

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

Reference: FLT 3390012 (Translation of the German test report - no guarantee for translation of technical terms)

Company: Neschen AG
Hans-Neschen-Straße 1
D - 31675 Bückeburg

Ordered: 2009-12-01 **Arrived:** 2009-12-03

Description of samples: On one side coated polyester fabrics to be used as advertising space, for trade fair constructions or for decoration purposes, named:
"UVtex artist premium light", "UVtex artist eco II",
"UVtex artist premium heavy" and
"UVtex artist canvas".
(for details see page 2)

Delivered: 2009-12-03

Content of request: Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1

Assessment: The examined products meets the requirements of class B1 for "schwerentflammbare" (hardly 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 report: 2015-01-31

Sampling: By the company itself.

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 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 includes 5 pages and 5 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This test report must not be published and copied preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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.



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Notified Body no.: 1507

TEST REPORT



1 Description of test material in condition as delivered (according to the manufacturer)

The materials provided are polyester fabrics (100%) in various grammages with a printable coated side ("Inkjet Coating"). The fabrics are intended to be used indoor for advertising purposes, in trade fair constructions or as decoration material. The fabrics were labelled:

"UVtex artist premium light",

"UVtex artist eco II",

"UVtex artist premium heavy" (Typ 1),

"UVtex artist premium heavy" (Typ 2) and

"UVtex artist canvas"

For the tests the laboratory received samples of app. 10m² each, they were delivered plain without printing.

Colour: white; characteristic values: see paragraph 4.1; photos: see enclosure 1.

Other specifications are not known by the laboratory, samples are stored.

2 Preparation of samples

For the fire shaft test ("Brandschacht") 2 specimen each were prepared. The samples (dimensions 1000 mm x 190 mm) of test specimen A and C were cut in machine direction, the samples for the test specimens B and D were cut in cross direction.

For the small burner test ("Brennkasten") in each case 5 samples for edge exposure (dimensions 190 mm x 90 mm) and 1 sample for surface exposure (dimensions 230 mm x 90 mm) were cut in machine- and cross direction of the material.

Afterwards all samples 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 test ("Brandschacht") have been performed acc. DIN 4102-1 and -16 (building materials class B1); arrangement of all samples: freely suspended.

The tests for the small burner test ("Brennkasten") have been performed acc. DIN 4102-1, chapter 6.2.4.2 (building materials class B2); arrangement of all samples: freely suspended.

Examination period: January 2010

4 Results

- Table 1 Material characteristics
- Table 2 Test results class B2 (enclosure 3-5)
- Table 3 Test results class B1

4.1 Material characteristics

Table 1

Name	Specifications by manufacturer		Measured values		
	thickness (mm)	mass / unit (g/m ²)	mass / unit (g/m ²)	thickness (mm)	thickness (s) (mm)
UVtex artist premium light	-	170	161	0,28	0,003
UVtex artist eco II	-	170	209	0,34	0,003
UVtex artist premium heavy 'Typ 1'	-	260	250	0,39	0,003
UVtex artist premium heavy 'Typ 2'	-	260	255	0,38	0,003
UVtex artist canvas	-	345	333	0,61	0,003

m.v. mean value

- not received/not measured

s standard deviation

4.2 Results of the fire behaviour

4.2.1 Test results class B2 (Brennkasten)

(Details: see enclosure 3-5)



4.2.2 Test results class B1 (Brandschacht)

Table 3

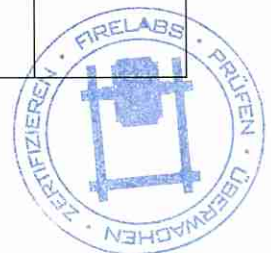
Test results "Brandschachtprüfung" (part 1)						
line no.	Measurement	Test results				requirements
		A	B	C	D	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	1	1	1	1	
2	<u>Maximal flame height</u> above bottom edge cm	30	30	30	30	*)
3	Time ¹⁾ min	1	1	1	1	
4	<u>Burning / melting through</u> Time ¹⁾min	1	1	1	1	
5	<u>Back side of the specimens:</u> Flames / glowing Time ¹⁾min:s	./.	./.	./.	./.	
6	Discolouring Time ¹⁾min:s	./.	./.	./.	./.	
7	<u>Falling of burning droplets</u> Begin ¹⁾min:s	No	No	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	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	No	No	No	No	
15	<u>Premature end of test</u> Final occurrence of burning at the specimen ¹⁾min	No	No	No	No	
16	Time of eventually end of test ¹⁾min:s	3	3	3	3	

