

TEST REPORT

PZ-Hoch-170149

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	Georg+Otto Friedrich GmbH Waldstraße 73 D-64846 Groß-Zimmern
description of samples	white knitted polyester -fabric 1: area weight about 126 g/m ² -fabric 2: area weight about 337 g/m ²
name of the material	„ PES-Dekotex mit INKTeX+® FL Ausrüstung “
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	31.01.2022
result	The examined product meets <ul style="list-style-type: none">• with an area weight range of 126 g/m² until 337 g/m²• suspended freely or with distance of >40 mm to same or other plain materials the requirements of class B1 for hardly flammable (“schwerentflammbare”) building materials according to DIN 4102, pt. 1 (May 1998).

This test report includes 5 pages and 6 enclosures.

Remark: If the building material mentioned above is not used as a 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 as defined by 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 as defined by State Building Prescriptions. This has to be certified instead 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 irregular building products for the required proofs of applicability.

Without written consent of the test laboratory, this test report may only be published or duplicated during its denoted period of validity, providing that no changes to appearance or content are made.

1. Description of test material in condition as delivered

PN 24815 “PES-Dekotex mit INKTeX+® FL Ausrüstung” -light fabric-

-white knitted fabric-
side A: glossier

characteristic values determined by the test laboratory:

area weight: about 126 g/m² thickness: about 0,29 mm

PN 24816 “PES-Dekotex mit INKTeX+® FL Ausrüstung” -heavy fabric-

-white knitted fabric-
Side B: smoother

characteristic values determined by the test laboratory:

area weight: about 337 g/m² thickness: about 0,60 mm

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

2. Preparation of samples

Samples with a size of 1000 mm height and 190 mm width where cut from the material for fire testing.

The samples were kept in climate chamber 23/50 until they reached constant weight.

3. Arrangement of samples

mounting: freely suspended

#8728:	PN 24816	flaming side A in warp direction	-heavy fabric-
#8729:	PN 24816	flaming side B in warp direction	-heavy fabric-
#8730:	PN 24816	flaming side A in weft direction	-heavy fabric-
#8731:	PN 24815	flaming side B in warp direction	-light fabric-

4. Date of test CW 06 in 2017

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

line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#8728	#8729	#8730	#8731	
	flaming direction	warp	warp	weft	warp	
	side	A	B	A	B	
	Heavy / light fabric	heavy			light	
1	<u>Number of specimen arrangement</u> acc. to. DIN 4102/T15, schedule 1	1	1	1	1	
2	<u>Maximum flame height above bottom</u> edge of specimen	40	30	40	30	cm
3	Time ¹⁾	0:05	0:02	0:19	0:02	min:s
4	<u>Burn-through / melting</u> Time ¹⁾	0:04	0:04	0:04	0:02	min:s
	<u>Observations on the back side of specimen</u>					
5	Flames / Glowing Time ¹⁾	./.	./.	./.	./.	min:s
6	Change of colour Time ¹⁾	./.	./.	./.	./.	min:s
7	<u>Falling of burning droplets</u> Start ¹⁾	./.	./.	./.	./.	min:s
8	<u>Extent</u> sporadic falling of burning droplets ²⁾	./.	./.	./.	./.	
9	continuous falling of burning droplets ²⁾	./.	./.	./.	./.	min:s
10	<u>Falling of burning parts</u> Start ¹⁾	./.	./.	./.	./.	min:s
11	Extent sporadic falling of burning parts ²⁾	./.	./.	./.	./.	
12	continuous falling of burning parts ²⁾	./.	./.	./.	./.	
13	<u>Burning duration at sieve plate (max.)</u>	./.	./.	./.	./.	min:s
14	<u>Impairment of 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>Afterburning after end of test</u> Time ¹⁾	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	
19	Front side of specimen ²⁾	./.	./.	./.	./.	
20	Rear side of specimen ²⁾	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	cm

line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#8728	#8729	#8730	#8731	
	flaming direction	warp	warp	weft	warp	
	side	A	B	A	B	
	Heavy / light fabric	heavy		light		
22	<u>Afterglow after end of test</u>	./.	./.	./.	./.	min:s
	Time ¹⁾	./.	./.	./.	./.	
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	Rear side of specimen ²⁾	./.	./.	./.	./.	
	<u>Density of smoke</u>					% * min
28	≤ 400 % * min	1	1	1	1	
29	> 400 % * min ⁴⁾	./.	./.	./.	./.	
30	Diagram in enclosure no.	1	2	3	4	
	<u>Residual lengths: individual values³⁾</u>					
31	Specimen 1	72	72	70	71	cm
	Specimen 2	65	69	72	70	cm
	Specimen 3	69	75	66	68	cm
	Specimen 4	67	73	71	73	cm
32	<u>Average residual length³⁾</u>	68	72	70	71	
33	<u>Photo of specimen in enclosure no.</u>	1	2	3	4	
34	<u>Flue gas temperature</u>					°C
	Maximum of average values	123	117	122	118	
35	Time ¹⁾	9:54	09:58	09:48	09:57	
36	Diagram in enclosure no.	1	2	3	4	
37	Remarks: - none -					

