

TEST CERTIFICATE

No. 231000515

issued 20.11.2019

as proof of the Schwerentflammbarkeit according to DIN 4102-1 (May 1998)

English version

Sponsor:

ANTALIS INTERNATIONAL
8 rue de Seine
92100 Boulogne-Billancourt
France
(for testing submitted by another sponsor^{*)})

Date of application:

19.04.2012, 18.11.2013, 19.07.2017 und 07.08.2019

Date of sampling:

Samples were sent in by the sponsor

Samples delivered on

25.04.2012, 14.06.2012, 21.11.2013 und 30.08.2019

Date of testing:

02.07.2012, 03.07.2012, 04.07.2012, 05.07.2012, 13.07.2012,
29.11.2017, 13.09.2019 und 18.09.2019

Order

Testing according to DIN 4102-1 (May 1998) class B1

Description / Name of tested product

Monomeric PVC self-adhesive foils „Coala 1D Lam Gloss“, „Coala 1D Lam Matt“, „Coala 1D 80 Gloss P“, „Coala 1D 80 Matt P“, „Coala 1D 80 Gloss PG“, „Coala 1D 80 Matt PG“, „Coala 1D 80 Gloss RG“, „Coala 1D 80 Matt RG“, „Coala 1D 100 Gloss P“, „Coala 1D 100 Matt P“, „Coala 1D 100 Gloss PG“, „Coala 1D 100 Matt PG“, „Coala 1D 100 Gloss R“, „Coala 1D 100 Matt R“, „Coala 1D 100 Gloss RG“, „Coala 1D 100 Matt RG“
(for testing submitted under another names^{*)})

Applied test procedure

DIN 4102 part 1 (May 1998)

^{*)} Information about this are located in the file of MPA NRW

Remark: This test certificate is a translation of the original test certificate no. 231000515 issued 20.11.2019 in German language and is only allowed to be used together with the original test certificate.

This test certificate is valid until 02.07.2022.

The test results only relate to the above named product.

Any change in form or content to a test certificate and the reproduction of a shortened version can only be made by the approval of MPA NRW.

This test certificate consists of 24 pages and 3 enclosures.



Designation by the sponsor: „Coala 1D Lam Matt“
 „Coala 1D Lam Gloss“

Description:

Monomer, transparent foils made of calendered PVC with a permanent adhesive coating on basis of acrylate on the backside

Thickness: 80 µm

Gloss level of the foils: a) matt, b) glossy

Colour of the adhesive: transparent

(Details given by the sponsor)

Colour of the tested self-adhesive foils: transparent

Gloss level of the tested self-adhesive foils: a) matt, b) glossy

Table 1: Specific values of the tested material

		Measured min. value	Arithmetic average value	Measured max. value
Thickness	mm	--	0.09	--
Weight per unit area	g/m ²	118	124	129
Density	kg/m ³	--	--	--

Special information: none

Designation by the sponsor:

„Coala 1D 80 Gloss P“, „Coala 1D 80 Matt P“, „Coala 1D 80 Gloss PG“, „Coala 1D 80 Matt PG“, „Coala 1D 80 Gloss RG“, „Coala 1D 80 Matt RG“, „Coala 1D 100 Gloss P“, „Coala 1D 100 Matt P“, „Coala 1D 100 Gloss PG“, „Coala 1D 100 Matt PG“ und „Coala 1D 100 Gloss R“

Description:

Calendered PVC foils equipped with a one-sided adhesive coating on basis of acrylate with permanent or removable adhesive behaviour

Thickness of the foils: 80 µm or 100 µm

Colour of the foils: white mat, white glossy, transparent mat or transparent glossy

Colour of the adhesive: transparent or grey

(Details given by the sponsor)

Colour of the tested foils: white

Degree of gloss of the tested foil type 80 Gloss P: glossy

Degree of gloss of the tested foil types 80 Matt P, 100 Matt P and 100 Matt PG: mat

Colour of the adhesive on the tested foil types 80 Gloss P, 80 Matt P und 100 Matt P: transparent

Colour of the adhesive on the tested foil type 100 Matt PG: grey

Table 1: Specific values of the tested material

		Measured min. value	Arithmetic average value	Measured max. value
Thickness	mm			
a) Folientyp 80 Gloss P		--	0.09	--
b) Folientyp 80 Matt P		--	0.1	--
c) Folientyp 100 Matt P		0.11	0.12	0.13
d) Folientyp 100 Matt PG		--	0.12	--
Weight per unit area	g/m ²			
a) Folientyp 80 Gloss P		--	127	--
b) Folientyp 80 Matt P		--	126	--
c) Folientyp 100 Matt P		165	184	204
d) Folientyp 100 Matt PG		--	158	--
Density	kg/m ³	--	--	--

Special information: The selection of the tested samples was done by MPA NRW.

