

TEST CERTIFICATE

No. 231000628

issued 19.03.2020

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

English version

Date of application: 06.01.2020
Date of sampling: Samples were sent in by the sponsor
Samples delivered on 30.01.2020
Date of testing: 14.02.2020, 17.02.2020, 26.02.2020, 02.03.2020 and 16.03.2020

Order

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

Description / Name of tested product

PVC-self adhesive films DTEC 120SP-v3 White Gloss, DTEC 120SPGAF-v3 White Gloss Airfree and DTEC 221SP-v3 Transparent Gloss

Applied test procedure

DIN 4102 part 1 (May 1998)

Remark: This test certificate is a translation of the original test certificate no. 231000628 issued 19.03.2020 in German language and is only allowed to be used together with the original test certificate.

The test results only relate to the above named product, described on page 2.
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 10 pages and 1 enclosure.

Test material

Name of tested product: DTEC 120SP-v3 White Gloss, DTEC 120SPGAF-v3 White Gloss Airfree and DTEC 221SP-v3 Transparent Gloss

Description:

Polymeric PVC-films in the following variants, one-sided coated with a solvent based acrylic adhesive:

DTEC 120SP-v3: white, glossy film with a thickness of 75 μ ($\pm$ 5 %) and a grey adhesive

DTEC 120SPGAF-v3: white, glossy film with a thickness of 75 μ ($\pm$ 5 %) and a grey, micro-structured adhesive

DTEC 221SP-v3: colourless, transparent, glossy Film with a thickness of 75 μ ($\pm$ 5 %) and a colourless, clear adhesive

(Information given by the sponsor)

Colour of the films DTEC 120SP-v3 and DTEC 120SPGAF-v3: white

Colour of the film DTEC 221SP-v3: colourless, transparent

Table 1: Specific values of the tested material

		Minimum value	Average value	Maximum value
Thickness of the self adhesive films	mm	--	0.09	--
Mass per unit area	g/m ²	--	120	--
DTEC 120SP-v3		--	121	--
DTEC 120SPGAF-v3 White Gloss Airfree		--	115	--
DTEC 221SP-v3 Transparent Gloss		--	--	--
Density	kg/m ³	--	--	--

Special notes: None

Results of the "Brandschacht"-test (part 1)					
row-no.	Film type:	measurements			
		DTEC 120 SP-v 3 A1	DTEC 120 SPGAF - v 3 B1		
1	<u>No. of test specimen arrangement according to DIN 4102, part 15, table 1</u>	7	7		
2	<u>Max. flame height above bottom edge</u>				
	cm	60	70		
	Time ¹⁾ min : s	1:30	1:00		
3	<u>Melt through / burn through</u>				
	Time ¹⁾ min : s	--2)	--2)		
4	<u>Observations on the rear side of the specimens</u>				
	Flames/glowing				
	Time ¹⁾ min : s	--2)	--2)		
5	Discolouration				
	Time ¹⁾ min : s	10:00	10:00		
6	<u>Burning droplets</u>				
	Start ¹⁾ min : s	--2)	--2)		
	<u>Extent</u>				
7	sporadic burning droplets	--2)	--2)		
8	continually falling particles	--2)	--2)		
9	<u>Dropping flaming particles</u>				
	Start ¹⁾ min : s	--2)	--2)		
10	sporadic dropping parts	--2)	--2)		
11	continually dropping particles	--2)	--2)		
12	Duration of the burning on the sieve ground (max.) min : s	--2)	--2)		
13	<u>Interference of the burner flame by dripping /falling particles</u>				
	Time ¹⁾ min : s	--2)	--2)		
14	<u>Premature termination of the test</u>				
	End of burning at the specimen ¹⁾ min : s	--2)	--2)		
15	Time of premature cancellation of the test ¹⁾ min : s	--2)	--2)		

