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

FIRE LABS
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PÜZ-Stelle (LBO): BRA09

TEST CERTIFICATE

Reference:	FLT 3667018 (Translation of the German test certificate - no guarantee for translation of technical terms)
Sponsor:	Neschen Coating GmbH Hans-Neschen-Straße 1 D - 31675 Bückeburg
Order	2018-08-22 **Arrived** 2018-08-23
Description of samples:	Uncoated self-adhesive plastic film, named "**NESCHEN PP wall-grip L-UV smooth**". (for details see page 2)
Delivered:	2023-08-31
Content of request:	Proof of flammability to classify building materials to class B1 "schwerentflammbar" according to DIN 4102-1
Assessment:	The examined material, bonded to solid mineral substrates or to gypsum plaster boards, meets the requirements of class B1 for "schwerentflammbare" (not easily flammable) building materials according to DIN 4102-1. (for details see page 5)
Validity:	2022-12-31
Sampling:	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 valid if the examined building material is used as product in 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 Prufzeugnis (general building inspectorate certificate) or by
- "Zustimmung im Einzelfall (exceptional approval).

This test certificate can underlie building supervisory procedures:

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

This test certificate includes 5 pages and 2 enclosures.

Approved testing, inspection and certification body

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1 Description of test material in condition as delivered

1.1 Description (according to the manufacturer)

The delivered material is an uncoated, self-adhesive film made of polypropylene, with a self-adhesive backing. The adhesive layer was covered with a protective paper. The self-adhesive film is intended to be used inside buildings, glued to solid mineral substrates or gypsum plasterboards and was named with the trade name "NESCHEN PP wall-grip L-UV smooth".

1.2 Description of the delivered samples

For the tests, 1 sample of an uncoated, self-adhesive plastic film of approx. 10 m length and 1.55 m width was provided to the laboratory by the client. The self-adhesive side of the film was covered by a protective paper.
The material was labelled with "NESCHEN PP wall-grip L-UV smooth".
Colour: White film, white protective paper
Characteristic values: see paragraph 4.1; photos: see enclosures
Other specifications are not known by the laboratory, a sample is stored.

2 Preparation of samples

From material delivered 2 specimens were assembled. The samples (dimensions 1000 mm x 190 mm) of test specimen A were cut in longitudinal and for test specimen B in transversal direction of the film, for bonding onto one side to gypsum plaster boards (GKB, thickness 12.5 mm, class DIN 4102-A2) of the same size.
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 transversal direction and were glued onto one side to gypsum plasterboards (GKB, thickness 12.5 mm, class DIN 4102-A2) of the same size.
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 tests ("Brennkastenprüfungen") have been performed acc. DIN 4102-1, chapter 6.2.5 (building materials class B2).
Examination period: September 2018

4 Results

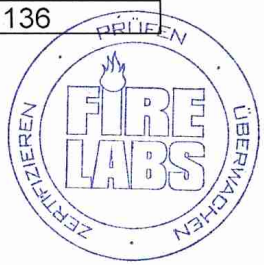
- section 4.1 Material characteristics
- section 4.2.1 Test results of the small burner tests
- section 4.2.2 Test results of the tests in the fire shaft

4.1 Material characteristics

Table 1

Characteristics			Manufacturer`s data	Measured values (m.v.)
Polypropylene-film	Thickness	[mm]	90	./.
Polypropylene-film with adhesive layer	Thickness	[mm]	./.	0.15 (s=0,006
	Weight per unit area	[g/m^2]	./.	141
Protective paper	Thickness	[mm]	./.	0.16
	Weight per unit area	[g/m^2]	./.	136

./. not received/not measured
m.v. mean value
s standard deviation



4.2 Results of the fire behaviour

4.2.1 Test results class B2 (Brennkasten)

All building materials class B1 must also meet the requirements of materials class B2 (flammable). The material, tested in "Brennkasten" acc. DIN 50 050 meets the requirements of building materials of class B2; the material did not show burning particles / droplets during these tests. (Results: see enclosure 2)

4.2.2 Test results class B1 (Brandschacht)

Table 3

Test results "Brandschachtprüfung" (part 1)						
line no.		Specimen				require-ments
		A	B	C	D	
1	Number of specimen arrangement acc. DIN 4102 –15 Table 1	7	7	-	-	
2	Maximal flame height above bottom edge ..... cm	50	50	-	-	
3	Time [1] ..... min	2	2	-	-	*)
4	Burning / melting through Time [1] ..... min	./.	./.	-	-	
5	Back side of the specimens: Flames / glowing Time [1] ..... min:s	./.	./.	-	-	
6	Discolouring Time [1] ..... min:s	./.	./.	-	-	
7	Falling of burning droplets Begin [1] ..... min	No	No	-	-	
8	Extend: Sporadic falling of burning droplets					
9	Continuous falling of burning droplets					
10	Falling of burning parts Begin [1] ..... min:s	No	No	-	-	
11	Extend: Sporadic falling of burning parts					
12	Continuous falling of burning parts					
13	Afterflame time at the bottom of thesieve (max.) ..... min:s	./.	./.	-	-	
14	Impairment of the burner flames by dropping or falling Material Time [1] ..... min:s	No	No			
15	Premature end of test Final occurrence of burning at the specimen [1] .....min	No 10	No 10	- -	- -	
16	Time of eventually end of test [1] ..... min:s	./.	./.	-	-	