¹⁾ Indication of time: from the beginning of testing procedure

- Not tested

./. Not occurred

*) No cause for complaint



Test results (part 1)						
line no.	Measurement	Test results				requirements
		A	B	C	D	
17	<u>Afterflame after end of test</u> Timemin:s	No	No	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	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	2,4	1,8	1,0	1,3	
29	≥ 400 % min (very strong smoke density)					
30	Diagram fig. no.	1	3	5	7	
31	<u>Residual length</u> Individual valuecm	60 59 58 64	66 63 65 66	64 65 66 68	64 62 62 63	> 0
32	Average valuecm	60	65	65	62	≥15
33	Photo of the test specimen fig. no.	2	4	6	8	
34	<u>Flue gas temperature</u> Maximum of average value...°C	113	123	116	114	≤ 200
35	Time ¹⁾min:s	9:12	9:24	9:58	6:10	
36	Diagram fig. no.	1	3	5	7	
37	<u>Remarks:</u> line 32: There were no additional tests proceeded, because of the remaining residual length of more then 45 cm.					

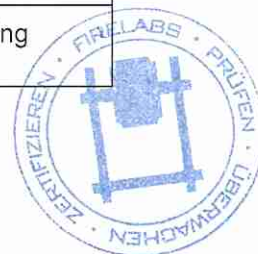
¹⁾ indication of time: from the beginning of testing procedure

- not tested

./. not occurred

*) no cause for complaint

VN test-number



Test specimen A: UVtex artist premium light – samples in machine direction: VN 273509-001

Test specimen B: UVtex artist premium light - samples in cross direction: VN 273509-002

Test specimen C: UVtex artist canvas - samples in machine direction: VN 273809-001

Test specimen D: UVtex artist canvas - samples in cross direction: VN 273809-002

5 Assessment

In section 4.2 the results from testing of the material describes in section 1 were compared with the requirements mentioned in DIN 4102-1. The material tested, named as:

“UVtex artist premium light“,

“UVtex artist eco II“,

“UVtex artist premium heavy“ (Typ 1),

“UVtex artist premium heavy“ (Typ 2) and

“UVtex artist canvas“

with a grammage of 161-333 g/m², fulfils the requirements of not easily flammable building materials 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 flammable building materials class B2 are also fulfilled, no falling of burning parts or droplets occurred during these tests.

This test report is not valid for

- the exposure to outdoor climate conditions
- washing or cleaning with chemicals.

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.

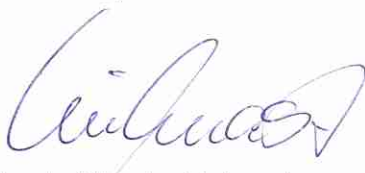
In General Building Inspectorates procedures this test report can be based for

- 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 the date mentioned on page 1, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 23rd of March 2012