Designation by the sponsor: „Coala 1D 100 Matt R”

Description:

Calendered PVC foil with a one-sided adhesive coating on basis of acrylate with removable adhesive behaviour

Thickness of the foil: 100 µm
 Colour of the foil: white mat
 Colour of the adhesive: transparent

(Details given by the sponsor)

- Colour of the tested foil: white
- Degree of gloss of the tested foil: mat
- Colour of the adhesive on the tested foil: transparent

Table 1: Specific values of the tested material

		Measured min. value	Arithmetic average value	Measured max. value
Thickness	mm	--	0.11	--
Weight per unit area	g/m ²	--	144	--
Density	kg/m ³	--	--	--

- Special information:** none

Designation by the sponsor: „Coala 1D 100 Matt RG”
 „Coala 1D 100 Gloss RG”

Description:

Monomer, white foils made of calendered PVC with an adhesive coating on basis of acrylate with removable adhesive behaviour on the backside

Thickness: 120 µm

Gloss level of the foils: a) matt, b) glossy

Colour of the adhesive: grey

(Details given by the sponsor)

Colour of the tested self-adhesive foils: white

Gloss level of the tested self-adhesive foils: a) matt, b) glossy

Table 1: Specific values of the tested material

		Measured min. value	Arithmetic average value	Measured max. value
Thickness	mm	0.1	0.12	0.13
Weight per unit area	g/m ²	157	170	183
Density	kg/m ³	--	--	--

Special information: none

Results of the Brandschacht test (part 1)					
row-no.	Type of the foils: „Coala 1D Lam Matt“ and „Coala 1D Lam Gloss“	measurements test specimen			
		matt A1	glossy B1	glossy C1	glossy D1
Gloss level of the foils:					
1	<u>No. of test specimen arrangement according to DIN 4102, part 15 , table 1</u>	--	--	--	--
2	<u>Max. flame height above bottom edge</u> cm	70	60	70	70
	Time ¹⁾ min : s	0:30	0:30	1:00	1:00
4	<u>Melt through / burn through</u> Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	-- ²⁾
5	<u>Observations on the backside of the specimens</u> Flames/smouldering Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	-- ²⁾
	6	Discolouration Time ¹⁾ min : s	10:00	10:00	10:00
7	<u>Burning droplets</u> Start ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	-- ²⁾
	8	<u>Extent</u> sporadic burning droplets	-- ²⁾	-- ²⁾	-- ²⁾
9		continually falling particles	-- ²⁾	-- ²⁾	-- ²⁾
10	<u>Falling particles which burns</u> Start ¹⁾ min : s	-- ²⁾	-- ²⁾	1:59	-- ²⁾
	11	sporadic falling parts	-- ²⁾	-- ²⁾	x
12	continually falling particles	-- ²⁾	-- ²⁾	-- ²⁾	-- ²⁾
13	Duration of the burning on the screen bottom (max.) min : s	-- ²⁾	-- ²⁾	0:02	-- ²⁾
14	<u>Interference of the burner flame by dripping /falling particles</u> Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	-- ²⁾
	15	<u>Early termination of the test</u> End of burning at the specimen ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾
16		Time of early cancellation of the test ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾

¹⁾ Time counting from the start of the test

row-no.		Results of the Brandschichttest (part 2)							
		measurements test specimen							
		A1		B1		C1		D1	
<u>Continuous burning after termination of the test</u>									
17	Duration min : s	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
18	Number of specimens	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
19	Front side of the specimen	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
20	Back side of the specimen	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
21	Flame length cm	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
<u>Smouldering after termination of the test</u>									
22	Duration min : s	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
23	Number of specimens	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
<u>Location</u>									
24	Lower half of the specimens	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
25	Upper half of the specimens	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
26	Front side of the specimen	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
27	Backside of the specimen	-- ²⁾		-- ²⁾		-- ²⁾		-- ²⁾	
<u>Smoke development</u>									
28	≤ 400 % x min	60		40		-- ³⁾		47	
29	> 400 % x min	-- ²⁾		-- ²⁾		-- ³⁾		-- ²⁾	
30	Diagram in appendix	--		--		--		1	
<u>Residual lengths</u>									
31	Single values cm	41	42	42	43	38	43	36	42
		42	41	41	42	44	39	38	39
32	Average values cm	42		42		41		39	
33	Photo of the specimen on page	--		--		--		14	
<u>Smoke temperature</u>									
34	Maximum value of the averaged values °C	115		115		113		120	
35	Time ¹⁾ min : s	9:52		9:50		10:00		9:40	
36	Diagram in appendix Nr.	--		--		--		1	
37	<u>Remarks:</u> For the test the self-adhesive foils were glued onto steel sheets with a thickness of 0.88 mm. 2) did not occur 3) Due to a technical problem at the data logging no declaration is possible. The results of the tests A1 – C1 were taken of the test report no. 230011271 of 18.12.2017.								

Results of the Brandschacht test (part 1)						
row-no.	Type of the foil:	measurements test specimen				
		80 Gloss P A2	80 Matt P B2	100 Matt PG C2		
1	<u>No. of test specimen arrangement according to DIN 4102, part 15, table 1</u>	--	--	--		
2	<u>Max. flame height above bottom edge</u>	70	70	70		
	cm Time ¹⁾ min : s	1:00	1:00	0:30		
4	<u>Melt through / burn through</u> Time ¹⁾ min : s	--	--	--		
5	<u>Observations on the backside of the specimens</u> Flames/smouldering	--	--	--		
	Time ¹⁾ min : s					
6	Discolouration Time ¹⁾ min : s	10:00	10:00	10:00		
7	<u>Burning droplets</u> Start ¹⁾ min : s	--	--	--		
	<u>Extent</u>					
8	sporadic burning droplets	--	--	--		
9	continually falling particles	--	--	--		
10	<u>Falling particles which burns</u> Start ¹⁾ min : s	--	1:27	--		
	sporadic falling parts	--	x	--		
12	continually falling particles	--	--	--		
13	Duration of the burning on the screen bottom (max.) min : s	--	0:03	--		
14	<u>Interference of the burner flame by dripping /falling particles</u>					
	Time ¹⁾ min : s	--	--	--		
15	<u>Early termination of the test</u> End of burning at the specimen ¹⁾ min : s	--	--	--		
	Time of early cancellation of the test ¹⁾ min : s	--	--	--		
16		--	--	--		