[1] Indication of time: from the beginning of testing procedure
- Not tested
. /. Not occurred
*) No cause for complaint

Test results (part 2)						
line no.		Specimen				require-ments
		A	B	C	D	
	Afterflame after end of test	No	No	-	-	
17	Time ..... min:s					
18	Number of specimen					
19	Front side of specimen					
20	Back side of specimen					
21	Flame length ..... cm					
	Afterglow after end of test	Yes	Yes	-	-	
22	Time ..... min:s	0:40	0:50	-	-	
23	Number of samples	4	4	-	-	
	Place of appearance:					
24	Lower half of specimen	Yes	Yes	-	-	
25	Upper half of specimen	No	No	-	-	
26	Front side of specimen	Yes	Yes	-	-	
27	Back side of specimen	No	No	-	-	
	Smoke density					
28	≤ 400 % min	12.2	14.0	-	-	
29	≥ 400 % min (very strong smoke density)	./.	./.			
30	Diagram fig. no.	1	3	-	-	
	Residual length					
31	Individual values ..... cm	44 46 46 45	45 46 47 46	- - - -	- - - -	> 0
32	Average value ..... cm	**45**	**46**	-	-	≥ 15
33	Photo of the test specimen fig. no.	2	4	-	-	
	Flue gas temperature					
34	Maximum of average value...°C	109	113	-	-	≤ 200
35	Time [1] ..... min:s	2:40	2:08	-	-	
36	Diagram fig. no.	1	3	-	-	
37	Remarks: line 32: There were no additional tests proceeded because of the residual length of > 45 cm (DIN 4102-16: 2015-09, 5.2 b)).					

Test specimen A (VN 667018-001): Samples in longitudinal direction
Test specimen B (VN 667018-002): Samples in transversal direction

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

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 with a gross density ≥ 650 kg/m^3 and a thickness ≥ 11 mm or gypsum plaster boards (non-perforated).

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

The verification for

- outdoor usage (ageing by outdoor weathering)

is not proved with this test certificate.

6 Special remarks

This test 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 valid as soon as the product is used as a building product in the sense of the "Landesbauordnungen" (state building requirements, 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 not 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 2023-08-31, provided the test methods, classification rules and technology do not change during this period.

Borkheide, 24th of September 2018

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

This translation was issued on 24th of September 2018, in a case of doubt the German version is valid solely.