¹⁾ Time counting from the start of the test

Results of the "Brandschacht"-test (part 1)					
row-no.	Film type: DTEC 221SP-v 3Transparent Gloss	measurements test specimen			
		A2	B2	C2	D2
1	<u>No. of test specimen arrangement according to DIN 4102, part 15, table 1</u>	7	7	7	7
2	<u>Max. flame height above bottom edge</u>				
	cm	70	70	80	80
	Time ¹⁾				
	min : s	0:30	1:00	1:00	0:30
3	<u>Melt through / burn through</u>				
	Time ¹⁾	min : s	--2)	--2)	--2)
4	<u>Observations on the rear side of the specimens</u>				
	Flames/glowing				
5	Time ¹⁾	min : s	--2)	--2)	--2)
	Discolouration				
	Time ¹⁾	min : s	10:00	10:00	10:00
	<u>Burning droplets</u>				
6	Start ¹⁾	min : s	--2)	--2)	--2)
	<u>Extent</u>				
7	sporadic burning droplets		--2)	--2)	--2)
8	continually falling particles		--2)	--2)	--2)
9	<u>Dropping flaming particles</u>				
	Start ¹⁾	min : s	--2)	--2)	--2)
10	sporadic dropping parts		--2)	--2)	--2)
11	continually dropping particles		--2)	--2)	--2)
12	<u>Duration of the burning on the sieve ground (max.)</u>	min : s	--2)	--2)	--2)
13	<u>Interference of the burner flame by dripping /falling particles</u>				
	Time ¹⁾	min : s	--2)	--2)	--2)
14	<u>Premature termination of the test</u>				
	End of burning at the specimen ¹⁾	min : s	--2)	--2)	--2)
15	Time of premature cancellation of the test ¹⁾	min : s	--2)	--2)	--2)

¹⁾ Time counting from the start of the test

Look of the samples of the test material



Picture 1: Look of specimen C2 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 film type DTEC 120SP-v3 White Gloss in production direction, glued on 1 mm thick aluminium sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	3	3	3	3	3
Flame passing the gauge 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 gauge mark	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Smoke development (visual observation)	very low				
Dropping flaming particles / burning droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾

Remarks: 1) Did not occur

Point of flame attack: lower edge of the front side; flaming of the film type DTEC 120SPGAF-v3 White Gloss Airfree in production direction, glued on 1 mm thick aluminium sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	10	10	10	10	10
Flame passing the gauge 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 gauge mark	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Smoke development (visual observation)	very low				
Dropping flaming particles / burning 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 edge)

Protection of edges: --

Point of flame attack: lower edge of the front side; flaming of the film type DTEC 221SP-v3
 in production direction, glued on 1 mm thick aluminium sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	-- ¹⁾	-- ¹⁾	-- ¹⁾	-- ¹⁾
Flame passing the gauge mark (s)	-- ¹⁾	--	--	--	--
Self extinguishment (s)	15	--	--	--	--
Max. height of the flame (cm)	3	0	0	0	0
Continuous burning after 20 s	-- ¹⁾	--	--	--	--
Continuous smouldering after 20 s	-- ¹⁾	--	--	--	--
Extinguishment of flames / glowing after passing the gauge mark	-- ¹⁾	--	--	--	--
Smoke development (visual observation)	low				
Dropping flaming particles / burning droplets time (s)	-- ¹⁾	--	--	--	--

Remarks: 1) Did not occur

Point of flame attack: lower edge of the front side; flaming of the film type DTEC 221SP-v3 across the production direction, glued on 1 mm thick aluminium sheets

Specimen No.	1	2	3	4	5
(Times stated from start of test)					
Ignition (s)	1	1	1	-- ¹⁾	1
Flame passing the gauge mark (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	--	-- ¹⁾
Self extinguishment (s)	15	15	15	--	15
Max. height of the flame (cm)	1	1	1	0	1
Continuous burning after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	--	-- ¹⁾
Continuous smouldering after 20 s	-- ¹⁾	-- ¹⁾	-- ¹⁾	--	-- ¹⁾
Extinguishment of flames / glowing after passing the gauge mark	-- ¹⁾	-- ¹⁾	-- ¹⁾	--	-- ¹⁾
Smoke development (visual observation)	very low				
Dropping flaming particles / burning droplets time (s)	-- ¹⁾	-- ¹⁾	-- ¹⁾	--	-- ¹⁾

Remarks: 1) Did not occur

Due to the low flame heights by flaming the edge, negative results by flaming the surface are not expected. By this reason tests with flaming the surface were not necessary according to DIN 4102-1 section 6.2.5.3.