¹⁾ indication of times relative to beginning of test

²⁾ checked 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

-none-

7. Summary of results and additional establishments to Fire Behaviour

lineno.	Measurement	Result with the tested specimen				dimension
	test-no.	#8728 warp side A	#8729 warp side B	#8730 weft side A	#8731 warp side B	
	heavy / light fabric	heavy			light	
1	residual length	68	72	70	71	cm
2	max. smoke temperature	123	117	122	118	°C
3	integral of smoke density	1	1	1	1	%min
4	remarks: none					

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

After performing additional tests in the ignitability apparatus, this could be verified (encl. 5 & 6).

8. Special remarks

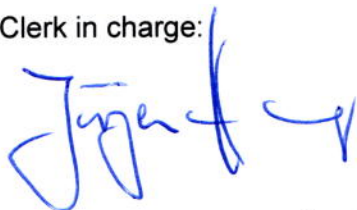
- This report is only valid for the material as described in paragraph 1. In combination with other materials or with additional coatings or primers etc., the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions, washing or cleaning with chemicals.
- This test report is not valid if the material is used as a building product in the sense of the State Building Regulations ("Landesbauordnungen", 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 used 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 denoted date on page 1. The test report becomes invalid in case the standards on which these tests are based are changed.

Fladungen, 08.02.2017

Clerk in charge:



(Dipl.-Ing. (FH) Jürgen Hammer)

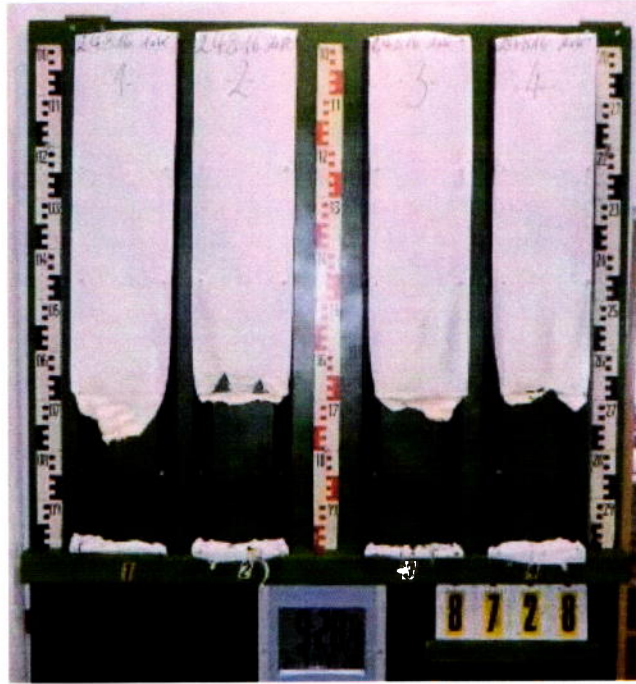


Head of test laboratory:



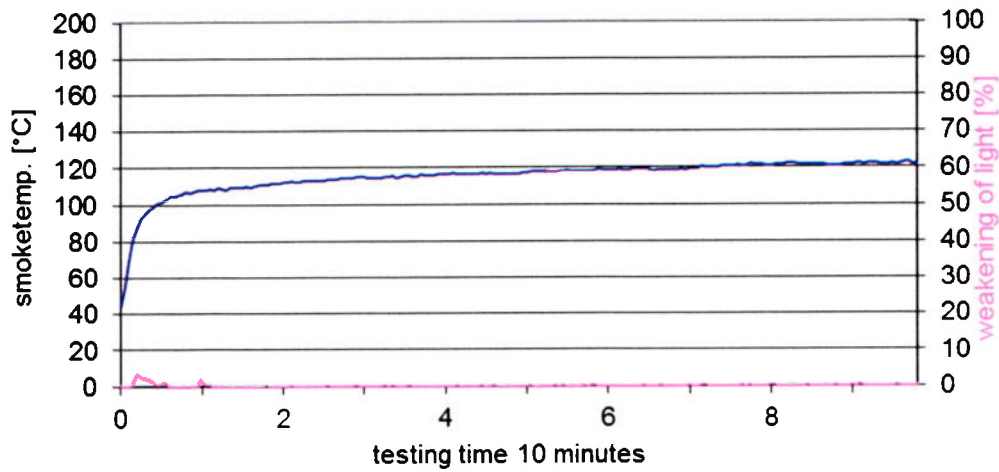
(Dipl.-Ing. (FH) Andreas Hoch)

