MPA NRW.
Materialprüfungsamt Nordrhein-Westfalen
PRÜFEN • ÜBERWACHEN • ZERTIFIZIEREN

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TEST CERTIFICATE

No. 230011275

issued 20 Dec. 2017

as basis for a proof of usability

English version

Sponsor

Extruflex s.a.s.
25 rue Greffulhe
F-92300 Levallois Perret
FRANCE

Date of order:	8 Nov. 2017
Date of sampling:	The testing material was delivered by the sponsor.
Receipt of the specimens:	27 Nov. 2017
Date of the tests:	12 and 13 Dec. 2017

Order

Tests according to DIN 4102-1 on „Schwerentflammbarkeit“ (reaction to fire classification B1)

Description / name of the test specimen

"REF170": plastic sheets of polyvinyl chloride (PVC) in thicknesses of 2 mm to 3 mm

Description of the applied test procedure

DIN 4102-1 (May 1998)- Reaction to fire of building products and building elements, part 1: Building products
- definition – requirements and tests -

The validity of this test certificate ends on 19.12.2022.

This test report has 10 pages.

Designation by the sponsor: "REF170"

Description:

Flexible plastic sheets of polyvinyl chloride (PVC) with flame retardant, used e.g. as partition, door (e.g. swing door) or roof covering:

Thickness: 2 mm to 3 mm
(Name of the sponsor)

Colour of the tested sheets:	colourless, transparent
Thickness of the tested sheets:	on average 1.9 mm or 2.9 mm
Weight per unit area of the tested sheets:	on average 2.47 kg/m² or 3.72 kg/m²

Special information: none

The tests were carried out without substrate (freely suspended).

Results of the „Brandschachtprüfung“ (part 1)					
Row No.	Sheet thickness: 3 mm		Measurements Specimens A	B	C
1	No. of test specimen arrangement acc. to DIN 4102 part 15, table 1		2	2	2
2	Maximum flame height above bottom edge in	cm	> 100	90	90
	Time [1]	min : s	3:00	3:00	2:30
4	Melt through / burn through Time [1]	min : s	1:09	1:14	1:12
	Observations on the backside of the specimens				
5	Flames / smouldering Time [1]	min : s	--	--	--
6	Discolouration Time [1]	min : s	--	--	--
	Burning droplets/particles				
7	Start [1]	min : s	--	--	--
	Extent				
8	sporadic burning droplets		--	--	--
9	continually falling particles		--	--	--
	Falling particles which burns				
10	Start [1]	min : s	--	--	3:32
11	sporadic burning droplets		--	--	X
12	continually falling particles		--	--	--
13	Duration of the burning on the screen bottom (max.)	min : s	--	--	0:16
	Interference of the burner flame by dripping/falling particles				
14	Time [1]	min : s	--	2:10	1:33
	Early termination of the test				
15	End of burning at the specimen [1]	min : s	--	--	--
16	Time of early cancellation of the test [1]	min : s	--	--	--

[1] Time counting from start of the test

Row No.	Results of the „Brandschachtprüfung“ (part 2) Sheet thickness: 3 mm		Measurements Specimens A	B	C
	Continuous burning after termination of the test				
17	Duration	min : s	--	0:04	--
18	Number of specimens		--	2	--
19	Specimen front side		--	X	--
20	Specimen back side		--	--	--
21	Flame length	cm	--	10	--
	Smouldering after termination of the test				
22	Duration	min : s	--	--	--
23	Number of specimens		--	--	--
	Location				
24	Lower part of the specimen		--	--	--
25	Upper part of the specimen		--	--	--
26	Specimen front side		--	--	--
27	Specimen back side		--	--	--
	Smoke density				
28	≤ 400 % x min		--	--	--
29	> 400 % x min		848	920	850
30	Diagram in annex no.		8	--	--
	Residual length		29 4	36 17	43 24
31	Single values	cm	6 22	48 28	24 42
32	Average values of the single tests	cm	15	32	33
33	Picture of the specimen on page		7	--	--
	Smoke gas temperature				
34	Max. value of the average values	°C	173	120	124
35	Time [1)]	min : s	3:27	4:15	4:09
36	Diagram in annex no.		8	--	--
37					