¹⁾ Time counting from the start of the test

row-no.		Results of the Brandschichttest (part 2)					
		measurements test specimen					
		A2	B2	C2			
<u>Continuous burning after termination of the test</u>							
17	Duration min : s	--	--	--			
18	Number of specimens	--	--	--			
19	Front side of the specimen	--	--	--			
20	Back side of the specimen	--	--	--			
21	Flame length cm	--	--	--			
<u>Smouldering after termination of the test</u>							
22	Duration min : s	--	--	--			
23	Number of specimens	--	--	--			
<u>Location</u>							
24	Lower half of the specimens	--	--	--			
25	Upper half of the specimens	--	--	--			
26	Front side of the specimen	--	--	--			
27	Backside of the specimen	--	--	--			
<u>Smoke development</u>							
28	≤ 400 % x min	51	31	46			
29	> 400 % x min	--	--	--			
30	Diagram in appendix	--	--	--			
<u>Residual lengths</u>							
31	Single values cm	48	48	47	48	47	46
		48	47	49	48	47	48
32	Average values cm	48 ²⁾	48 ²⁾	47 ²⁾			
33	Photo of the specimen on page	--	--	--			
<u>Smoke temperature</u>							
34	Maximum value of the averaged values °C	119	116	122			
35	Time ¹⁾ min : s	9:59	9:39	9:51			
36	Diagram in appendix Nr.	--	--	--			
37	<u>Remarks:</u> For the test the self-adhesive foils were glued onto steel sheets with a thickness of 0.88 mm. 2) Due to the residual length of > 45 cm further tests on these types of foils were not necessary. The test results were taken of the test report no. 230011271 of 18.12.2017.						

Results of the Brandschacht test (part 1)						
row-no.	Type of the foil:	measurements test specimen				
		100 Matt R A3	100 Matt P B3	100 Matt P C3		
1	<u>No. of test specimen arrangement according to DIN 4102, part 15, table 1</u>	--	--	--		
2	<u>Max. flame height above bottom edge</u>	70	70	70		
	cm					
4	<u>Melt through / burn through</u>					
	Time ¹⁾	1:00	1:00	0:30		
5	<u>Observations on the backside of the specimens</u>					
	Flames/smouldering					
6	Time ¹⁾	--	--	--		
	Discolouration					
7	Time ¹⁾	10:00	10:00	10:00		
	<u>Burning droplets</u>					
8	Start ¹⁾	--	--	--		
	<u>Extent</u>					
9	sporadic burning droplets	--	--	--		
10	continually falling particles	--	--	--		
11	<u>Falling particles which burns</u>					
	Start ¹⁾	1:06	1:29	--		
12	sporadic falling parts	x	x	--		
13	continually falling particles	--	--	--		
14	Duration of the burning on the screen bottom (max.)	0:02	--	--		
	min : s					
15	<u>Interference of the burner flame by dripping /falling particles</u>					
	Time ¹⁾	--	--	--		
16	<u>Early termination of the test</u>					
	End of burning at the specimen ¹⁾	--	--	--		
16	Time of early cancellation of the test ¹⁾					
	min : s	--	--	--		

1) Time counting from the start of the test

row-no.		Results of the Brandschichttest (part 2)					
		measurements test specimen					
		A3		B3		C3	
<u>Continuous burning after termination of the test</u>							
17	Duration min : s	--	--	--	--	--	--
18	Number of specimens	--	--	--	--	--	--
19	Front side of the specimen	--	--	--	--	--	--
20	Back side of the specimen	--	--	--	--	--	--
21	Flame length cm	--	--	--	--	--	--
<u>Smouldering after termination of the test</u>							
22	Duration min : s	--	--	--	--	--	--
23	Number of specimens	--	--	--	--	--	--
<u>Location</u>							
24	Lower half of the specimens	--	--	--	--	--	--
25	Upper half of the specimens	--	--	--	--	--	--
26	Front side of the specimen	--	--	--	--	--	--
27	Backside of the specimen	--	--	--	--	--	--
<u>Smoke development</u>							
28	≤ 400 % x min	63	70	42			
29	> 400 % x min	--	--	--			
30	Diagram in appendix	--	--	2			
<u>Residual lengths</u>							
31	Single values cm	46	44	45	46	38	36
		48	48	47	46	45	36
32	Average values cm	47 ²⁾	46 ²⁾	39			
33	Photo of the specimen on page	15	--	16			
<u>Smoke temperature</u>							
34	Maximum value of the averaged values °C	119	117	126			
35	Time ¹⁾ min : s	9:59	9:38	9:52			
36	Diagram in appendix Nr.	--	--	2			
37	<u>Remarks:</u> For the test the self-adhesive foils were glued onto steel sheets with a thickness of 0.88 mm. 2) Due to the residual length of > 45 cm further tests on this type of foil were not necessary. The results of the tests A3 and B3 were taken of the test report no. 230011122 of 26.07.2017.						