Fire shaft test #8728

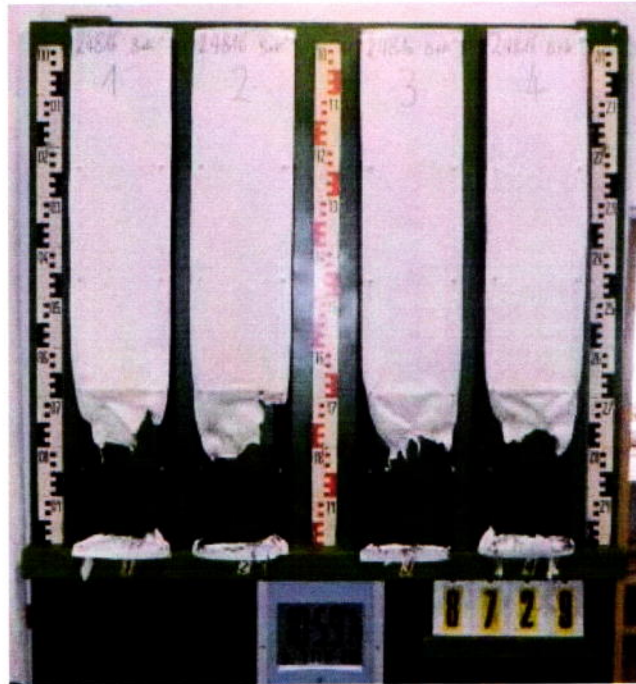


measurement

#8728, Georg+Otto Friedrich, "PES-Dekotex...", A+K, PN24816
 residual length: 68cm, max. smoketemp.: 123°C, smoke-Int.: 1%/min

