

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



Prüfstelle für das  
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PÜZ-Stelle (LBO): BRA09

<b>Reference:</b>	FLT 3725620	(Translation of the German Prüfzeugnis - no guarantee for translation of technical terms)	
<b>Sponsor</b>	Convertec GmbH Veredelungstechnologie Heideweg 2-4 D – 77880 Sasbach		
<b>Order</b>	2020-06-22	<b>Arrived</b>	2020-06-23
<b>Description of samples</b>	On one side coated nonwovens to be used as wallcovering, named "Art Fleece 210 W FR" and "Art Fleece 210 S FR". (for details see page 2)		
<b>Delivered</b>	2020-06-23		
<b>Content of request</b>	Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1		
<b>Assessment</b>	The examined materials, bonded to solid mineral substrates or to gypsum plaster board, meet the requirements of class B1 for "schwerentflammbare" (not easily flammable) building materials according to DIN 4102-1. (for details see page 5)		
<b>Validity</b>	2025-07-31		
<b>Sampling</b>	The samples were sent to the laboratory by the sponsor		

Remark: If the above-mentioned building material is not used as product according to MBO § 2, there is no need for a general building supervisory test certificate.

This test certificate is not regarded as the sole proof if the tested building material is used as building product within the meaning of state building prescriptions (MBO § 17).

This test certificate 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 certificate can serve as a basis for building supervisory procedures for:

- regulated building products for the pre scribed proof of conformity
- non-regulated building products for the needed proof of applicability.

This test certificate comprises 5 pages and 3 enclosures.

**A p p r o v e d   t e s t i n g ,   i n s p e c t i o n   a n d   c e r t i f i c a t i o n   b o d y**

This test certificate must not be published and copied preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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

TEST CERTIFICATE



## 1 Description of test material

### 1.1 Test material (according to the sponsor):

The delivered materials are nonwovens made of fibre pulp and synthetic fibres, with a printable coating on one side. The variant named "Art Fleece 210 S FR" was coated with a water-repellent Inkjet-coating, the variant named "Art Fleece 210 W FR" was coated with a brightened Inkjet-coating. The fleeces are intended to be used as wall-papers inside of buildings.

### 1.2 Description of the delivered material

For the tests, 2 sample rolls of one-side coated nonwovens of approx. 5 m in length and 1.07 m in width were provided to the laboratory. The samples were each marked with the trade name, dimensions, batch and date of production and were provided in the following versions

Name:	Article	Batch	Prod.-Date
Art Fleece 210 FR - Wasser	CJTVA0106705W	190402.1	2019-04-04
Art Fleece 210 FR - Solvent	CJTVA0106705S	200130.4	2020-02-03

Colour: white fleeces with white coating on one side.

Characteristic values: see table 1; Photos: see enclosures;

Further details are not known to the laboratory; retain samples have been deposited.

## 2 Preparation of samples

For the tests in the fire shaft ("Brandschacht") 2 specimens each were assembled. The samples (dimensions 1000 mm x 190 mm) of test specimen A and C were cut in longitudinal direction, samples for the test specimen B and D were cut in trans-verse direction of the materials. The tests were carried out glued on one side to 12.5 mm thick gypsum plasterboards (GKB, class DIN 4102-A2). A commercial wallpaper paste (methyl cellulose, 50 g/l water) of a wet application quantity of approx. 190 g/m<sup>2</sup> was applied to the gypsum plasterboards and the uncoated side of the material was glued onto the boards.

For the small burner tests ("Brennkastenprüfungen") samples for edge flame exposure (dimensions 190 mm x 90 mm) and samples for surface flame exposure (dimensions 230 mm x 90 mm) have been cut in longitudinal and transverse direction of the coated materials and were glued onto one side to gypsum plasterboards (GKB, thickness 12.5 mm, class DIN 4102-A2) of the same size and in the same procedure.

All samples were kept in a climate chamber acc. DIN 50014-23/50-2 until they reached constant weight before testing.

## 3 Arrangement of samples

The tests in the fire shaft ("Brandschacht") have been performed acc. DIN 4102-1 and -16 (building materials class B1). The small burner ("Brennkasten") tests have been performed acc. DIN 4102-1, chapter 6.2.5 (building materials class B2). No further backing material was arranged behind the material compound.

Examination period: July 2020.