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



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

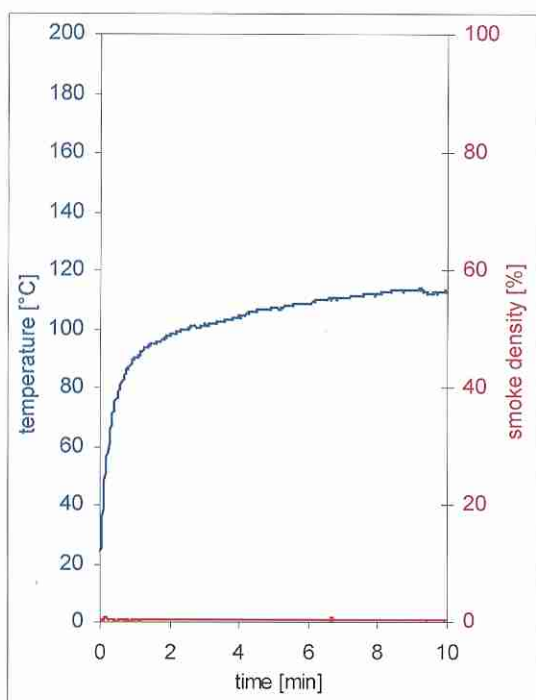
Test specimen A

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

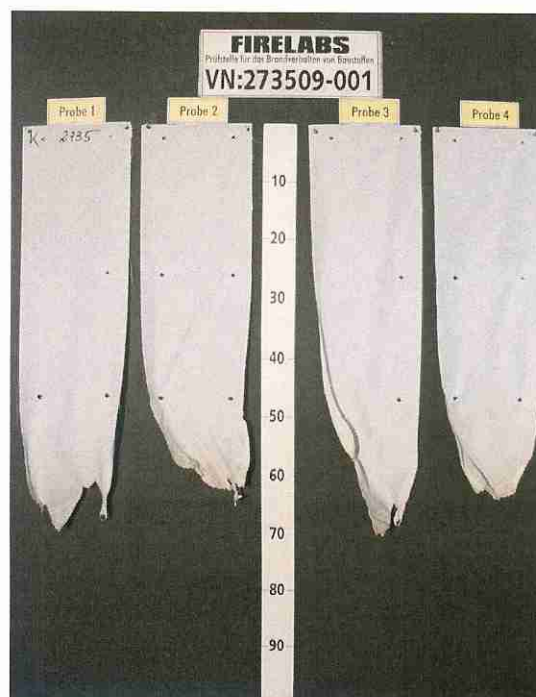


fig. 2
Photo of the test specimen after the test

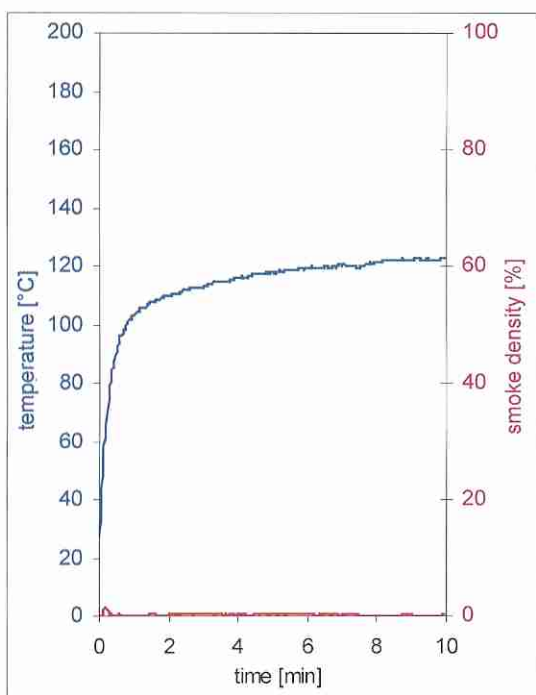
Test specimen B

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

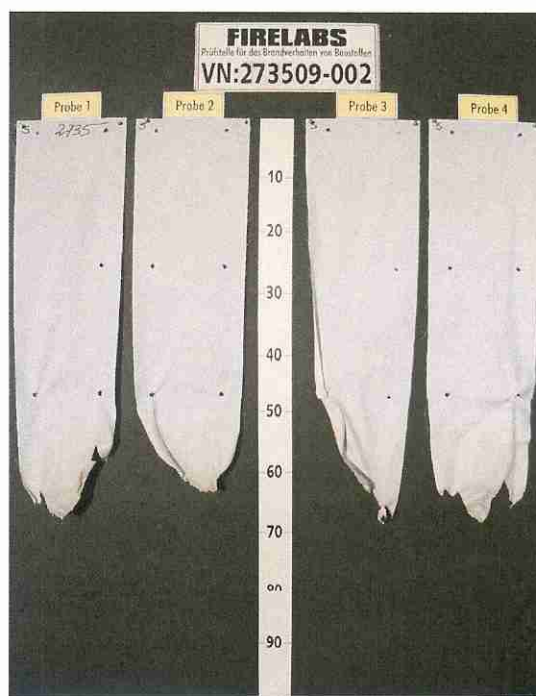


fig. 4
Photo of the test specimen after the test



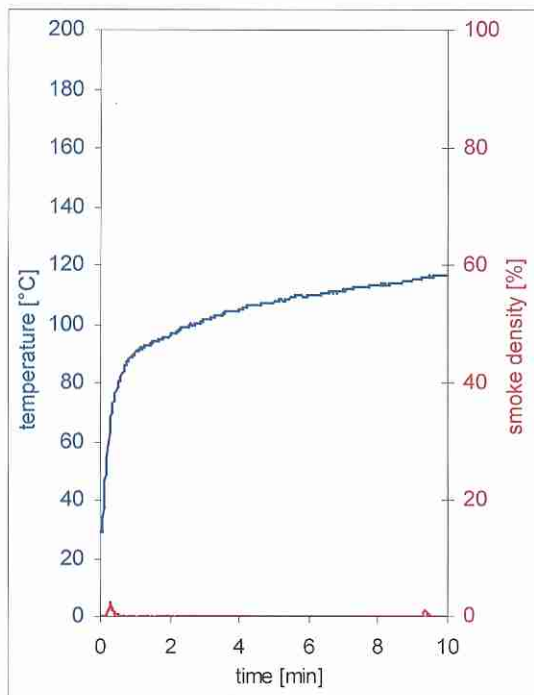
Test specimen C