Results of the „Brandschachtprüfung" (part 3)					
Row No.	Sheet thickness: 2 mm		Measurements Specimens D	E	
1	No. of test specimen arrangement acc. to DIN 4102 part 15, table 1		2	2	
2	Maximum flame height above bottom edge in	cm	80	80	
	Time [1]	min : s	1:30	1:00	
4	Melt through / burn through Time [1]	min : s	0:27	0:36	
	Observations on the backside of the specimens				
5	Flames / smouldering Time [1]	min : s	--	--	
6	Discolouration Time [1]	min : s	--	--	
	Burning droplets/particles				
7	Start [1]	min : s	--	--	
	Extent				
8	sporadic burning droplets		--	--	
9	continually falling particles		--	--	
	Falling particles which burns				
10	Start [1]	min : s	--	--	
11	sporadic burning droplets		--	--	
12	continually falling particles		--	--	
13	Duration of the burning on the screen bottom (max.)	min : s	--	--	
14	Interference of the burner flame by dripping/falling particles Time [1]	min : s	0:55	0:38	
15	Early termination of the test End of burning at the specimen[1]	min : s	--	--	
16	Time of early cancellation of the test [1]	min : s	--	--	

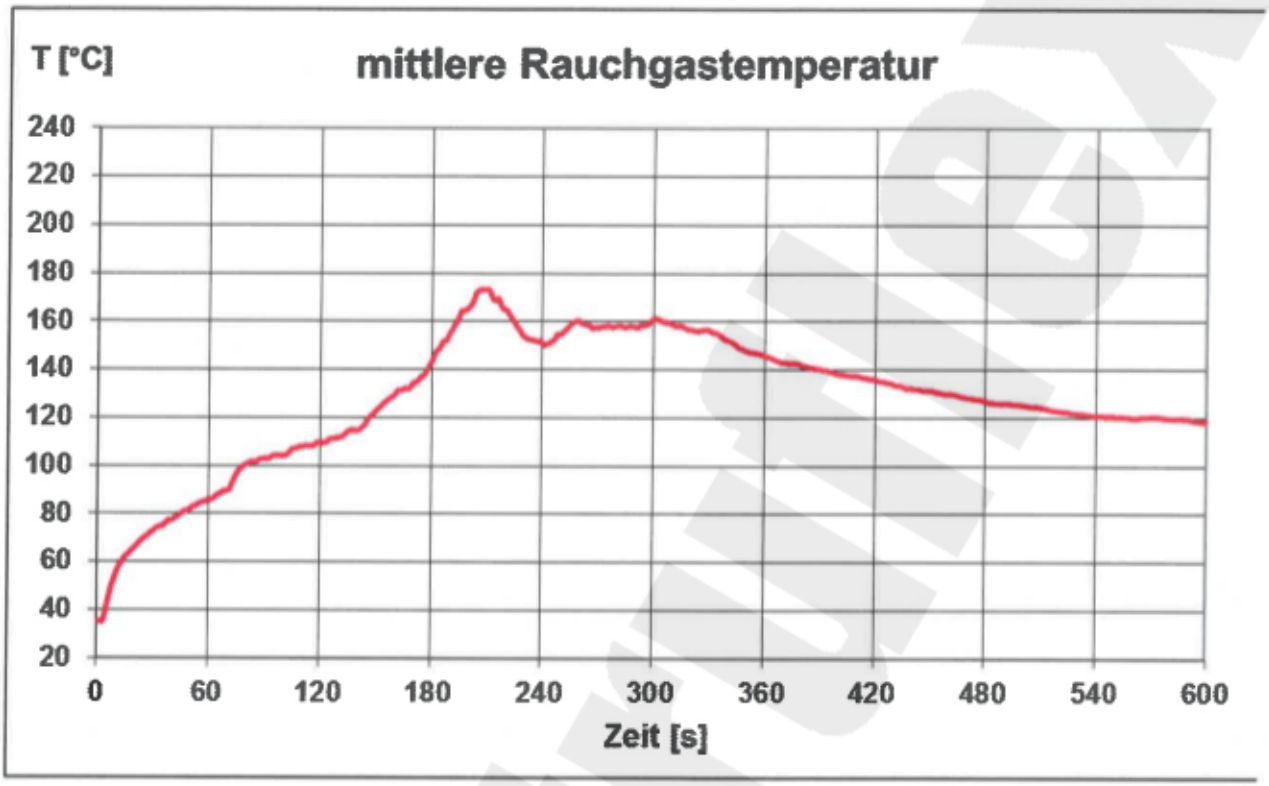
[1] Time counting from start of the test