Results of the Brandschacht test (part 1)					
row- no.	Type of the foils: „Coala 1D 100 Matt RG” and „Coala 1D 100 Gloss RG” Gloss level of the foils:	measurements test specimen			
		matt A4	glossy B4	glossy C4	
1	<u>No. of test specimen arrangement according to DIN 4102, part 15 , table 1</u>	--	--	--	
2	<u>Max. flame height above bottom edge</u> cm	70	70	70	
	Time ¹⁾ min : s	1:00	1:00	1:00	
4	<u>Melt through / burn through</u> Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
5	<u>Observations on the backside of the specimens</u> Flames/smouldering Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
6	Discolouration Time ¹⁾ min : s	10:00	10:00	10:00	
7	<u>Burning droplets</u> Start ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
8	<u>Extent</u> sporadic burning droplets	-- ²⁾	-- ²⁾	-- ²⁾	
9	continually falling particles	-- ²⁾	-- ²⁾	-- ²⁾	
10	<u>Falling particles which burns</u> Start ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
11	sporadic falling parts	-- ²⁾	-- ²⁾	-- ²⁾	
12	continually falling particles	-- ²⁾	-- ²⁾	-- ²⁾	
13	Duration of the burning on the screen bottom (max.) min : s	-- ²⁾	-- ²⁾	-- ²⁾	
14	<u>Interference of the burner flame by dripping /falling particles</u> Time ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
15	<u>Early termination of the test</u> End of burning at the specimen ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	
16	Time of early cancellation of the test ¹⁾ min : s	-- ²⁾	-- ²⁾	-- ²⁾	

¹⁾ Time counting from the start of the test

row-no.		Results of the Brandschachttest (part 2)							
		measurements test specimen							
		A4		B4		C4			
<u>Continuous burning after termination of the test</u>									
17	Duration min : s	--2)		--2)		--2)			
18	Number of specimens	--2)		--2)		--2)			
19	Front side of the specimen	--2)		--2)		--2)			
20	Back side of the specimen	--2)		--2)		--2)			
21	Flame length cm	--2)		--2)		--2)			
<u>Smouldering after termination of the test</u>									
22	Duration min : s	--2)		--2)		--2)			
23	Number of specimens	--2)		--2)		--2)			
<u>Location</u>									
24	Lower half of the specimens	--2)		--2)		--2)			
25	Upper half of the specimens	--2)		--2)		--2)			
26	Front side of the specimen	--2)		--2)		--2)			
27	Backside of the specimen	--2)		--2)		--2)			
<u>Smoke development</u>									
28	≤ 400 % x min	45		57		27			
29	> 400 % x min	--2)		--2)		--2)			
30	Diagram in appendix	--		--		3			
<u>Residual lengths</u>									
31	Single values cm	46	47	46	47	45	47		
		48	48	46	42	44	47		
32	Average values cm	47 ³⁾		45 ³⁾		46			
33	Photo of the specimen on page	--		--		17			
<u>Smoke temperature</u>									
34	Maximum value of the averaged values °C	118		116		123			
35	Time ¹⁾ min : s	9:28		1:13		9:57			
36	Diagram in appendix Nr.	--		--		3			
37	<u>Remarks:</u> For the test the self-adhesive foils were glued onto steel sheets with a thickness of 0.88 mm. 2) did not occur 3) Due to the average residual length of > 45 cm further tests on these types of foils were not necessary according to DIN 4102-16 section 5.2 b). The results of the tests A4 and B4 were taken of the test report no. 230011122 of 26.07.2017.								