Test specimen A

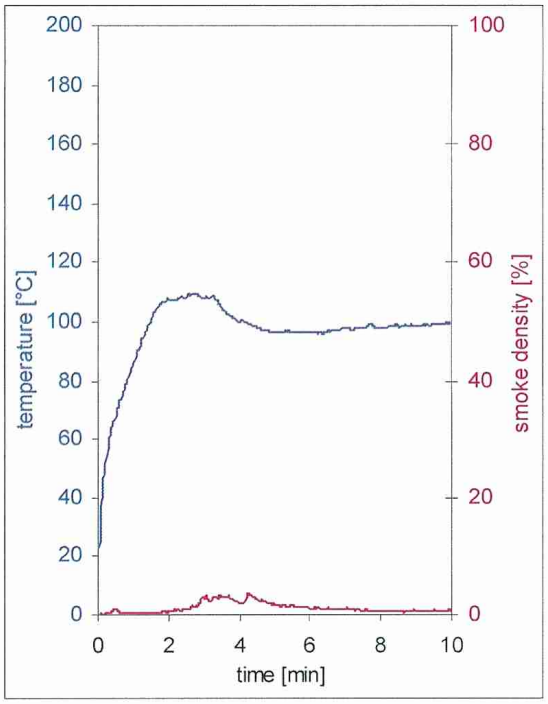

fig. 1
Graphs of the flue gas temperature and the smoke density

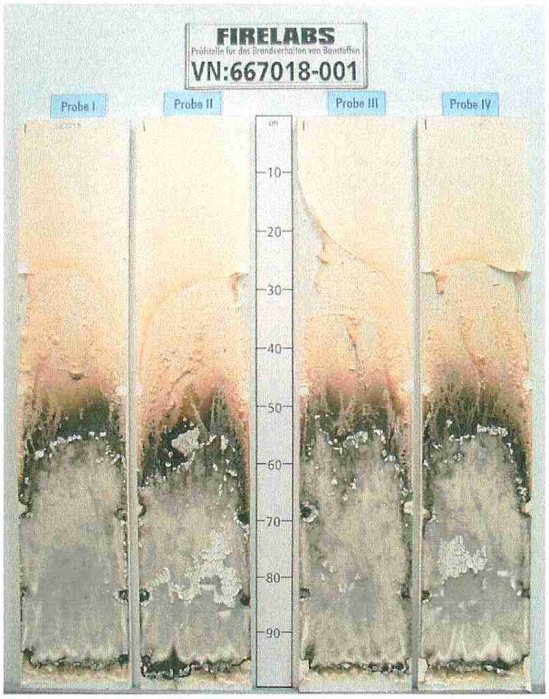

fig. 2
Photo of the test specimen after the test

Test specimen B

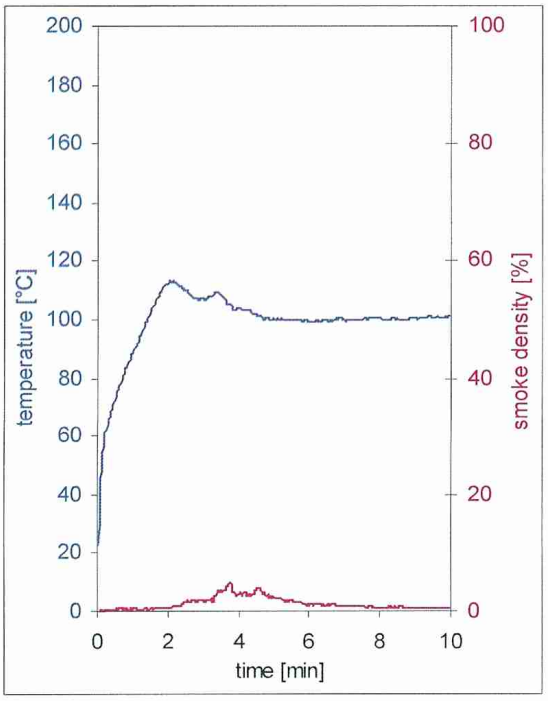

fig. 3
Graphs of the flue gas temperature and the smoke density

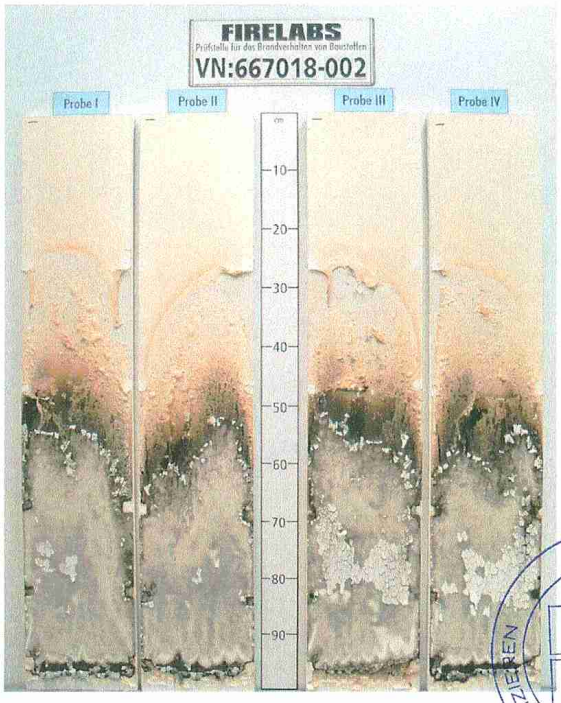

fig. 4
Photo of the test specimen after the test

Test results small burner test

Table 2

	longitudinal direction							transversal direction							dim.	require-ments
Sample-No.	1	2	3	4	5	6	-	1	2	3	4	5	6	-	-	-
Ignition of the sample	4	4	7	5	5	12	-	3	3	2	4	3	10	-	s	-
Maximum flame height	2	2	1	1	2	1	-	2	2	2	2	2	1	-	cm	-
Time of the maximum	8	9	10	8	10	15	-	6	10	15	8	10	15	-	s	-
Flame tip reached the 150 mm mark	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	≥ 20
Flame has extinguished	16	16	16	16	16	16	-	16	16	16	16	16	16	-	s	-
Ignition of filter paper	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	[1]
Smoke density (visual)	very low							very low							-	-
Afterburning time	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	-
Flames were extinguished after	./.	./.	./.	./.	./.	./.	-	./.	./.	./.	./.	./.	./.	-	s	-
View of the samples after the test (20 seconds after exposure the flame): - the film surface was destroyed about 1 cm in height and 1.5 cm in width, sintered above about 3 cm.																

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