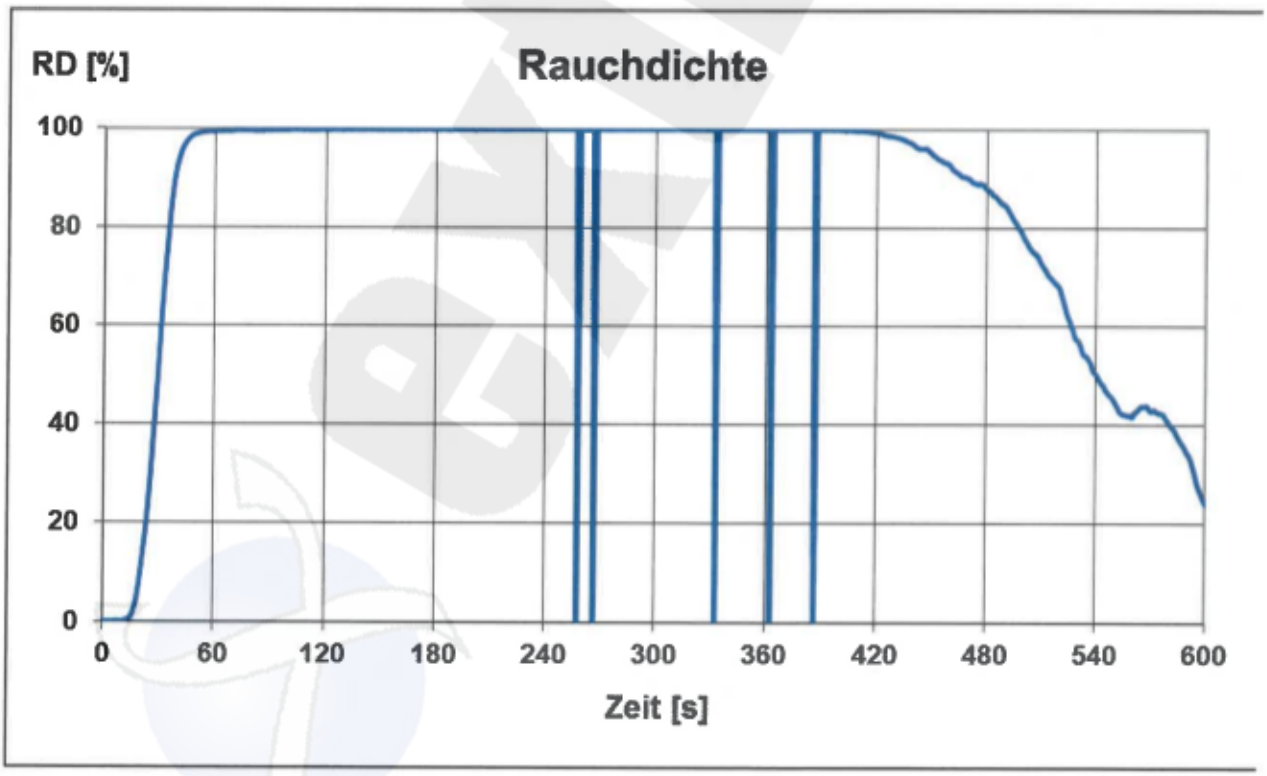
Row No.	Results of the „Brandschachtprüfung“ (part 4) Sheet thickness: 2 mm		Measurements Specimens D		E			
	Continuous burning after termination of the test							
17	Duration	min : s	--		--			
18	Number of specimens		--		--			
19	Specimen front side		--		--			
20	Specimen back side		--		--			
21	Flame length	cm	--		--			
	Smouldering after termination of the test							
22	Duration	min : s	--		--			
23	Number of specimens		--		--			
	Location							
24	Lower part of the specimen		--		--			
25	Upper part of the specimen		--		--			
26	Specimen front side		--		--			
27	Specimen back side		--		--			
	Smoke density							
28	≤ 400 % x min		--		--			
29	> 400 % x min		657		652			
30	Diagram in annex no.		--		--			
	Residual length		54	19	44	36		
31	Single values	cm	33	50	44	45		
32	Average values of the single tests	cm	39		42			
33	Picture of the specimen on page		--		--			
	Smoke gas temperature							
34	Max. value of the average values	°C	105		108			
35	Time [1]	min : s	9:41		9:18			
36	Diagram in annex no.		--					
37								

