



Testing. Advising. Assuring.

Test report No. 2014-1020

for applying of a required "Verwendbarkeitsnachweis"
issued 05.12.2013

Applicant: Gabriel A/S
Hjulmagervej 55
DK – 9000 Aalborg

Date of order: 08.11.2013
Date of sampling: *no official sampling of the specimen by a representative of Exova Warringtonfire, Frankfurt*
Date of arrival: 14.11.2013
Date of test: 28.11.2013 + 03.12.2013

Order

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

Description / designation of the test object

Textile designates as „Dragon“

Description of the relevant test procedure

DIN 4102 part 1 (Mai 1998)

This test report did 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:

Textile designates as „Dragon“

Construction:

Ordernummer: 870961149
 Dragon/ 61149 Beige
 Batchnummer: 12092305

Ordernummer: 870967041
 Dragon/ 67041 L. Petrol

Ordernummer: 870962043
 Dragon/ 62043 d. Yellow

1.2 At the specimen preparation by Exova Warringtonfire, Frankfurt determined values:

Fabric samples

Color	beige	blau	gelb
Thickness	1,0 mm	0,69 mm	0,66 mm
Weight per unit area	281 g/m ²	265 g/m ²	273 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 (Beige)
 Sample B: Material tested crosswise to the production direction (Beige)
 Sample C: Material tested in production direction (Petrol)
 Sample D: Material tested in production direction (Yellow)

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	0:14	0:08	0:05	0:06
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	0:06	0:04	0:04	0:05
4	<u>melting / burning through</u> time ¹⁾	min : s	0:06	0:07	0:06	0:08
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾ discolouring time ¹⁾	min : s	no	no	no	no
6		min : s	no	no	no	no
7	<u>burning droplets</u> begin ¹⁾ extent occasional dropping of material constant dropping of material	min : s	no	no	no	no
8						
9						
10	<u>separating from burning sample parts</u> begin ¹⁾ occasional separating parts constant separating parts	min : s	yes	yes	yes	yes
11						
12						
13	duration of burning on the sieve tray (max.)	min : s	not occurred	not occurred	not occurred	not occurred
14	<u>influence on the burner flame by dropping of / separating material</u> time ¹⁾	min : s	no	no	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	no	no
16		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	not occured	not occured	not occured	not occured
18	number of sample		--/--	--/--	--/--	--/--
19	front side of sample	cm	--/--	--/--	--/--	--/--
20	backside of sample		--/--	--/--	--/--	--/--
21	flame length		--/--	--/--	--/--	--/--
22	<u>glowing after end of test</u> duration	min . s	not occured	not occured	not occured	not occured
23	number of sample		--/--	--/--	--/--	--/--
24	place of occurrence	cm	--/--	--/--	--/--	--/--
	lower sample part		--/--	--/--	--/--	--/--
25	upper sample part		--/--	--/--	--/--	--/--
26	front side of sample		--/--	--/--	--/--	--/--
27	backside of sample		--/--	--/--	--/--	--/--
28	<u>smoke density</u> < 400 % x min	cm	12	10	0	10
29	> 440 % x min		--/--	--/--	--/--	--/--
30	diagram in annex no.		1	2	3	4
31	<u>residual length</u> single results	cm	71 / 73 77 / 71	77 / 75 70 / 73	75 / 71 72 / 75	73 / 72 69 / 70
32	average of the single results	cm	73	73	73	71
33	foto of the sample on page		5	5	5	5
34	<u>smoke temperature</u> max. of the average results	°C min : s	117	118	118	120
35	time ¹⁾		9:48	6:23	5:59	8:31
36	diagram in annex no.		1	2	3	4

¹⁾ time from start of test

Remarks: Because of the residual length of > 45 cm in two tests, the quantity of tests could be reduced, according to DIN 4102-16.

2.1.2 Appearance of the specimen after the test:



Sample A



Sample B



Sample C



Sample D

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, Beige

Sample-no.	1	2	3	4	5
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]	-	-	-	-	-
Max. flame height [mm]	70	60	90	60	60
Time [s]	18	13	16	19	14
After flame time [s]	10	10	10	10	10
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	25	25	25	25	25
Smoke development (visuell impression)	strong smoke production				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction, Beige

Sample-no.	1	2	3	4	5
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]	8	7	-	17	-
Max. flame height [mm]	40	50	70	60	80
Time [s]	4	5	14	13	19
After flame time [s]	-	-	10	2	10
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	25	-	25
Smoke development (visuell impression)	strong smoke production				
Separating from burning material	no	no	yes	no	yes
Time [s]	-	-	9	-	12

Remarks: none

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

Length direction, Petrol

Sample-no.	1	2	3	4	5
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]	-	19	18	-	-
Max. flame height [mm]	60	60	70	80	80
Time [s]	10	8	11	10	11
After flame time [s]	--	4	3	--	--
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	25	--	--	25	25
Smoke development (visuell impression)	medium smoke production				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction, Petrol