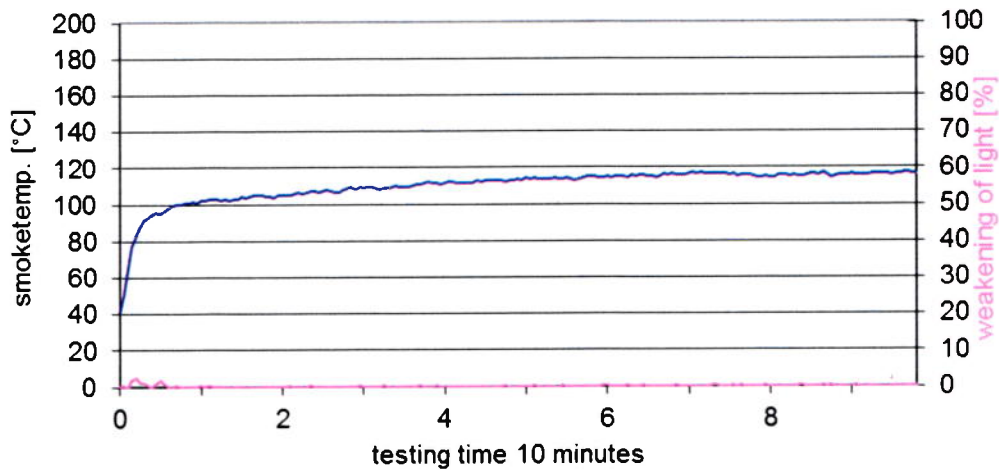


Fire shaft test #8729

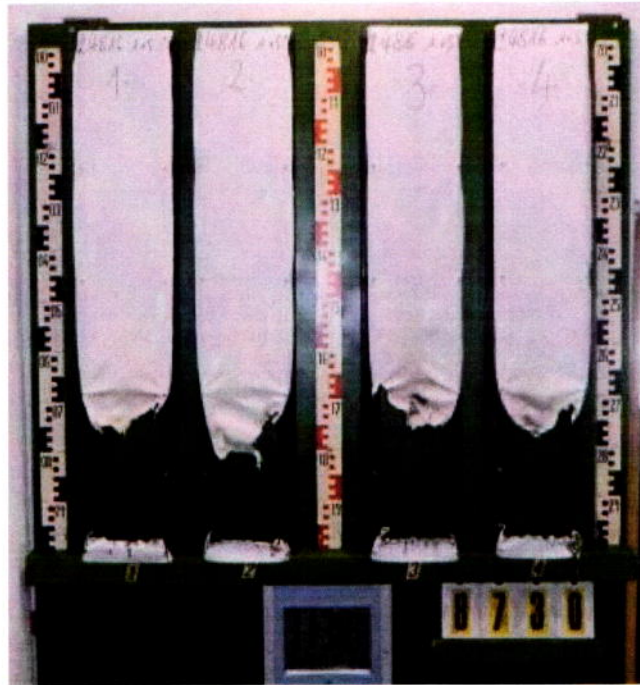


measurement

#8729, Georg+Otto Friedrich, "PES-Dekotex...", B+K, PN24816
 residual length: 72cm, max. smoketemp.: 117°C, smoke-Int.: 1%/min

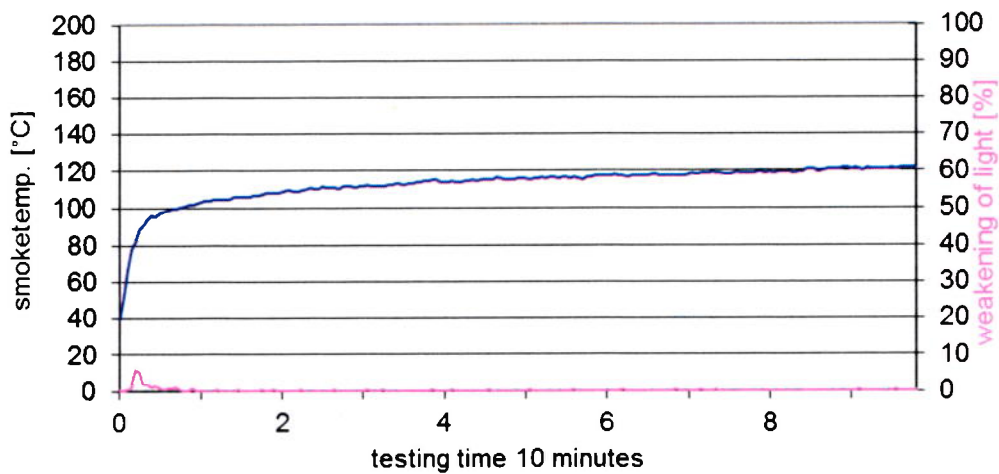


Fire shaft test #8730

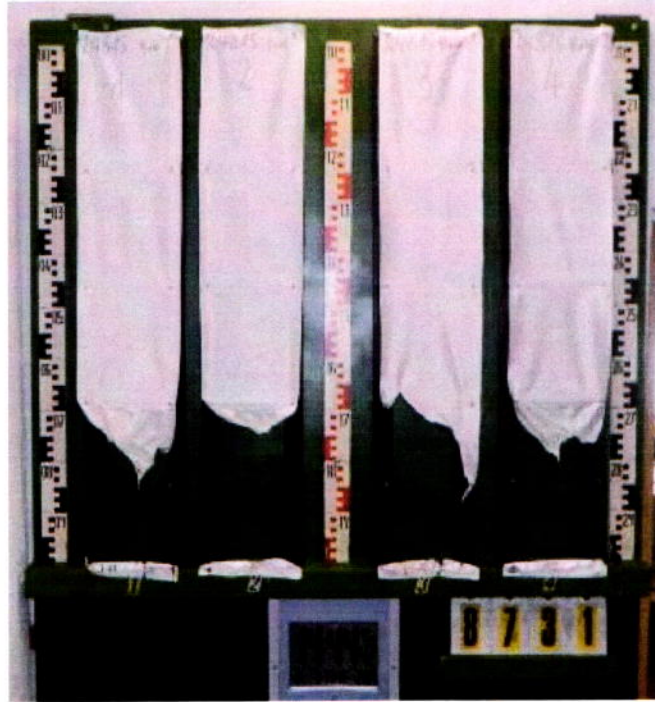


measurement

#8730, Georg+Otto Friedrich, "PES-Dekotex...", A+S, PN24816
 residual length: 70cm, max. smoketemp.: 122°C, smoke-Int.: 1%/min

