



Testing. Advising. Assuring.

Test report No. 2017-1567
for applying of a required "Verwendbarkeitsnachweis"
issued 21.07.2017

Applicant: ISINAC ACOUSTIC WORLD SL
c / Lopez de Neira 3
36203 - Vigo - Spain

Date of order: 09.06.2017
Date of sampling: *no official sampling of the specimen by a representative of Exova Warringtonfire, Frankfurt*
Date of arrival: 19.06.2017
13.07.2017 + 18.07.2017

Order

Testing of the flammability (building class B1) according to DIN 4102-1 (May 1998)

Description / designation of the test object

Fabric samples designated as. ILUCS

Description of the relevant test procedure

DIN 4102 part 1 (Mai 1998)

This test report does not replace the required „Verwendbarkeitsnachweis“. It is only used for issuing the "Verwendbarkeitsnachweis".

1. Description of the test material

1.1 Details of the customer:

Fabric samples designated as. ILUCS

Sample description:

ILUCS LC415

Run: 311016

Weight: 265 g/m²

Thickness: 0.9mm

ILUCS LC009

Run: 337671

Weight: 265 g/m²

Thickness: 0.9mm

ILUCS LC094

Run: 339814

Weight: 265 g/m²

Thickness: 0.9mm

Intended end use of product Contract / Transport Seating

1.2 By Exova Warringtonfire, Frankfurt determined values:

Fabric samples

Colour:	yellow	grey	black
Thickness:	0,63 mm	0,64 mm	0,63 mm
Square weight:	262 g/m ²	262 g/m ²	278 g/m ²

Testing after storing 14- days under climatic conditions (23°C / 50 % rel. humidity).

2. Test results

2.1.1 Brandschachtprüfung according to DIN 4102-1

Sample A: Material tested in production direction. Colour: yellow
 Sample B: Material tested crosswise to the production direction. Colour: yellow
 Sample C: Material tested in production direction. Colour: grey
 Sample C: Material tested crosswise to the production direction. Colour: grey

Test results of the Brandschacht tests part 1						
line no.		Measurements test sample				
			A	B	C	D
1	<u>no. test arrangement according to DIN 4102 part 15, table 1</u>		1	1	1	1
2	<u>flame height max. over lower sample edge</u> time ¹⁾	cm	30	30	30	30
		min : s	0:05	0:06	0:06	0:04
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	0:04	0:06	0:05	0:03
4	<u>melting / burning through</u> time ¹⁾	min : s	0:06	0:08	0:08	0:05
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾	min : s	no	no	no	no
		min : s	no	no	no	no
6	discolouring time ¹⁾	min : s	no	no	no	no
		min : s	no	no	no	no
7	<u>burning droplets</u> begin ¹⁾ extent	min : s	not occurred	not occurred	not occurred	not occurred
8	occasional dropping of material					
9	constant dropping of material					
10	<u>separating from burning sample parts</u> begin ¹⁾	min : s	no	no	no	no
11	occasional separating parts					
12	constant separating parts					
13	duration of burning on the sieve tray (max.)	min : s	not occurred	not occurred	not occurred	not occurred
14	influence on the burner flame by dropping of / separating material time ¹⁾	min : s	no	no	no	no
15	<u>earlier end of test</u> end of the fire scenario on the sample ¹⁾	min : s	no	no	no	no
16	time of a possible resulted test stop ¹⁾	min : s	no	no	no	no
		min : s				

¹⁾ time from start of test

Test results of the Brandschacht tests part 2						
line no.			Measurements test sample			
			A	B	C	D
17	<u>flaming after end of test</u> duration	min : s	--/--	--/--	--/--	--/--
18	number of sample		--/--	--/--	--/--	--/--
19	front side of sample		--/--	--/--	--/--	--/--
20	backside of sample		--/--	--/--	--/--	--/--
21	flame length		cm	--/--	--/--	--/--
22	<u>glowing after end of test</u> duration	min . s	not occurred	not occurred	not occurred	not occurred
23	number of sample		--/--	--/--	--/--	--/--
	place of occurrence		--/--	--/--	--/--	--/--
24	lower sample part		--/--	--/--	--/--	--/--
25	upper sample part		--/--	--/--	--/--	--/--
26	front side of sample		--/--	--/--	--/--	--/--
27	backside of sample		--/--	--/--	--/--	--/--
28	<u>smoke density</u> < 400 % x min		6	16	12	2
29	> 440 % x min		--/--	--/--	--/--	--/--
30	<u>diagram in annex no.</u>		1	2	3	4
31	<u>residual length</u> single results	cm	67 / 68 70 / 70	70 / 71 63 / 70	68 / 67 67 / 62	68 / 68 68 / 67
32	average of the single results	cm	68	68	66	67
33	photo of the sample on page		5	5	5	5
34	<u>smoke temperature</u> max. of the average results	°C	118	116	119	121
35	time ¹⁾	min : s	9:06	9:19	8:04	8:59
36	diagram in annex no.		1	2	3	4