Sample-no.	1	2	3	4	5
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]	10	15	13	14	10
Max. flame height [mm]	70	70	80	70	60
Time [s]	7	8	8	7	7
After flame time [s]	-	-	-	-	-
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visuell impression)	strong smoke production				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

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

Length direction, Yellow

Sample-no.	1	2	3	4	5
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	-	-
Max. flame height [mm]	90	120	80	100	90
Time [s]	10	17	10	11	11
After flame time [s]	-	-	-	-	-
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	25	25	-	25	25
Smoke development (visuell impression)	strong smoke production				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Cross direction, Yellow

Sample-no.	1	2	3	4	5
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]	8	-	18	-	15
Max. flame height [mm]	60	70	80	100	70
Time [s]	6	8	10	15	8
After flame time [s]	-	-	3	-	-
After glow time [s]	-	-	-	-	-
Flames extinguished after [s]	-	25	-	25	-
Smoke development (visuell impression)	strong smoke production				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Appearance of the sample after the small burner test:



Sample Beige



Sample Petrol



Sample Yellow

Assessment

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

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

of the building class B1 with burning droplets

according to DIN 4102-1 (Mai 1998).

Special comment

The fire test result is only valid for the in chapter one described material in the tested colours.

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 did not replace the required „Verwendbarkeitsnachweis“. It is only used for issuing the “Verwendbarkeitsnachweis”.

Frankfurt, 17th January 2014



H. Anders / P. Scheinkönig
Tester in charge



Dipl.-Ing. H. Bräuer
Head of Warringtonfire, Frankfurt

This Test report is valid until 27.11.2018

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

Test reports are only allowed to be published or reproduced, not changed in form and tenor without permission of the Exova Warringtonfire, Frankfurt. The abridged account of a test report is only allowed with the agreement of the Exova Warringtonfire, Frankfurt.

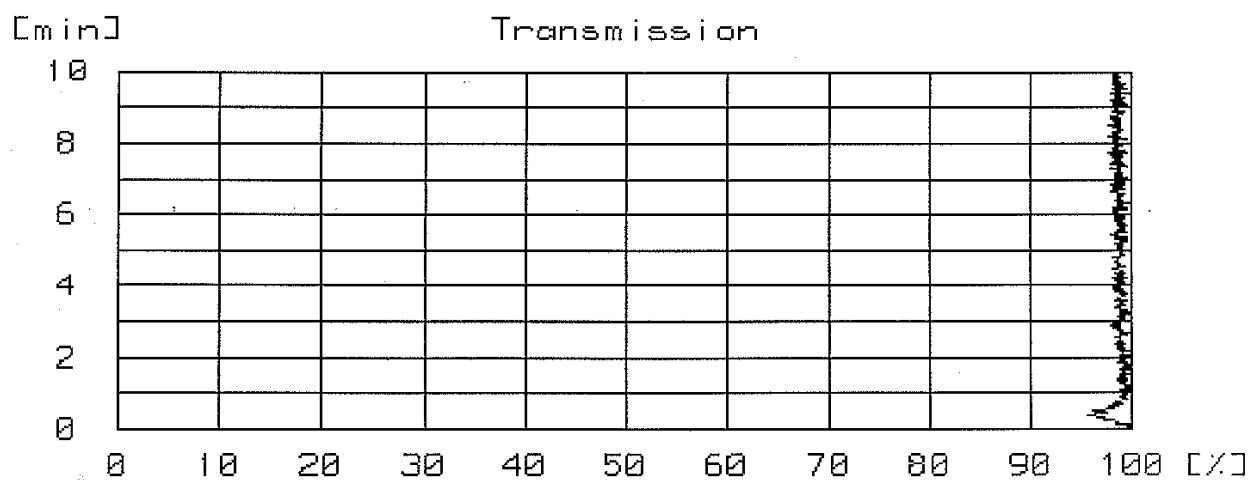
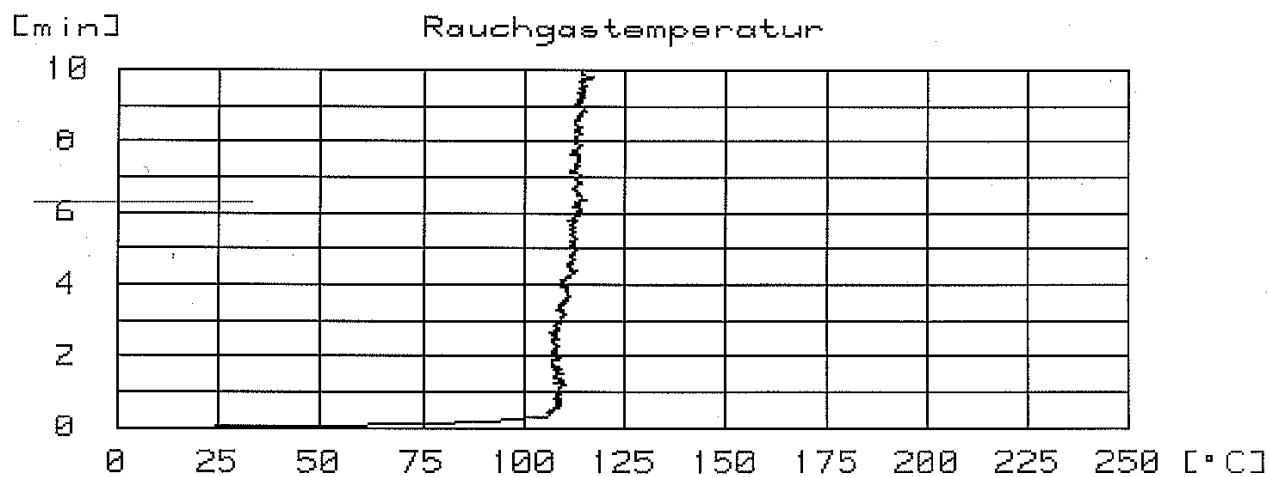
This test report is a translation of the German version 2014-1020 (issued 05.12.2013). In case of doubt only the German version is valid