Look of the samples of the test material



Picture 1: Look of specimen D1 after the Brandschacht test

Look of the samples of the test material



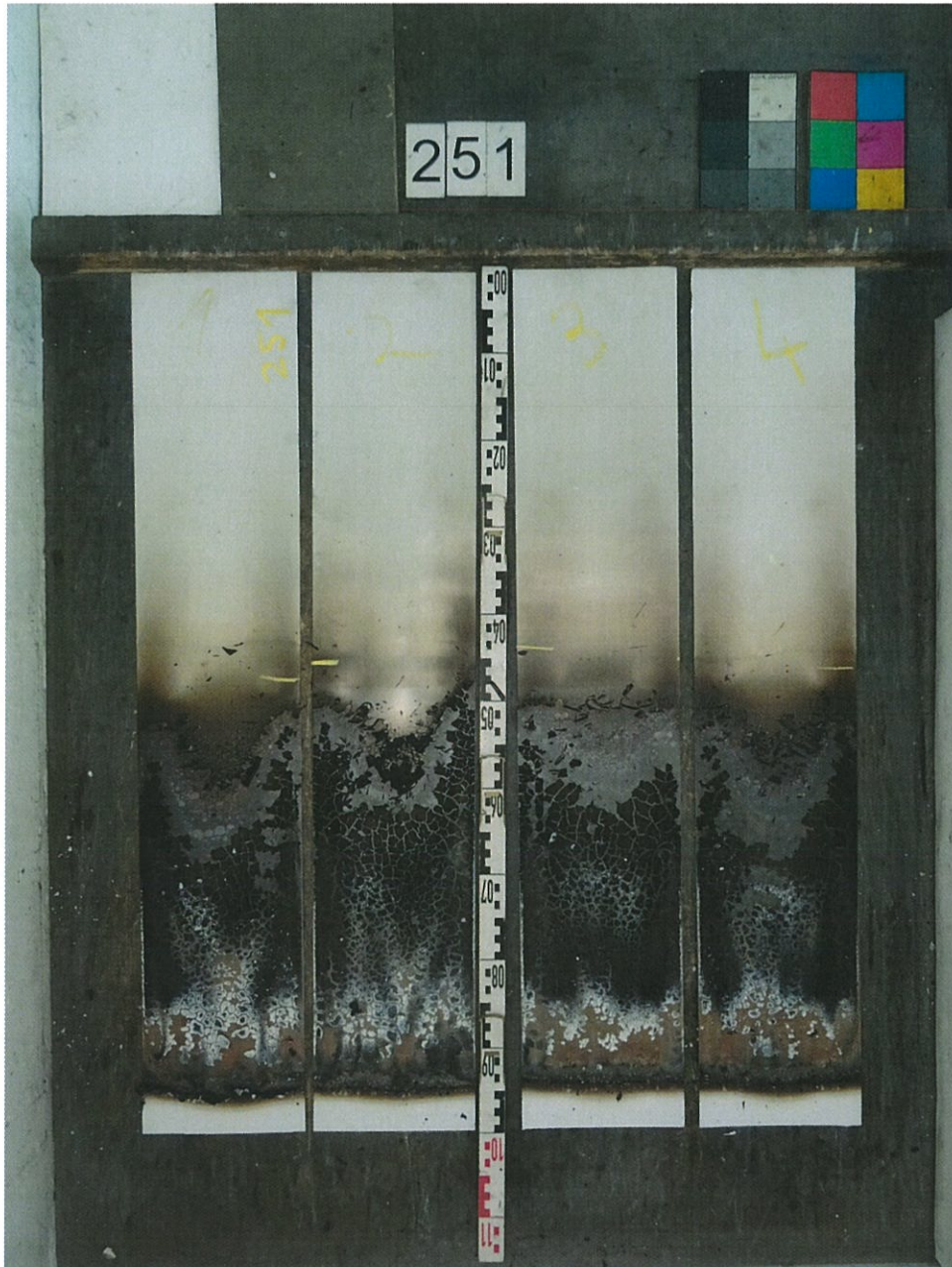
Picture 2: Look of specimen A3 after the Brandschacht test

Look of the samples of the test material



Picture 3: Look of specimen C3 after the Brandschacht test

Look of the samples of the test material



Picture 4: Look of specimen C4 after the Brandschacht test

Results of the B2-testing according to DIN 4102-01

(Tests with flaming the edge)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D Lam Matt“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	-- ¹⁾	-- ¹⁾	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	3	2	--	--	2
Max. height of the flame (cm)	1	1	0	0	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D Lam Gloss“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	15	15	15	15	15
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Results of the B2-testing according to DIN 4102-01

(Tests with flaming the edge)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 80 Gloss P“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	-- ¹⁾	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	-- ¹⁾	2	2	1	2
Max. height of the flame (cm)	0	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 80 Matt P“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	4	2	2	2	2
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Results of the B2-testing according to DIN 4102-01

(Tests with flaming the edge)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 100 Matt P“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	2	2	2	2	2
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 100 Matt PG“
glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Max. height of the flame (cm)	0	0	0	0	0
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	not observable				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011271 of 18.12.2017.

Results of the B2-testing according to DIN 4102-01
 (Tests with flaming the edge)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 100 Matt R“
 glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	3	1	1	2	2
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011122 of 26.07.2017.

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 100 Matt RG“
 glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	15	15	15	15	15
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011122 of 26.07.2017.

Results of the B2-testing according to DIN 4102-01

(Tests with flaming the edge)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the foil type „Coala 1D 100 Gloss RG“ glued on 0.88 mm thick steel sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	1	1
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	15	15	15	15	15
Max. height of the flame (cm)	1	1	1	1	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	very low				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

2) The test results were taken of the test report no. 230011122 of 26.07.2017.

(Tests with flaming the surface)

Point of flame attack: 40 mm above the lower edge of the front side, flaming of the foil type „Coala 1D Lam Gloss“ glued on 0.88 mm thick steel sheets across the production direction

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Flame passing the limit mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Self extinguishment (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Max. height of the flame (cm)	0	0	0	0	0
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	not observable				
Falling of burning particles / droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

Results of the B2-testing according to DIN 4102-01

(Tests with flaming the surface)

Point of flame attack: 40 mm above the lower edge of the front side, flaming of the foil type „Coala 1D 100 Matt P“ glued on 0.88 mm thick steel sheets across the production direction

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	--1)	--1)	--1)	--1)	--1)
Flame passing the limit mark (s)	--1)	--1)	--1)	--1)	--1)
Self extinguishment (s)	--1)	--1)	--1)	--1)	--1)
Max. height of the flame (cm)	0	0	0	0	0
Continuous burning after 20 s	--1)	--1)	--1)	--1)	--1)
Continuous smouldering after 20 s	--1)	--1)	--1)	--1)	--1)
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	not observable				
Falling of burning particles / droplets time (s)	--1)	--1)	--1)	--1)	--1)

Remarks: 1) Did not occur

Point of flame attack: 40 mm above the lower edge of the front side, flaming of the foil type „Coala 1D 100 Gloss RG“ glued on 0.88 mm thick steel sheets across the production direction