## 4 Results

- section 4.1 Material characteristics
- section 4.2.1 Test results of the small burner tests
- section 4.2.2 Test results of the tests in the fire shaft

### 4.1 Material characteristics

Table 1

Type name:	Manufacturer's data		Measured values		
	Thickness [μm]	Mass per unit area [g/m <sup>2</sup> ]	Thickness (m.v.) [mm]	s	Mass per unit area [g/m <sup>2</sup> ]
"Art Fleece 210 W FR"	280 ± 30	210 ± 20	0,34	0,005	203
"Art Fleece 210 S FR"		220 ± 20	0,32	0,006	218

m.v. mean value (n=10)

s standard deviation

./ not received/not measured



## 4.2 Results of the fire behaviour

### 4.2.1 Test results class B2 (Brennkasten)

According to DIN 4102-1 all building materials class B1 must also meet the requirements of materials class B2 (flammable). The requirements for building materials class B2 were fulfilled during the test in the "Brennkasten" according to DIN 50 050. The material did not show burning particles/droplets during these tests (results see enclosure 3).

### 4.2.2 Test results class B1 (Brandschacht)

Table 3

Test results (part 1)						
line no.		Measured Values Specimen				requirements
		A	B	C	D	
1	<u>Number of specimen arrangement</u> acc. DIN 4102 –15 Table 1	7	7	7	7	
2	<u>Maximal flame height</u> above bottom edge ..... cm	50	50	60	60	
3	Time <sup>1)</sup> ..... min	2	2	2	2	*)
4	<u>Burning / melting through</u> Time <sup>1)</sup> .....min	-	-	-	-	
5	<u>Back side of the specimens:</u> <u>Flames / glowing</u> Time <sup>1)</sup> ..... min:s	./.	./.	./.	./.	
6	<u>Discolouring</u> Time <sup>1)</sup> ..... min:s	./.	./.	./.	./.	
7	<u>Falling of burning droplets</u> Begin <sup>1)</sup> ..... 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 <sup>1)</sup> ..... min	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 <sup>1)</sup> ..... min:s					
15	<u>Premature end of test</u> Final occurrence of burning at the specimen <sup>1)</sup> .....min	No	No	No	No	
16	Time of eventually end of test <sup>1)</sup> ..... min:s	10	10	10	10	

<sup>1)</sup> Indication of time: from the beginning of testing procedure

- Not tested

./. Not occurred

\*) No cause for complaint



Test results (part 2)						
line no.		Measured Values Specimen				requirements
		A	B	C	D	
17	<u>Afterflame after end of test</u>	No	No	No	No	
18	Time .....min:s					
19	Number of specimen					
20	Front side of specimen					
21	Back side of specimen					
21	Flame length .....cm					
22	<u>Afterglow after end of test</u>	Yes	Yes	Yes	Yes	
23	Time .....min:s	0:38	0:45	1:15	1:50	
23	Number of specimen	4	4	4	4	
24	<u>Place of appearance:</u>					
24	Lower half of specimen	Yes	Yes	Yes	Yes	
25	Upper half of specimen	Yes	Yes	Yes	Yes	
26	Front side of specimen	Yes	Yes	Yes	Yes	
27	Rear side of specimen	No	No	No	No	
28	<u>Smoke density</u>					
28	≤ 400 % min	3.4	7.1	4.8	5.3	
29	≥ 400 % min (very strong smoke density)	./.	./.	./.	./.	
30	Diagram fig. no.	1	3	5	7	
31	<u>Residual length</u>					
	Individual value .....cm	50 51 53 53	52 51 51 54	53 52 56 53	53 53 56 53	> 0
32	Average value .....cm	<b>51</b>	<b>52</b>	<b>53</b>	<b>53</b>	≥ 15
33	Photo of test specimen fig. no.	2	4	6	8	
34	<u>Flue gas temperature</u>					
34	Maximum of average value...°C	105	106	108	110	≤ 200
35	Time <sup>1)</sup> .....min:s	9:42	1:38	1:32	1:34	
36	Diagram fig. no.	1	3	5	7	
37	<u>Remarks:</u> line 32: Due to the residual length of the samples of > 45 cm, no additional tests were carried out (DIN 4102-16:2015-09, 5.2 b). (diagrams and photos see appendix 1-2)					

- 1) indication of time: from the beginning of testing procedure
- not tested
- ./. not occurred
- \*) no cause for complaint
- VN test-number



Specimen	Test-No.	Trade Name	Sample orientation	Substrate
A	725620-001	"Art Fleece 210 W FR"	longitudinal	Gypsum boards
B	725620-002		transversal	
C	725620-003	"Art Fleece 210 S FR"	longitudinal	
D	725620-004		transversal	

## 5 Assessment

According to the test results in section 4.2 the material, described in section 1 and 4.1, fulfils the requirements of a building material class B1 according to DIN 4102-1, if the material is used on solid mineral substrates or gypsum plasterboard (not perforated)), of a density of  $\geq 650 \text{ kg/m}^3$  and a thickness of  $\geq 11 \text{ mm}$ , using a standard wallpaper glue based on methyl-cellulose with a wet application quantity of approx.  $190 \text{ g/m}^2$ .