¹⁾ time from start of test

Remarks:

2. Test results

2.1.2 Brandschachtprüfung according to DIN 4102-1

Sample E: Material tested in production direction. Colour: black
 Sample F: Material tested crosswise to the production direction. Colour: black

Test results of the Brandschacht tests part 1					
line no.		Measurements test sample			
			E	F	
1	<u>no. test arrangement according to DIN 4102 part 15, table 1</u>		1	1	
2	<u>flame height max. over lower sample edge</u> time ¹⁾	cm	30	30	
		min : s	0:05	0:06	
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	0:04	0:04	
4	<u>melting / burning through</u> time ¹⁾	min : s	0:07	0:07	
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾	min : s	no	no	
		min : s	no	no	
6	discolouring time ¹⁾	min : s	no	no	
		min : s	no	no	
7	<u>burning droplets</u> begin ¹⁾ extent occasional dropping of material constant dropping of material	min : s	not occurred	not occurred	
		min : s	no	no	
		min : s	no	no	
10	<u>separating from burning sample parts</u> begin ¹⁾ occasional separating parts constant separating parts	min : s	no	no	
		min : s	not occurred	not occurred	
		min : s	no	no	
14	influence on the burner flame by dropping of / separating material time ¹⁾	min : s	no	no	
		min : s	no	no	
15	<u>earlier end of test</u> end of the fire scenario on the sample ¹⁾ time of a possible resulted test stop ¹⁾	min : s	no	no	
		min : s	no	no	

¹⁾ time from start of test

Test results of the Brandschacht tests part 2					
line no.		Measurements test sample			
			E	F	
17	<u>flaming after end of test</u> duration	min : s	--/--	--/--	
18	number of sample		--/--	--/--	
19	front side of sample		--/--	--/--	
20	backside of sample		--/--	--/--	
21	flame length		cm	--/--	--/--
22	<u>glowing after end of test</u> duration	min : s	not occurred	not occurred	
23	number of sample		--/--	--/--	
24	place of occurrence		--/--	--/--	
25	lower sample part		--/--	--/--	
26	upper sample part		--/--	--/--	
27	front side of sample		--/--	--/--	
27	backside of sample		--/--	--/--	
28	<u>smoke density</u> < 400 % x min		6	8	
29	> 440 % x min		--/--	--/--	
30	diagram in annex no.		5	6	
31	<u>residual length</u> single results	cm	70 / 70 71 / 68	71 / 71 66 / 67	
32	average of the single results	cm	69	68	
33	photo of the sample on page		5	5	
34	<u>smoke temperature</u> max. of the average results	°C	122	121	
35	time ¹⁾	min : s	9:26	9:44	
36	diagram in annex no.		5	6	

¹⁾ time from start of test

Remarks:

2.1.3 Appearance of the specimen after the test:



Sample A



Sample B



Sample C



Sample D

2.1.3 Appearance of the specimen after the test:



Sample E



Sample F

2.2.1 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
 Flame application on: lower sample edge
 Edge ignition

Length direction Colour: yellow

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	4	4	4	4	4
Max. flame height [mm]	30	30	30	30	30
Time [s]	3	3	3	3	3
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <small>low / moderate / strong</small>	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction Colour: yellow

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	4	4	4	4	4
Max. flame height [mm]	30	30	30	30	30
Time [s]	3	3	3	3	3
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression)	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

2.2.2 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
 Flame application on: lower sample edge
 Edge ignition

Length direction Colour: grey

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	4	4	4	4	4
Max. flame height [mm]	30	30	30	30	30
Time [s]	3	3	3	3	3
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <small>low / moderate / strong</small>	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction Colour: grey

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	4	4	4	4	4
Max. flame height [mm]	30	30	30	30	30
Time [s]	3	3	3	3	3
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression)	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