Appearance of the samples of the test material

Figure 1: Appearance of specimen A after the test

Diagram:





Measurements of the average smoke gas temperature and smoke production of specimen A

Test results „Normalentflammbarkeitsuntersuchungen" according to DIN 4102-1
(tests with edge exposure)
Edge protection: --
Point of flame attack: bottom specimen front edge

Tested material: Sheet thickness 3 mm

Specimen no.		1	2	3	4	5
Time stated from start of the test						
Ignition	(s)	1	1	1	1	1
Flames passing the limit mark	(s)	no	no	no	no	no
Self-extinguishment of the flames	(s)	15	15	15	15	15
Max. flame height	(cm)	4	4	4	4	4
End of afterburning	(s)	--	--	--	--	--
End of aftersmouldering	(s)	--	--	--	--	--
Flames were extinguished after	(s)	--	--	--	--	--
Smoke production				strong		
Flaming droplets/ particles (time)	(s)	--	--	--	--	--

Tested material: Sheet thickness 2 mm

Probe-Nr.		1	2	3	4	5
Time stated from start of the test						
Ignition	(s)	1	1	1	1	1
Flames passing the limit mark	(s)	no	no	no	no	no
Self-extinguishment of the flames	(s)	15	15	15	15	15
Max. flame height	(cm)	4	4	5	5	5
End of afterburning	(s)	--	--	--	--	--
End of aftersmouldering	(s)	--	--	--	--	--
Flames were extinguished after	(s)	--	--	--	--	--
Smoke production				strong		
Flaming droplets/ particles (time)	(s)	--	--	--	--	--

Results of the tests

The material described on page 2 meets the requirements for building products classified as B2.

As the results show, the material in the tested arrangement also met the requirements for building products classified as B1.

Therefore, the material can be assigned to

reaction to fire classification B1

(„schwerentflammbare" building products) according to DIN 4102-1 (May 1998).

In the tests, the limit value for smoke production was exceeded.

Special information

The surface of the sheets are not allowed to be additionally applied with paint, coatings or similar. The distance to equal building products or other extensive building products must be > 40 mm. The material must not be exposed to the weather outside.

This test certificate serves as basis for the prescribed proof of usability.

This test certificate does not replace an „allgemeines bauaufsichtliches Prüfzeugnis" if it is required.

This test certificate written in English language is issued additionally to the test report in German language with the same report number. In case of doubt, the German version is solely valid.

Erwitte, 20.12.2017

On behalf

Materialprüfungsamt MPA NRW 38 Nordrhein-Westfalen

Dipl.-Ing. Kühnen
(Deputy Head of the testing body)

Date of issue of this English version: 31 January 2018