This test report contains 10 pages and 4 annexes.

Testing. Advising. Assuring.

Annex 1 to the Test report No. 2013-2290 issued 05.12.2013

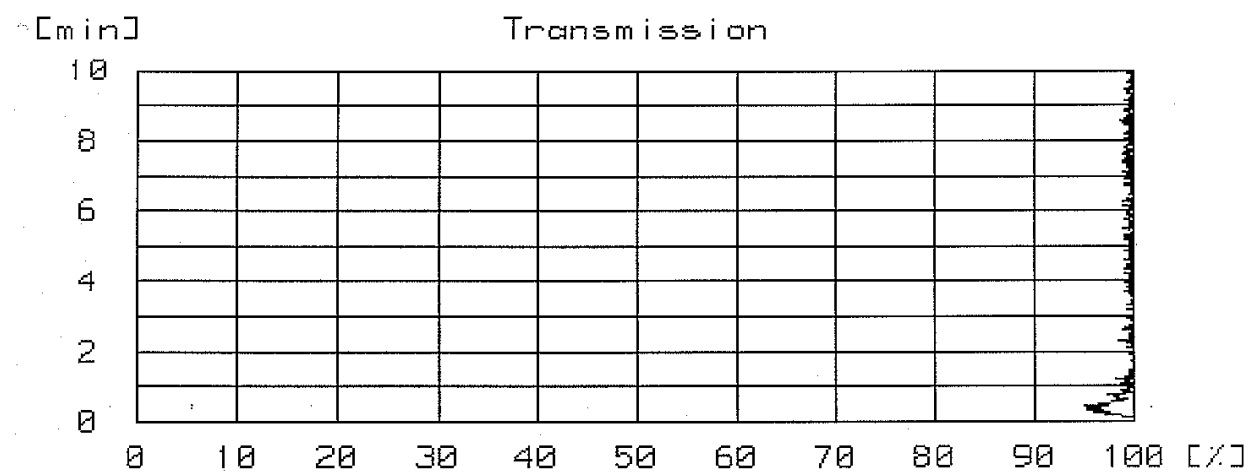
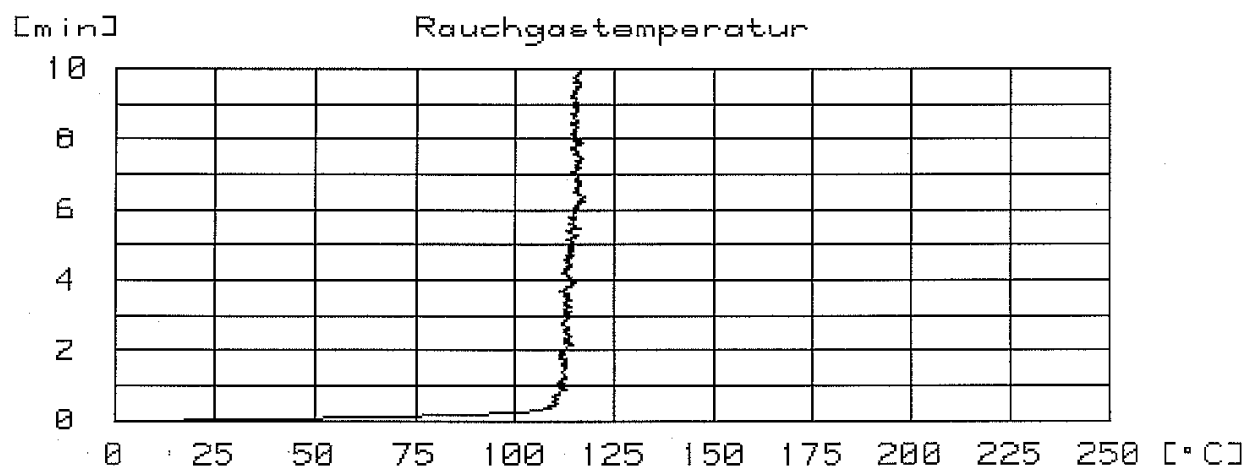
Sample A:



Testing. Advising. Assuring.