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	--1)	--1)	--1)	--1)	--1)
Flame passing the limit mark (s)	--1)	--1)	--1)	--1)	--1)
Self extinguishment (s)	--1)	--1)	--1)	--1)	--1)
Max. height of the flame (cm)	0	0	0	0	0
Continuous burning after 20 s	--1)	--1)	--1)	--1)	--1)
Continuous smouldering after 20 s	--1)	--1)	--1)	--1)	--1)
Extinguishment of flames / glowing after passing the limit mark	--	--	--	--	--
Smoke development (visual observation)	not observable				
Falling of burning particles / droplets time (s)	--1)	--1)	--1)	--1)	--1)

Remarks: 1) Did not occur

Assessment

- The products described on the pages 2 till 5 fulfilled the requirements of building products according to Baustoffklasse B2. According to the results, the products as tested in the described arrangement also fulfil the requirements of building products according to Baustoffklasse B1. In consequence the products can be classified as

Baustoffklasse B1 (schwerentflammbare Baustoffe)

according to DIN 4102 part 1 (Mai 1998). This assessment is only valid, if the foils are glued on steel substrate. The surface of the self-adhesive foils may not be covered with paints, coatings or similar products. The resistance of the fire behaviour against climatic influences in the outside was not proofed. Therefore the product may be used as schwerentflammbar only inside of buildings or in otherwise weather protected areas.

- The material does not produce burning droplets / particles.

Special remark

- The validity of this test certificate ends on 02.07.2022. The period of validity can be extended on application.
- Since the above mentioned materials are used for markings, letterings and decorations they are no building products according to §2 chapter 9 no. 1 MBO. An allgemeines bauaufsichtliches Prüfzeugnis of the test institute respectively an allgemeine bauaufsichtliche Zulassung of Deutsches Institut für Bautechnik, Berlin is not necessary.
- This test certificate is not the requested approval, if the tested material is used as building product according to the German building regulations.

Marking

The above mentioned materials have to be marked as following:

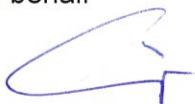
- "Only schwerentflammbar (class DIN 4102-B1) glued on steel substrate"

The marking shall be done on the material, on an enclosed paper or on the packaging or, if this would be too difficult, on the delivery-note or on an enclosure to the delivery-note.

This test certificate is solely valid in combination with the original test certificate issued in German language and dated of 20.11.2019. In case of doubt, the certificate issued in German language is valid solely.

Erwitte, 20.11.2019

On behalf



Dipl.-Ing. Schreiner

Assistant head of testing body



Date of issue of this English version: 20.11.2019

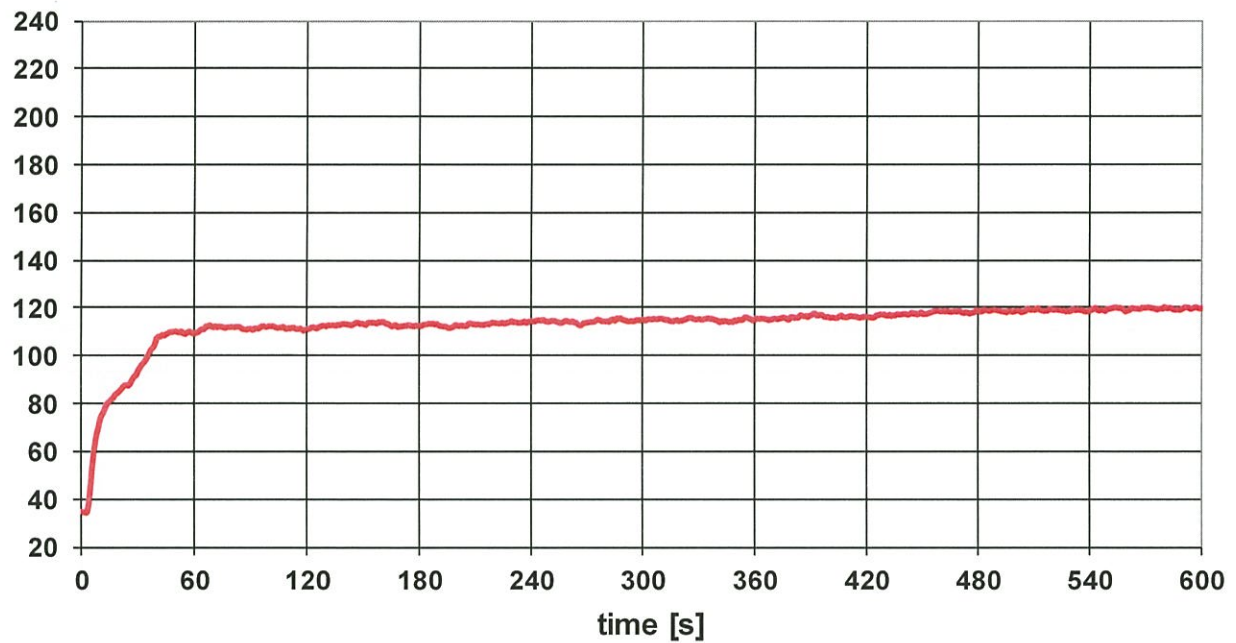
Max. flue gas-temperature = 120 °C
at [min : s] 09 : 40