2.2.3 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
 Flame application on: lower sample edge
 Edge ignition

Length direction Colour: black

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	13	18	21	6	24
Max. flame height [mm]	120	130	130	40	90
Time [s]	8	10	8	4	7
End of afterflaming [s]	-	3	6	-	9
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <small>low / moderate / strong</small>	moderate smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction Colour: black

Sample-no.					
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	7	8	8	24	9
Max. flame height [mm]	60	60	60	110	80
Time [s]	5	5	5	9	7
End of afterflaming [s]	-	-	-	9	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression)	moderate smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

2.2.4 Appearance of the sample after the small burner test:



Assessment

The material described in chapter one fulfils the requirements of the building class B2 according to DIN 4102-1 (Mai 1998).

The determined test results show that the material also fulfils the requirements

of the building class B1

according to DIN 4102-1 (Mai 1998).

Special note

The fire test result is only valid for the material described in chapter one in the tested colour and square weight.

The test was carried out in free hanging configuration.

The distance to other plane material must be more or equal then 40 mm.

The material wasn't tested after an outside storage.

In combination with other materials (for example coatings, deposits) the burning behaviour could be influenced unfavourable so that the classification above is not valid any longer. According to DIN 4102-1 the burning behaviour in combination with other materials has to be tested separately.

This test report does not replace the required „Verwendbarkeitsnachweis“. It is only used for issuing the “Verwendbarkeitsnachweis”.

Frankfurt, the 21.07.2017

Handwritten signature of H. Anders in blue ink.

H. Anders
Tester in Charge

Handwritten signature of Dipl.-Ing. T. Zachäus in blue ink.

Dipl.-Ing. T. Zachäus
Head of the business

This Test report is valid until 12.07.2022.

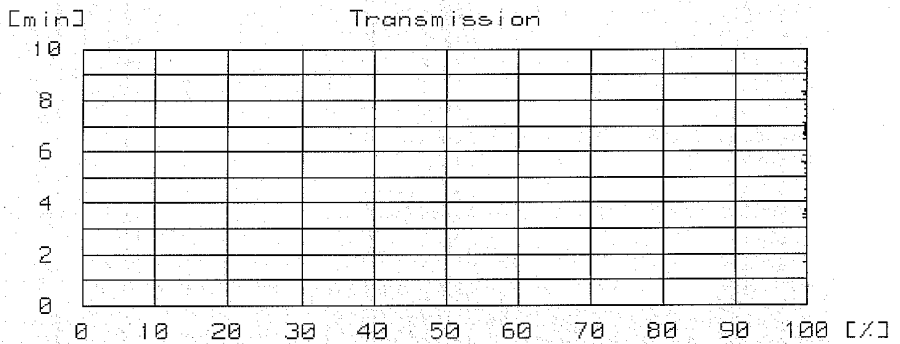
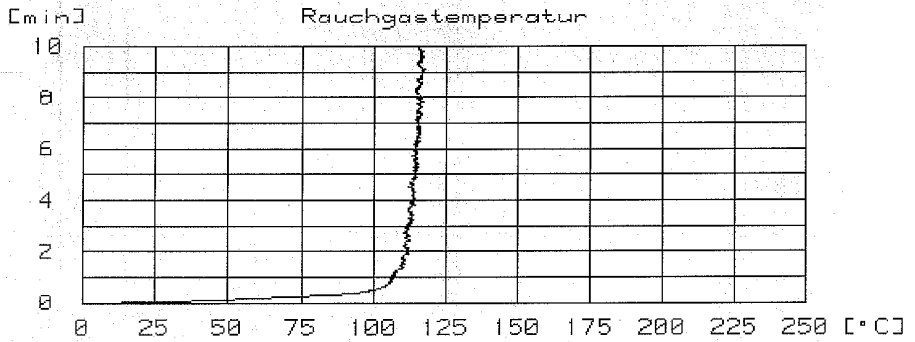
The results of the tests relate only to the behaviour of the test specimen which is designated on the top.