fig. 5
Graphs of the flue gas temperature and the smoke density

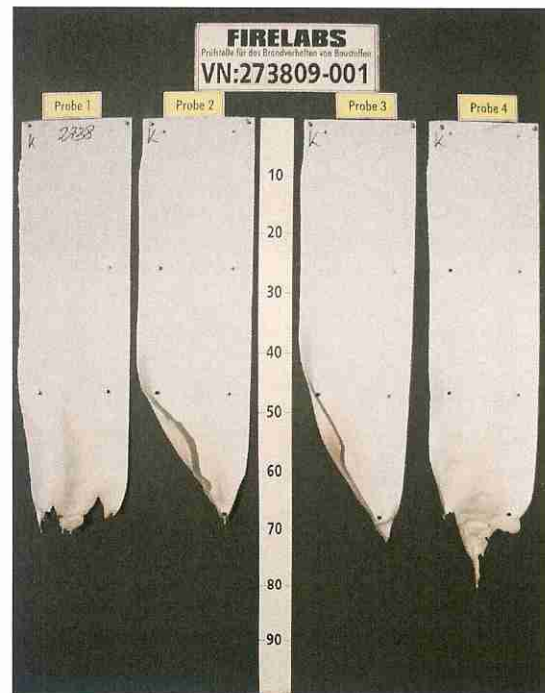


fig. 6
Photo of the test specimen after the test

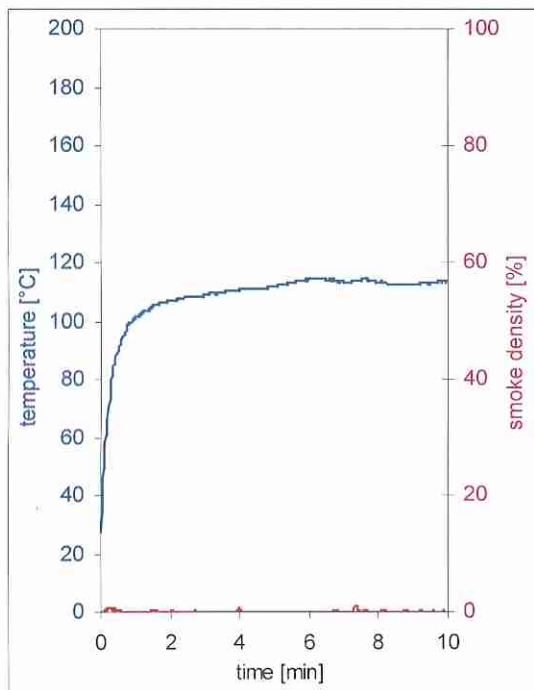
Test specimen D

fig. 7
Graphs of the flue gas temperature and the smoke density

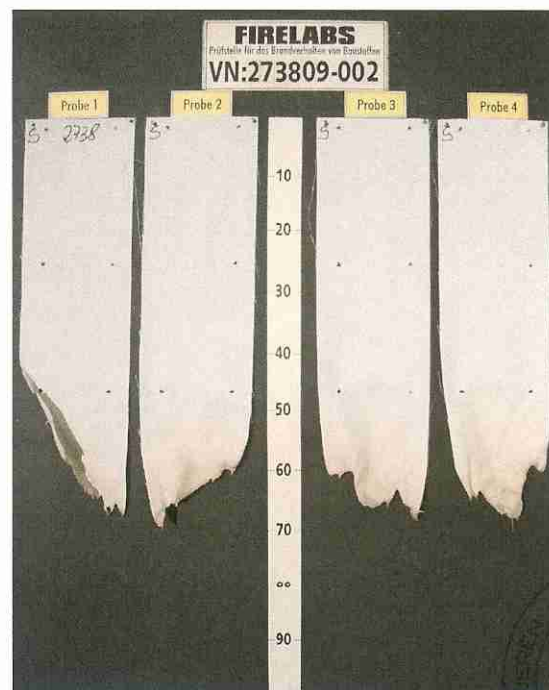


fig. 8
Photo of the test specimen after the test



Test results small burner test (Brennkasten):

According DIN 4102-1, all building materials must also meet the requirements of building material 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 this testing.