Assessment

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

Baustoffklasse B1 (schwerentflammbare Baustoffe)

according to DIN 4102 part 1 (Mai 1998). This assessment is only valid, if the films are glued on metallic substrates with a density of $\geq 2,025 \text{ kg/m}^3$, a melting point of $\geq 500 \text{ °C}$ and a thickness of $\geq 0,8 \text{ mm}$. The surface of the films may not be covered with paints, coatings or similar products. The resistance of the fire behaviour against climatic influences outdoors was not proven. Therefore the product may be used as schwerentflammbar inside of buildings or in otherwise weather protected areas, only.

- The material does not produce burning droplets / particles.

Special remark

- The validity of this test certificate ends on 18.03.2025. The period of validity can be extended on application.
- Since the material is used in the advertising area and for decorations it is no building product 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.
- This test report cannot be used as approval for the purpose of the national building code.

Marking

The above mentioned material has to be marked as following:

- "Only schwerentflammbar (class DIN 4102-B1) on metallic substrates with a density of $\geq 2,025 \text{ kg/m}^3$, a melting point of $\geq 500 \text{ °C}$ and a thickness of $\geq 0,8 \text{ mm}$ "

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 19.03.2020. In case of doubt, the certificate issued in German language is solely valid.

Erwitte, 19.03.2020

On behalf

Dipl.-Ing. Rademacher

Head of testing body

Date of issue of this English version: 19.03.2020



Dipl.-Ing. Schreiner
Engineer in charge

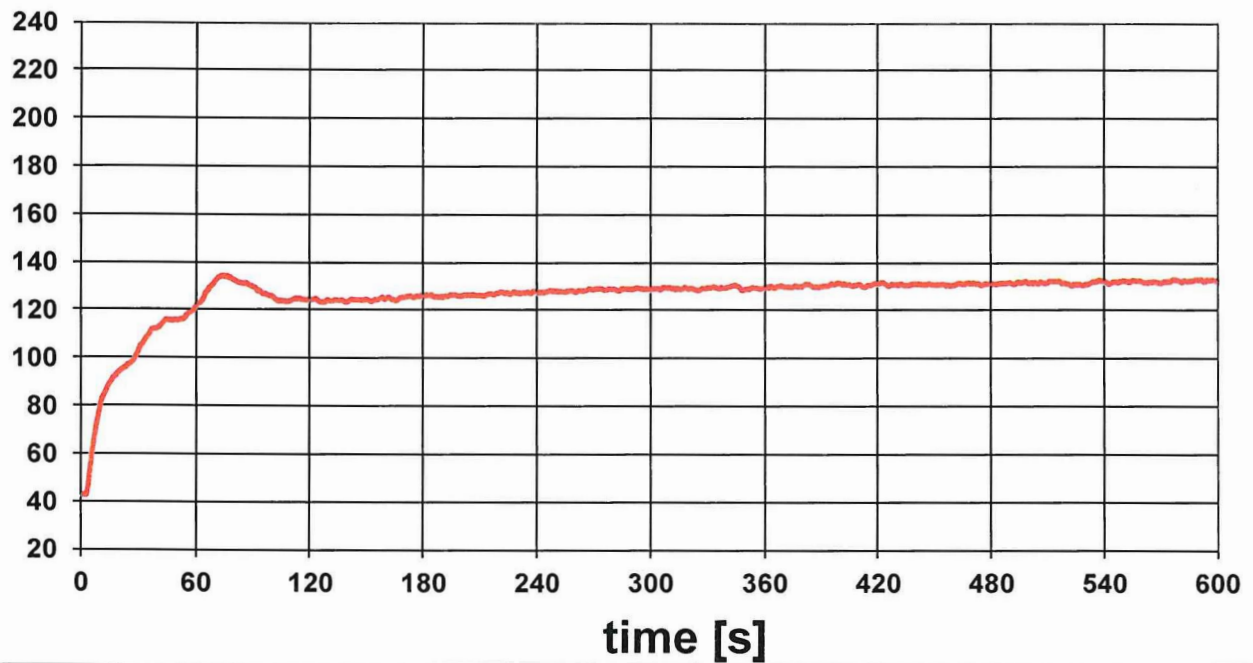
Max. flue gas-temperature = 134 °C
at [min : s] 01 : 14

Smoke-development [% x min]: 28

Enclosure 1 of the test report
no. 231000628 of 19.03.2020

T [°C]

Average flue gas-temperature



RD [%]

Smoke-development