Smoke-development [% x min]: 47

Enclosure 1 of the test report
no. 231000515 of 20.11.2019

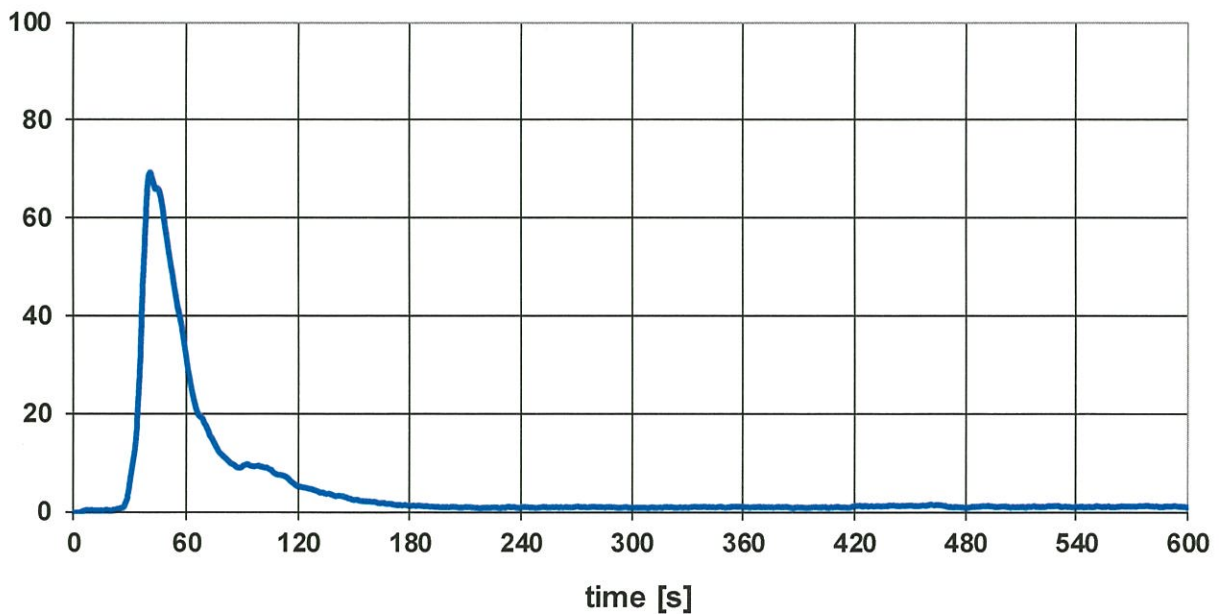
T [°C]

Average flue gas-temperature



RD [%]

Smoke-development



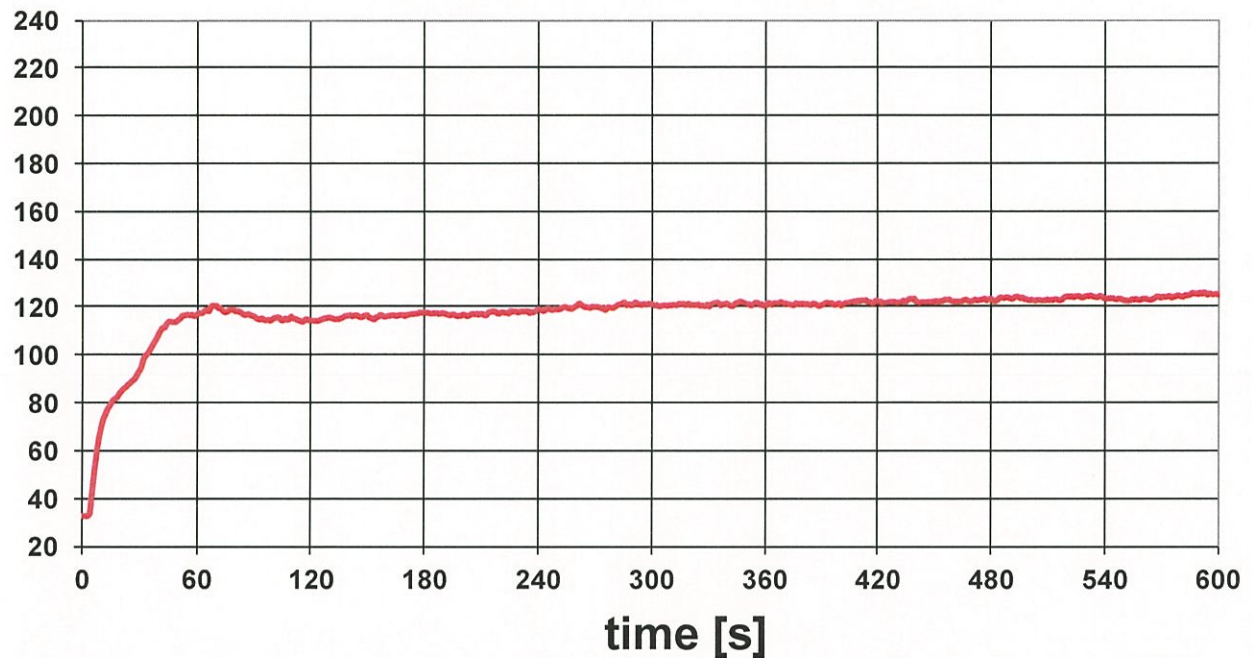
Max. flue gas-temperature = 126 °C
at [min : s] 09 : 52