Table 2.1 - article "UVtex artist premium light"

	machine direction						cross direction						dim.	requirements
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	1	1	1	1	3	1	1	1	1	1	2	s	-
Maximum flame height	3	2	3	3	2	1	3	3	2	2	2	3	cm	-
Time of the maximum	5	3	4	4	3	4	3	3	3	3	3	4	s	
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching the test mark	6	4	4	5	4	5	4	3	3	4	3	5	s	
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density	very little						very little						-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: Warp and weft direction: After testing (20 seconds after exposure to the flame) the samples showed a destroyed length of max. 7 cm, width max. 1 cm (melted, partly sintered)														

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

Samples 1-5: edge exposure ; Samples 6: surface exposure

Table 2.2: article "UVtex artist eco II"

	machine direction						cross direction						dim.	requirements
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	1	1	1	1	3	1	1	1	1	2	3	s	-
Maximum flame height	6	8	8	5	4	6	7	6	7	4	10	6	cm	-
Time of the maximum	7	11	9	5	5	7	7	7	8	6	7	8	s	
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching the test mark	8	12	14	6	5	9	8	7	9	7	16	9	s	
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density	moderate						moderate						-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: Warp and weft direction: After testing (20 seconds after flame exposure) the samples showed a de-destroyed length of max. 8 cm, width max. 4 cm (melted, partly sintered); sooted up to specimen upper edge.														

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

Samples 1-5: edge exposure ; Samples 6: surface exposure



Table 2.3 - article "UVtex artist premium heavy" (Typ 1)

	machine direction						cross direction						dim.	requirements
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	1	1	1	1	4	1	1	1	1	1	4	s	-
Maximum flame height	11	8	11	9	10	10	4	6	7	6	5	5	cm	-
Time of the maximum	13	10	12	14	13	14	7	6	8	5	6	10	s	
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching the test mark	17	30	19	20	22	22	8	7	9	6	7	11	s	
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density	moderate						moderate						-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: Warp and weft direction: After testing (20 seconds after exposure to the flame) the samples showed a destroyed length of max. 10 cm, width max. 2 cm (melted, partly sintered)														

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

Samples 1-5: edge exposure ; Samples 6: surface exposure

Table 2.4: article "UVtex artist premium heavy" (Typ 2)

	machine direction						cross direction						dim.	requirements
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	3	5	4	3	3	1	4	4	4	4	4	s	-
Maximum flame height	3	5	4	5	4	6	4	5	6	7	5	7	cm	-
Time of the maximum	5	6	10	9	6	6	6	8	9	9	8	10	s	
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching the test mark	5	7	11	11	9	6	6	10	10	11	9	11	s	
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density	very little						very little						-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: Warp and weft direction: After testing (20 seconds after exposure to the flame) the samples showed a destroyed length of max. 8 cm, width max. 3 cm (melted, partly sintered).														

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

Samples 1-5: edge exposure ; Samples 6: surface exposure



Table 2.5 - article "UVtex artist canvas"

	machine direction						cross direction						dim.	requirements
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	2	2	2	1	2	7	2	2	2	2	2	5	s	-
Maximum flame height	5	6	4	6	5	3	4	3	4	4	4	4	cm	-
Time of the maximum	9	6	7	9	8	14	7	6	7	6	7	7	s	-
Flame tip reached the 150 mm test mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flame has extinguished before reaching the test mark	9	7	8	10	9	15	8	7	7	7	8	9	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density	moderate						moderate						-	-
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-

View of the samples after the test:

Warp and weft direction: After testing (20 seconds after exposure to the flame) the samples showed a destroyed length of max. 5 cm, width max. 2 cm (melted, partly sintered)

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

Samples 1-5: edge exposure ; Samples 6: surface exposure