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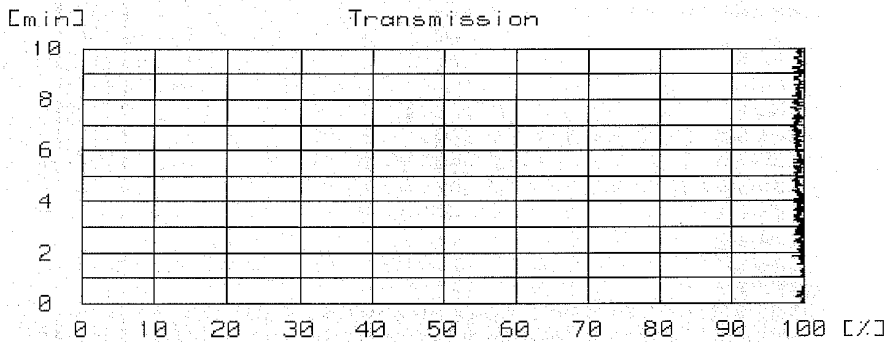
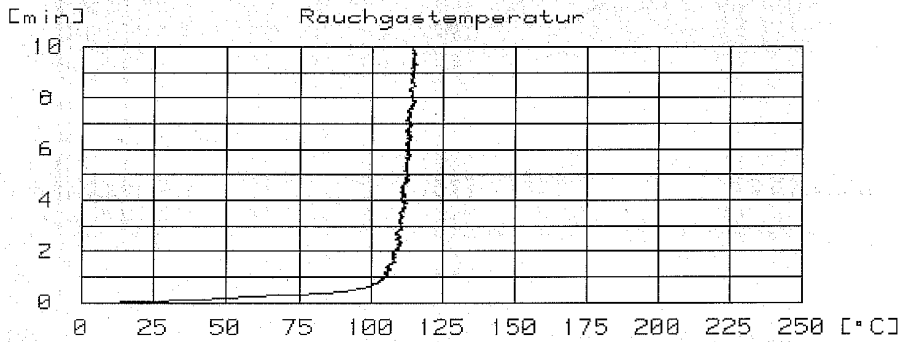
This test report is a translation of the German version 2017-1567 (issued 21.07.2017). In case of doubt only the German version is valid
This test report contains 13 pages and 6 annexes.

Annex 1 to the Test report No. 2017-1567 issued 21.07.2017

Sample A:

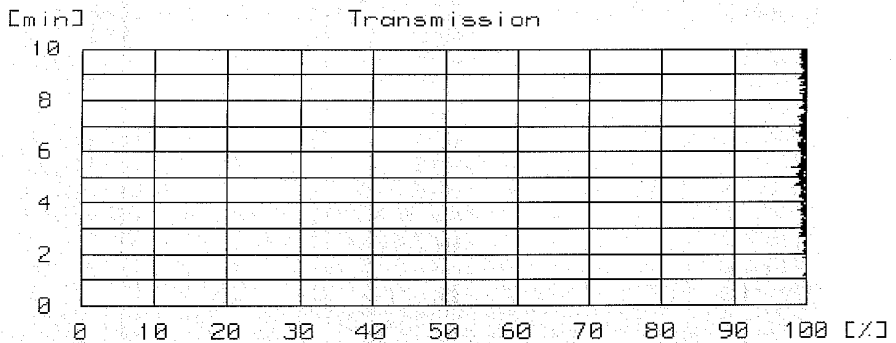
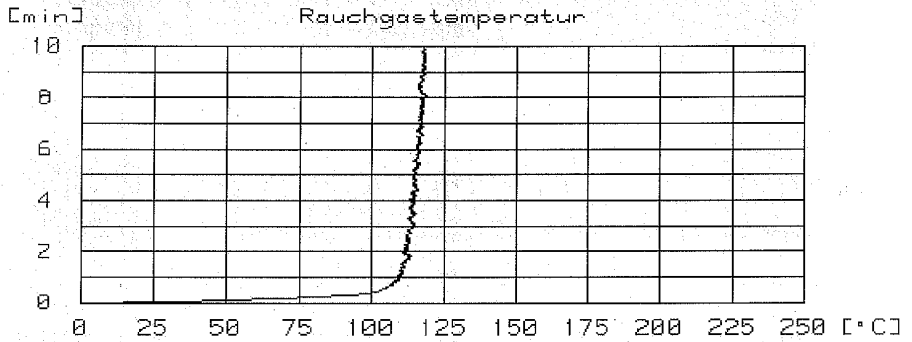


Sample B:



