--	--	10	10	10	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>		7	7	15	--	--	--	15	13	15	--	--	--	s
end of glowing <sup>1)</sup>		-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
flames were extinguished after <sup>1)</sup>		-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
smoke development (visual)		moderate						moderate						
dropping of burning material during 20 s <sup>1)</sup>		-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
Appearance after test: burned out till max. height 9cm x width 2cm														

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

PN 28163: flaming side A in weft direction	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	1	1	--	3	--	--	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
max. flame height	10	8	11	6	7	--	4	--	--	--	--	--	cm
time	10	15	12	15	20	--	10	--	--	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	15	15	16	16	26	--	15	--	--	--	--	--	s
end of glowing <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	
smoke development (visual)	moderate						moderate						./.
dropping of burning material during 20 s <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
Appearance after test: burned out till max. height 7 cm x width 2,5 cm													

PN 28163: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	--	--	--	3	3	3	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
max. flame height	7	7	6	--	--	--	5	7	7	--	--	--	cm
time	5	5	7	--	--	--	10	11	10	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	10	10	10	--	--	--	15	14	20	--	--	--	s
end of glowing <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
smoke development (visual)	moderate						moderate						
dropping of burning material during 20 s <sup>1)</sup>	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
Appearance after test: burned out till max. height 7cm x width 2,5cm													

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

PN 32734: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	1	--	--	3	3	3	3	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
max. flame height	3	5	4	5	--	--	4	4	4	4	--	--	cm
time	4	8	4	5	--	--	6	7	6	6	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	5	9	5	6	--	--	7	8	7	7	--	--	s
end of glowing <sup>1)</sup>	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
smoke development (visual)	little						little						
dropping of burning material during 20 s <sup>1)</sup>	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
Appearance after test: burned out till max. height 4cm x width 2cm													

<sup>1)</sup> time mentioned from the beginning of the test <sup>2)</sup> 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.