Smoke-development [% x min]: 42

Enclosure 2 of the test report
no. 231000515 of 20.11.2019

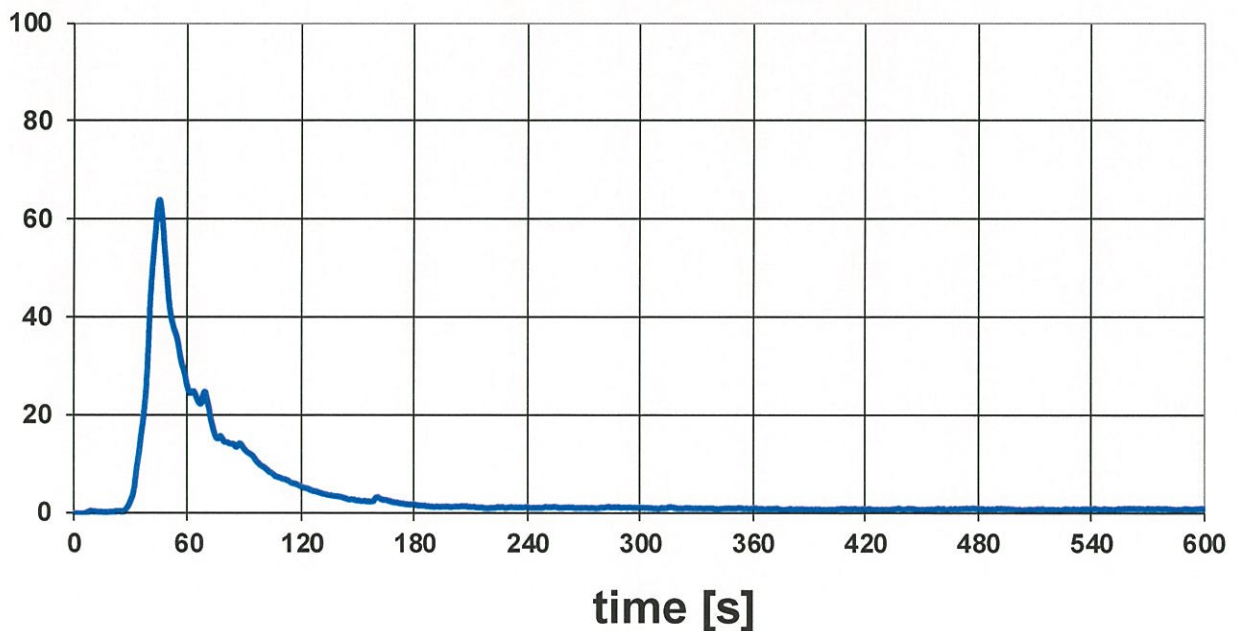
T [°C]

Average flue gas-temperature



RD [%]

Smoke-development



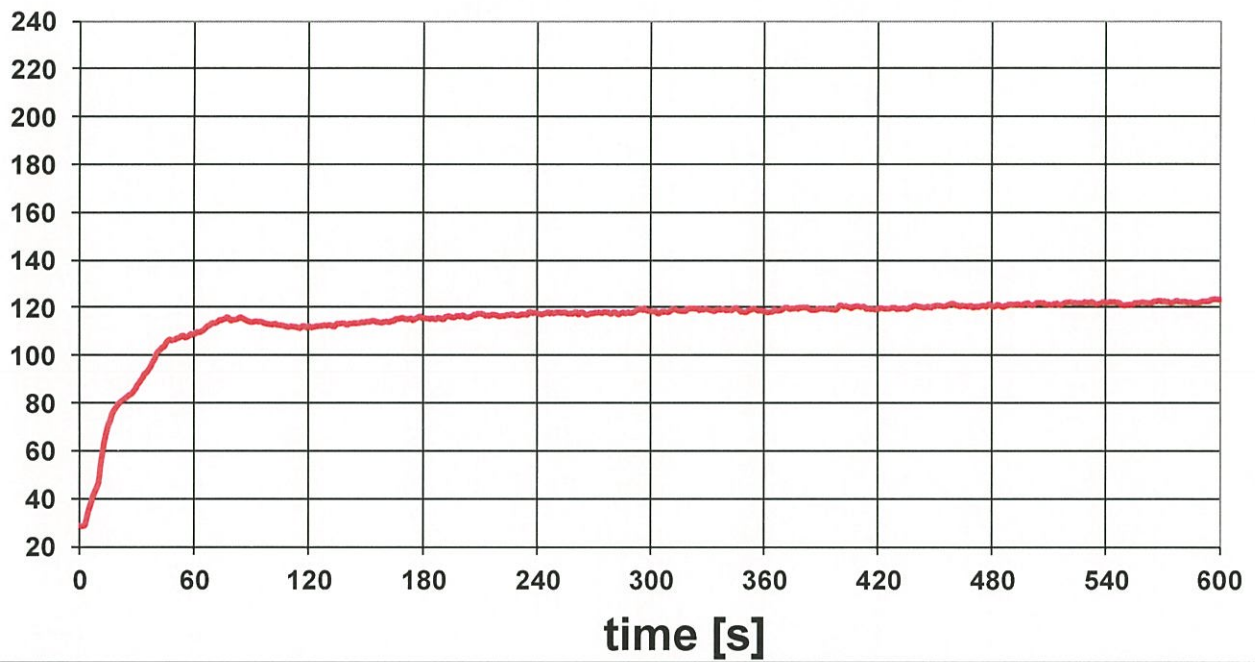
Max. flue gas-temperature = 123 °C
at [min : s] 09 : 57

Smoke-development [% x min]: 27

Enclosure 3 of the test report
no. 231000515 of 20.11.2019

T [°C]

Average flue gas-temperature



RD [%]

Smoke-development