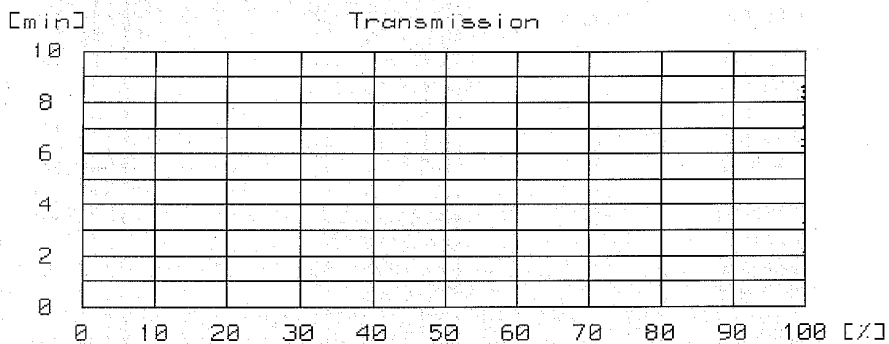
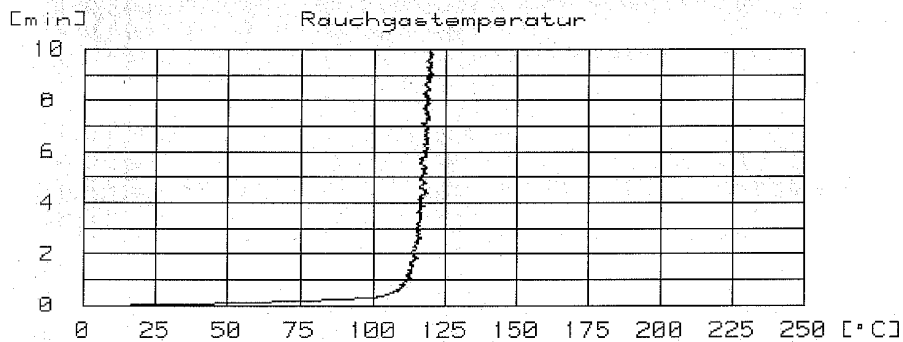
Annex 3 to the Test report No. 2017-1567 issued 21.07.2017

Sample C:



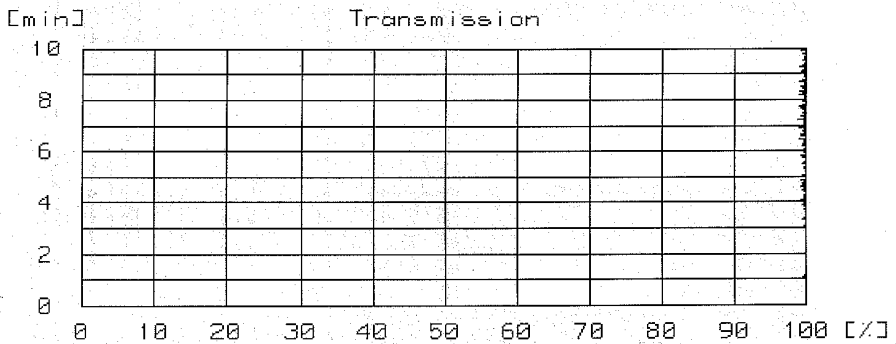
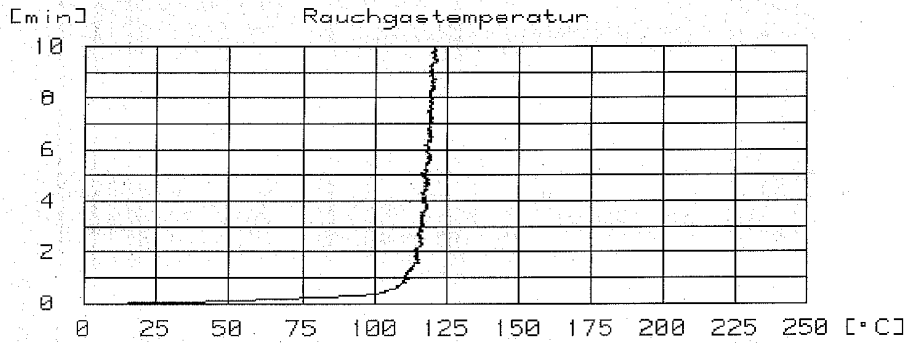
Annex 4 to the Test report No. 2017-1567 issued 21.07.2017

Sample D:



Annex 5 to the Test report No. 2017-1567 issued 21.07.2017

Sample E:



Annex 6 to the Test report No. 2017-1567 issued 21.07.2017

Sample F:

