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Hoch
Fladungen

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-140915

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	**A. Berger GmbH & Co. KG** Textilwarenfabrik Kuhleshütte 84 D-47809 Krefeld
description of samples	knitted fabric consisting of 100%polyester in 2 different variants (colour: white)
name of the material	**„4280-26 be be.tex® Display 210 FR“** **„4281-26 be be.tex® Display allround FR“**
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	31.05.2019
result	**The examined products meet 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 4 pages and 5 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.

member of EOTA
notified body no.: 1508

By the DAkkS according to DIN EN ISO/IEC 17025 accredited test laboratory.
The accreditation is valid for the testing methods specified in the certificate.

DAkkS Deutsche Akkreditierungsstelle D-PL-11005-01-00

1. Description of test material in condition as delivered

PN 19790: "4280-26 be be.tex® Display 210 FR"
knitted fabric consisting of 100% polyester / colour: white
There is no difference between side A and side B.
characteristic values determined by the test laboratory:
area weight: about 195 g/m² thickness: about 0,40 mm

PN 19792: "4281-26 be be.tex® Display allround FR"
knitted fabric consisting of 100% polyester / colour: white
There is no difference between side A and side B.
characteristic values determined by the test laboratory:
area weight: about 153 g/m² thickness: about 0,36 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

#5600:	flaming side A in warp direction	PN 19790
#5601:	flaming side B in weft direction	PN 19790
#5602:	flaming side B in weft direction	PN 19792

4. Date of test

CW 29 2014

5. Results

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

line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#5600	#5601	#5602	---	
	flaming direction / side	warp / A	weft / B	weft / B	---	
	sample-No:	PN 19790		PN 19792		
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	1	1	1	---	
2	Maximum flame height above bottom edge of the specimen	30	30	30		cm
3	Time [1]	0:02	0:02	0:02	---	min:s
4	Burn through / melting Time [1]	0:03	0:03	0:03	---	min:s
5	Observations on the back side of the specimen Flames / Glowing	./.	./.	./.	./.	
	Time [1]	./.	./.	./.	./.	min:s
6	Change of color Time [1]	./.	./.	./.	./.	min:s
7	Falling of burning droplets Start [1]	./.	./.	./.	./.	min:s
8	Extent sporatic falling of burning droplets [2]	./.	./.	./.	./.	
9	continuous falling of burning droplets [2]	./.	./.	./.	./.	min:s

line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#5600	#5601	#5602	---	
	flaming direction / side	warp / A	weft / B	weft / B	---	
	Falling of burning droplets					
10	Start [1]	./.	./.	./.	./.	min:s
	Extent					
11	sporatic falling of burning droplets [2]	./.	./.	./.	./.	
12	continuous falling of burning droplets [2]	./.	./.	./.	./.	
13	Afterflame time at the bottom of the sieve (max.)	0:11	0:05	./.	./.	min:s
	Impairment of the burner by dropping or falling material:					
14	Time [1]	./.	./.	./.	./.	min:s
	Premature end of test					
15	Final occurance of burning at the specimen [1]	./.	./.	./.	./.	min:s
16	Time of eventually end of test [1]	./.	./.	./.	./.	min:s
	Afterflame after end of test					
17	Time [1]	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	
19	Front side of specimen [2]	./.	./.	./.	./.	
20	Back side of specimen [2]	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	cm
	Afterglow after end of test	./.	./.	./.	./.	
22	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]	./.	./.	./.	./.	
	Density of smoke					
28	≤ 400 % * min	2	1	3	---	% * min
29	> 400 % * min [4]	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	---	
	Residual lengths: individual value [3]					
31	Specimen 1	74	67	68	---	cm
	Specimen 2	68	64	68	---	cm
	Specimen 3	73	59	73	---	cm
	Specimen 4	75	73	71	---	cm
32	Average value, individual test [3]	**73**	**66**	**70**	---	
33	Photo of specimen in enclosure no.	1	2	3	---	
34	Flue gas temperature	111	113	115	---	°C
35	Maximum of average value Time [1]	09:42	09:57	09:02	---	min:s
36	Diagram: encl. no.	1	2	3	---	
37	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 no additional tests proceeded because of the residual length of more than 45 cm.

7. Summary of results and additional establishments to Fire Behaviour

lineno.	measurement / test-no.	Result with the tested specimen				dimension
		#5600 warp / A	#5601 weft / B	#5602 weft / B	---	
	sample-No:	PN 19790		PN 19792		
1	residual length	73	66	70	---	cm
2	max. smoke temperature	**111**	**113**	**115**	---	°C
3	density of smoke - integral	2	1	3	---	%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 4 & 5).

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, 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, 31.07.2014

clerk in charge:

(Dipl.-Ing. (FH) Jürgen Hammer)

ANERKANNTE PRÜF-, ÜBERWACHUNGS- UND ZERTIFIZIERUNGSSTELLE Hoch Fladungen

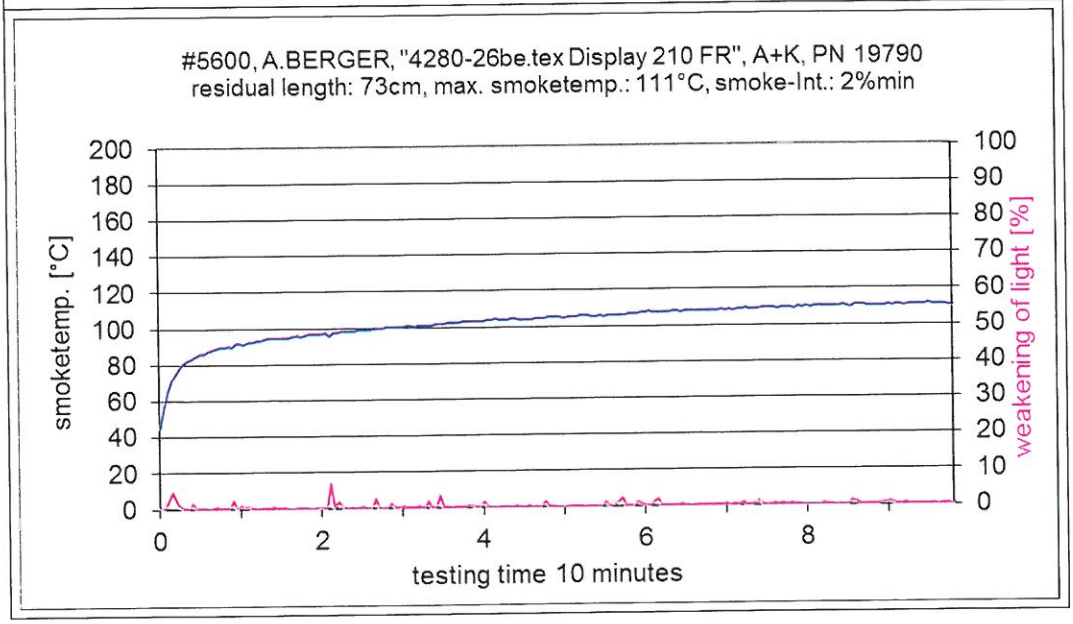
Head of the test laboratory:

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

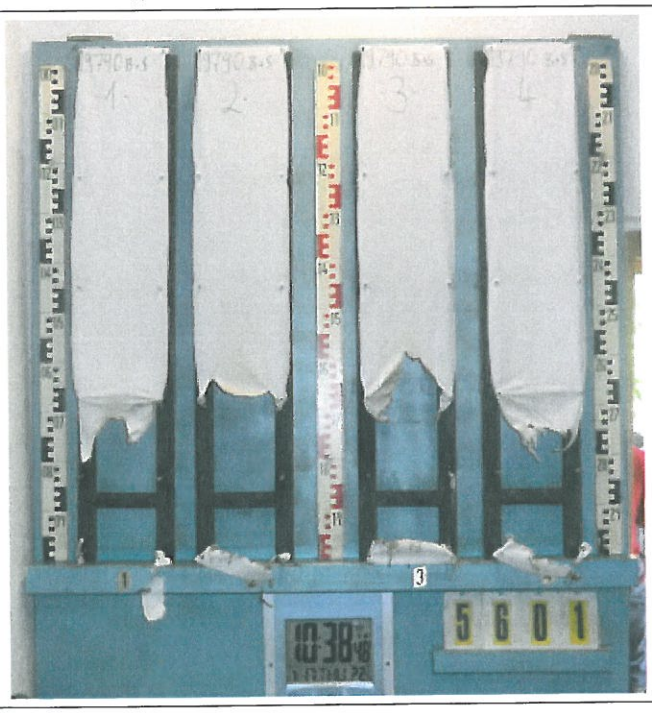
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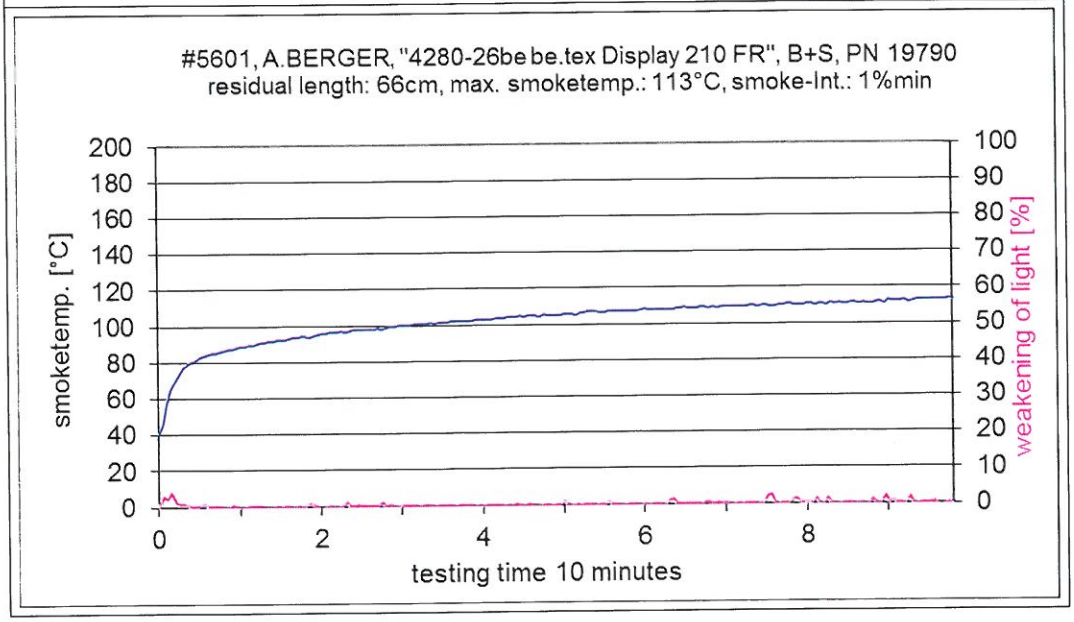
measurement