The requirements of building materials class B2 are also fulfilled; no falling of burning particles or droplets occurred during these tests.

The verification

- for the exposure to outdoor climate conditions
- with printed surface

is not proven with this test certificate.

This test certificate is not valid, if the material described in section 1 is used freely suspended.

## 6 Special remarks

This certificate 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 certificate is not regarded as the sole proof if the tested building material is used as building product within the meaning of state building prescriptions (MBO § 17).

This test certificate is no substitute for a General Building Inspectorate Certificate. This test certificate is granted without prejudice to the rights of third parties, or particular private proprietary rights.

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

- regulated building materials for the required proof of accordance
- for non-regulated 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 certificate is valid until 2025-07-31, provided that the test methods, the classification rules and the technology do not change during this period.

Borkheide, 20<sup>th</sup> of August 2020



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



*This translation was issued on 20<sup>th</sup> of August 2020, in a case of doubt the German version is valid solely.*

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Test specimen A

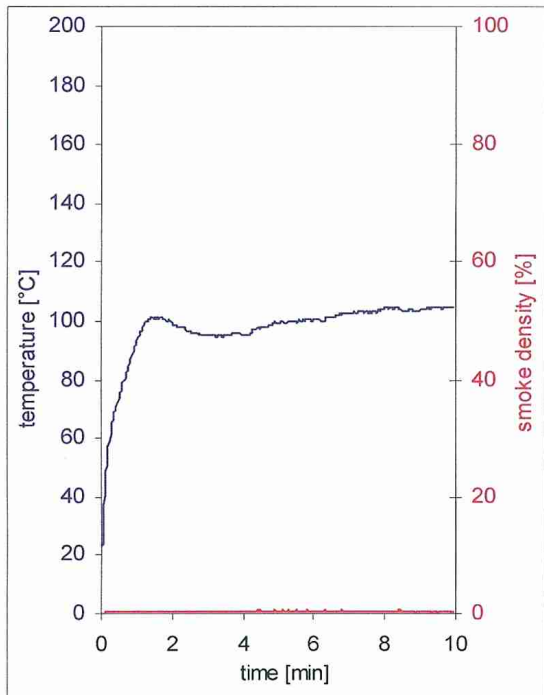


fig. 1  
Graphs of the flue gas temperature and the smoke density

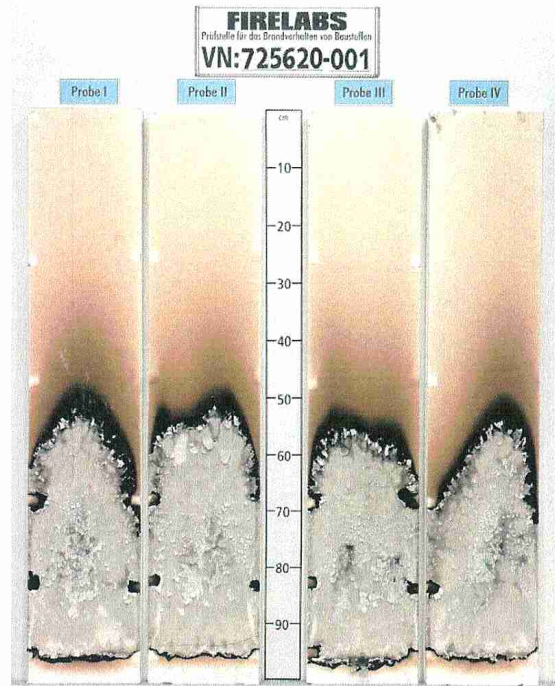


fig. 2  
Photo of test specimen after the test

Test specimen B

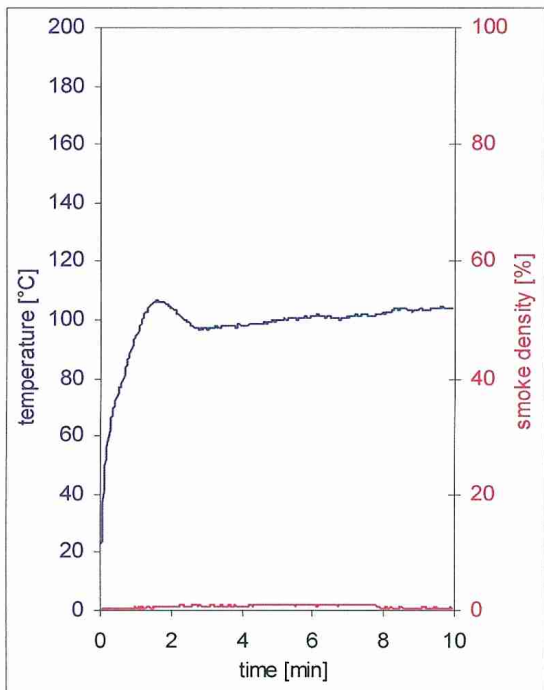


fig. 3  
Graphs of the flue gas temperature and the smoke density

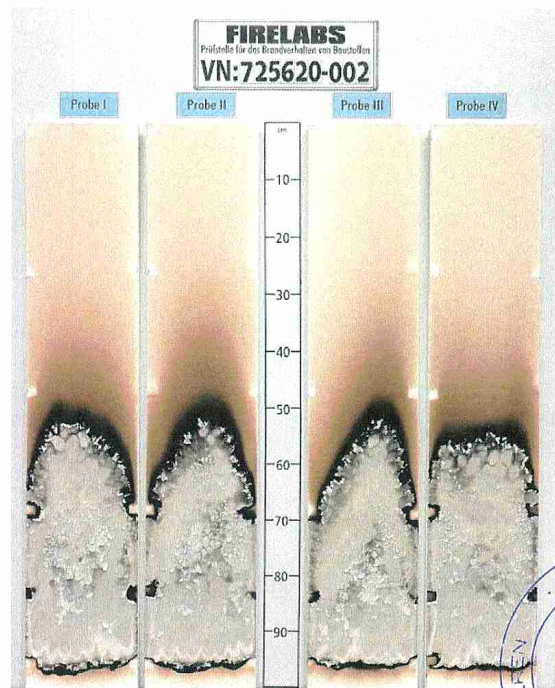


fig. 4  
Photo of test specimen after the test



Test specimen C

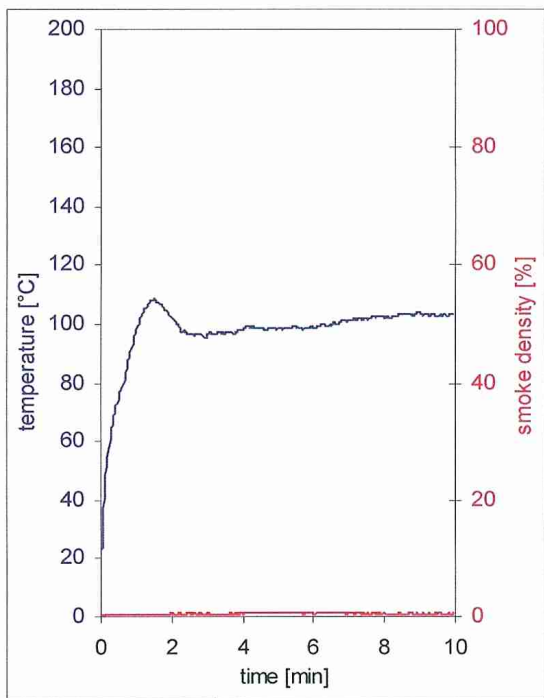


fig. 5  
Graphs of the flue gas temperature and the smoke density

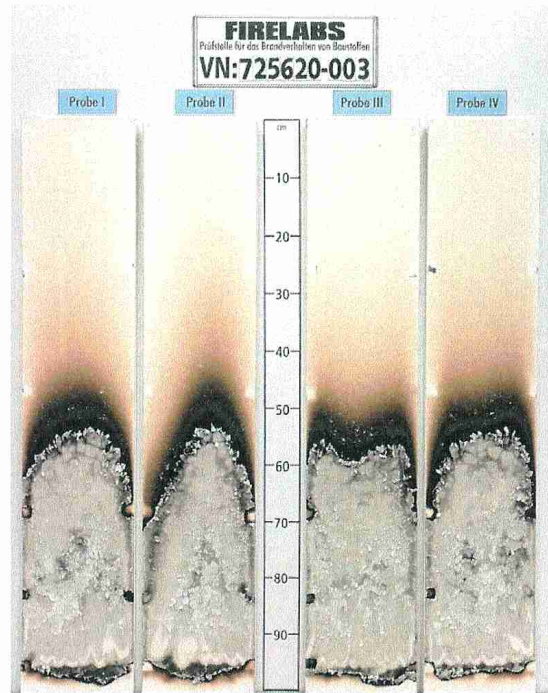


fig. 6  
Photo of test specimen after the test

Test specimen D

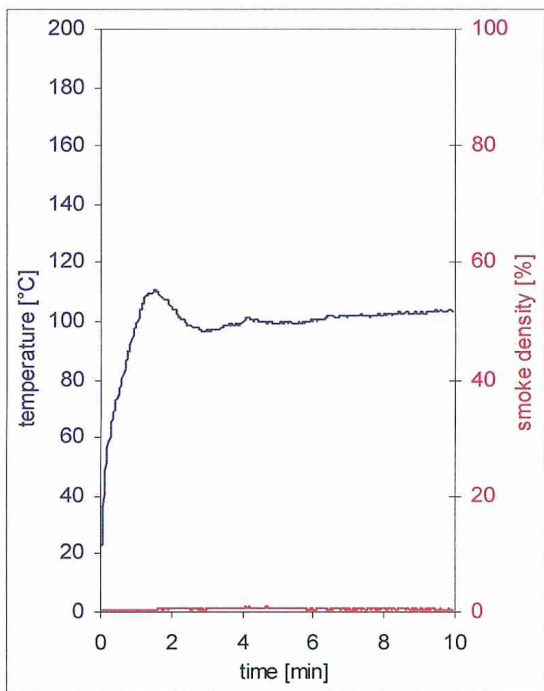


fig. 7  
Graphs of the flue gas temperature and the smoke density

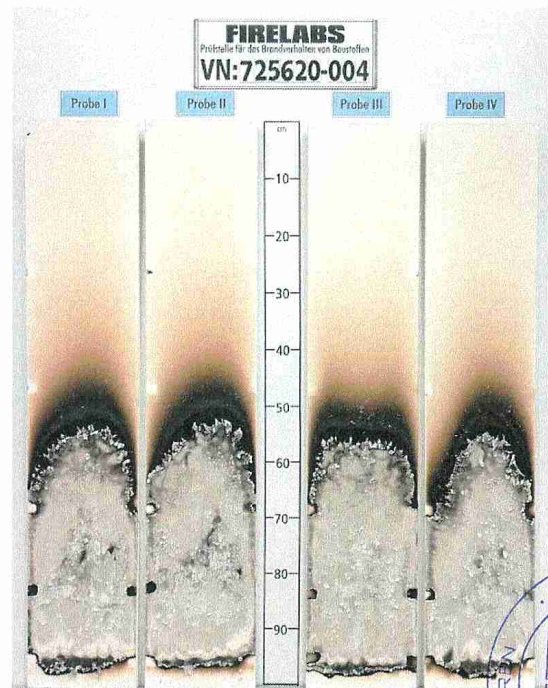


fig. 8  
Photo of test specimen after the test

Test results class B2 (Brennkasten)

Table 2.1

"Art Fleece 210 W FR"	Längsrichtung						Querrichtung						Dim.	Anforderungen
	1	2	3	4	5	6	1	2	3	4	5	6		
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	1	1	1	1	./.	1	1	1	1	1	./.	s	-
Maximum flame height	1	1	2	1	1	1	1	2	2	1	1	1	cm	-