Annex 2 to the Test report No. 2013-2290 issued 05.12.2013

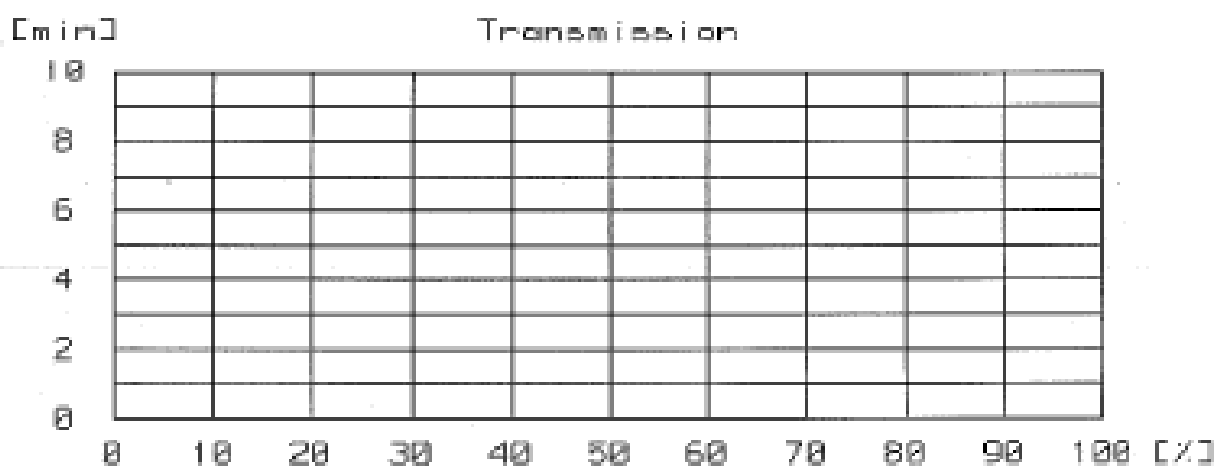
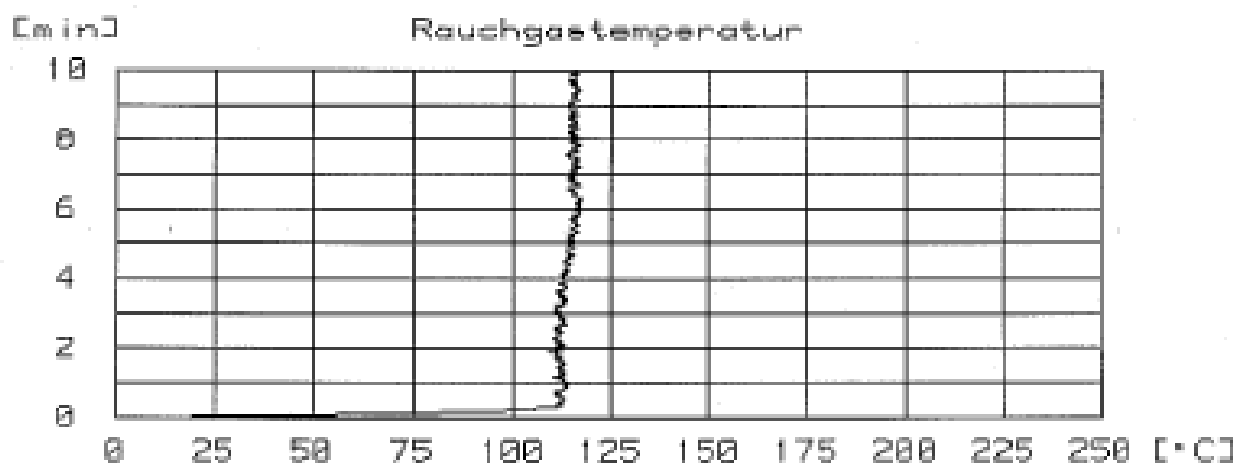
Sample B:



Testing. Advising. Assuring.

Annex 3 to the Test report No. 2013-2290 issued 05.12.2013

Sample C



Testing. Advising. Assuring.

Annex 4 to the Test report No. 2013-2290 issued 05.12.2013

Sample D