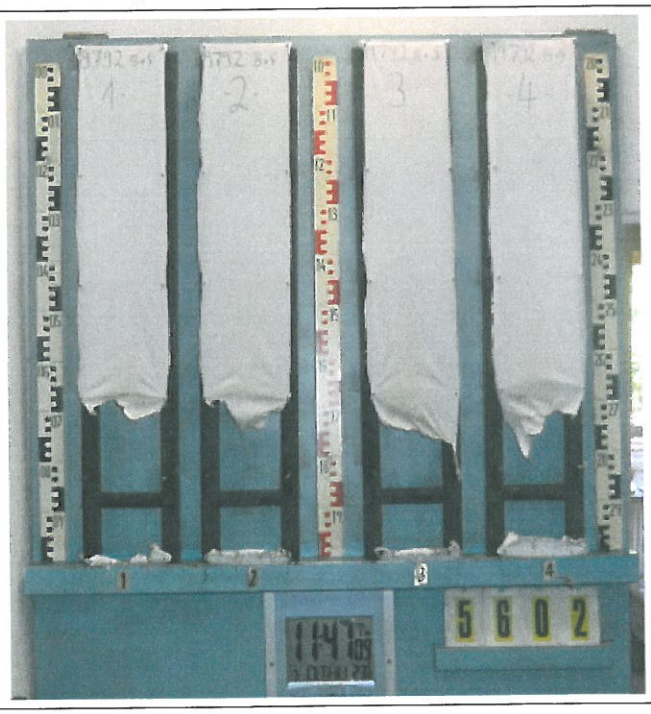
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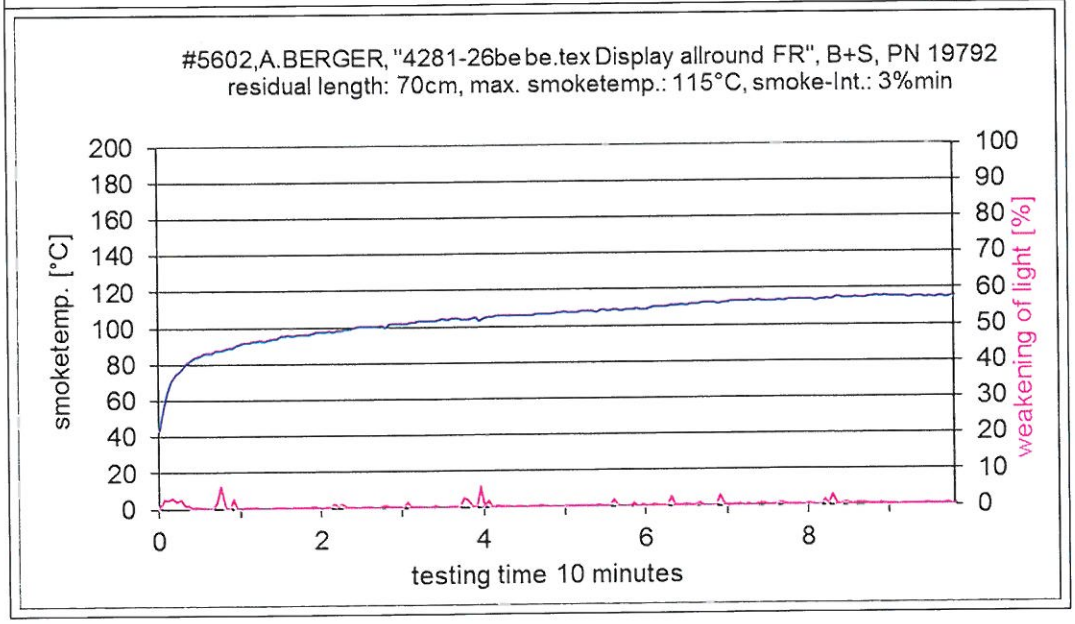
measurement



„Brandschacht"-test #5602



measurement



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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 29 in 2014
5. Results

PN 19792: flaming side B in warp	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	10	10	12	11	--	11	--	--	--	--	--	cm
time	17	15	17	19	18	--	11	--	--	--	--	--	
self cessation of the flames end of afterflame[1)]	20	17	20	20	21	--	13	--	--	--	--	--	s
end of glowing[1)]	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
flames were extinguished after[1)]	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
smoke development (visual)	heavy						heavy						
dropping of burning material during 20 s[1)]	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
Appearance after test: burned out till max. height 10 cm x width 7 cm													

PN 19792: additional tests	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition[1)]	1	1	1	--	--	--	2	2	2	--	--	--	s
reaching the mark of measurement[1)2)]	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
max. flame height	8	5	8	--	--	--	7	4	5	--	--	--	cm
time	10	10	7	--	--	--	10	5	10	--	--	--	
self cessation of the flames end of afterflame[1)]	13	14	9	--	--	--	21	22	22	--	--	--	s
end of glowing[1)]	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
flames were extinguished after[1)]	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
smoke development (visual)	heavy						heavy						
dropping of burning material during 20 s[1)]	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
Appearance after test: burned out till max. height 8 cm x width 6 cm													

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

PN 19790: additional tests	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	--	--	3	2	2	2	--	--	s
reaching the mark of measurement[1)2)]	./.	./.	./.	./.	--	--	./.	./.	./.	./.	--	--	s
max. flame height	6	4	4	5	--	--	6	6	5	5	--	--	cm
time	8	6	3	4	--	--	6	10	5	9	--	--	
self cessation of the flames end of afterflame[1)]	12	9	6	7	--	--	24	13	9	11	--	--	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 6 cm x width 4 cm													

[1)] time mentioned from the beginning of the test [2)] 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.