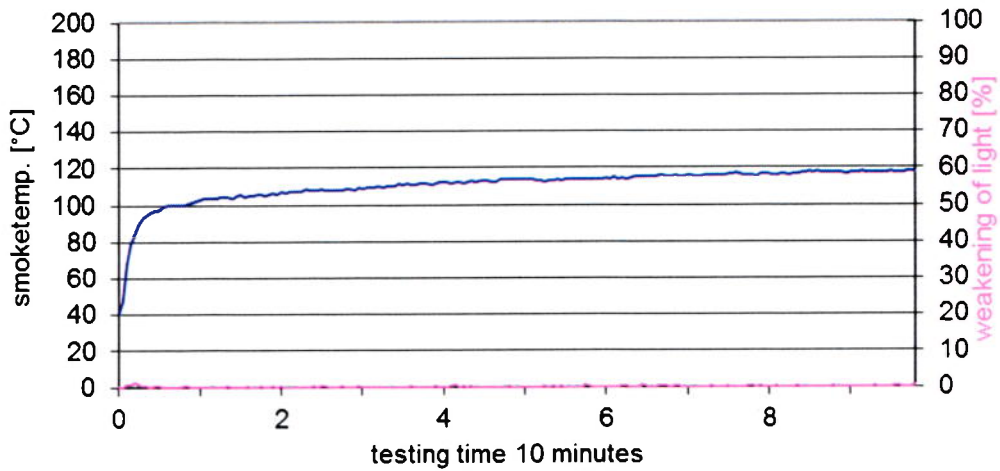


Fire shaft test #8731



measurement

#8731, Georg+Otto Friedrich, "PES-Dekotex...", B+K, PN24815
residual length: 71cm, max. smoketemp.: 118°C, smoke-Int.: 1%/min



Test for normal flammability
classifying B2 according to DIN 4102

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

2. Preparation of samples

Samples for the ignitability apparatus were cut from the sample.
 The samples were kept in a climate 23/50 until they reached constant weight.

3. Arrangement of samples freely suspended

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

4. Date of test CW 04 und CW 05 in 2017

5. Results

PN 24816: flaming side A in weft direction	edge-test						surface-test						Dim
	1	2	3	4	5	6	1	2	3	4	5	6	
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	1	1	1	1	1	--	2	--	--	--	--	--	s
measurement mark reached ¹⁾²⁾	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
maximum flame height	9	7	7	8	9	--	4	--	--	--	--	--	cm
time of max. flame height	5	6	5	7	6	--	4	--	--	--	--	--	
Self-cessation of flames end of afterburning ¹⁾	8	7	6	8	8	--	8	--	--	--	--	--	s
flames were extinguished after ¹⁾	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
smoke development (visually)	heavy						heavy						
dropping of burning material ¹⁾²⁾	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	s
Appearance after test: burned out till max. width 4 cm x height 7 cm													

PN 24816: additional tests	edge-test						surface-test						Dim
	1	2	3	4	5	6	1	2	3	4	5	6	
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	1	1	1	--	--	--	2	2	2	--	--	--	s
measurement mark reached ¹⁾²⁾	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
maximum flame height	7	7	8	--	--	--	7	7	4	--	--	--	cm
time of max. flame height	8	6	5	--	--	--	5	6	4	--	--	--	
Self-cessation of flames end of afterburning ¹⁾	16	-/-	8	--	--	--	11	10	8	--	--	--	s
flames were extinguished after ¹⁾	-/-	25	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
smoke development (visually)	heavy						heavy						
dropping of burning material ¹⁾²⁾	-/-	-/-	-/-	--	--	--	-/-	-/-	-/-	--	--	--	s
Appearance after test: burned out till max. width 4 cm x height 7 cm													

¹⁾ time denoted relative to beginning of test

²⁾ during 20 Sec

-/- no occurrence

-- no information

PN 24815: additional tests	edge-test						surface-test						Dim
	1	2	3	4	5	6	1	2	3	4	5	6	
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	1	1	1	1	--	--	2	2	2	2	--	--	s
measurement mark reached ¹⁾²⁾	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
maximum flame height	2	3	3	3	--	--	2	2	2	2	--	--	cm
time of max. flame height	2	2	2	2	--	--	2	2	2	4	--	--	
Self-cessation of flames end of afterburning ¹⁾	3	3	3	3	--	--	3	3	3	5	--	--	s
flames were extinguished after ¹⁾	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
smoke development (visually)	moderate						moderate						
dropping of burning material ¹⁾²⁾	-/-	-/-	-/-	-/-	--	--	-/-	-/-	-/-	-/-	--	--	s
Appearance after test: burned out till max. width 2 cm x height 6 cm													

¹⁾ time denoted relative to beginning of test

²⁾ during 20 Sec

-/- no occurrence

-- 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 dropping burning material.