Time of the maximum	15	15	13	15	15	15	14	15	15	15	15	15		-
Flame tip has reached the 150 mm mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flames are extinguished after	16	16	16	16	16	16	16	16	16	16	16	16	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density (visual)	sehr gering						sehr gering						-	./.
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: - Discoloration in the area of the flame attack point														

Table 2.2

"Art Fleece 210 S FR"	Längsrichtung						Querrichtung						Dim.	Anforderungen
	1	2	3	4	5	6	1	2	3	4	5	6		
Sample-No.	1	2	3	4	5	6	1	2	3	4	5	6	-	-
Ignition of the sample	1	1	1	1	1	12	1	1	1	1	1	./.	s	-
Maximum flame height	2	1	2	2	1	1	2	2	3	2	2	1	cm	-
Time of the maximum	13	12	15	13	15	15	15	14	15	15	15	15		-
Flame tip has reached the 150 mm mark	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	≥ 20
Flames are extinguished after	16	16	16	16	16	16	16	16	16	16	16	16	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	1)
Smoke density (visual)	sehr gering						sehr gering						-	./.
Afterburning time	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	./.	s	-
View of the samples after the test: - Discoloration in the area of the flame attack point														

Samples 1-5: edge flame exposure

Samples 6: surface flame exposure

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

