

Test Report

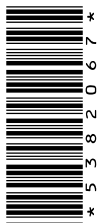
No. 5382067

Date: 26/07/2021

Zimmer + Rhode
 Zimmersmühlenweg 14-18
 DE-61440 Oberursel/Frankfurt
 Germany

The following sample(s) was (were) submitted and identified by the client as:

Original Sample ID	Sample Description	Sample Receipt Date
210757527	Stoffballen Produkt No 10910	23/06/2021



SGS Customer No : 10083859
 SGS Order No : 5815266
 Test Report Version : 1
 Buyer : -
 Order No. : 5098626 dt. 22/06/2021
 Country of Origin : -

Test Performing Period : 28/06/2021 – 28/07/2021
 Test Performed : Selected test(s) as requested by applicant

Overall Conclusion : **The tested samples meets class B1 building materials requirements of DIN 4102-1 (May 1998).**

Test Results : Please refer to the next pages

SGS INSTITUT FRESENIUS GmbH

This test report was electronically created and released:

	date	name	function	department
created	26.07.2021	i.V. Catherine Bouleau	Group Leader Administration Softlines	Connectivity & Products
released	29.07.2021	i.A. Christian Herzig	Project Manager	Connectivity & Products - Softlines

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Performed Test Summary:

Test	Result
Class B1 building materials requirements of DIN 4102-1*	M

Remarks:

- M = Meets Client's requirement
- F = Does not meet Client's requirement
- I = Inconclusive
- = No specified requirement

Note: Conclusions on pass/fail are based on the test result from the actual sampling of the received sample(s).

Conclusions are based on the relevant requirements; measurement uncertainties are not taken into account. Only results above the relevant detection limit are taken into account for the calculation of sums.

Test was conducted on composite of random parts of the item as per client's request and the test result is the overall result.

The composite sampling method is based on the client's special request and is a modification from the testing standard.

For 2-composite mix with results exceeding one half of the relevant requirements or 3-composite mix with results exceeding one third of the relevant requirements, the composite sample may have the possibility of one or more components that can lead to a failure result, it is recommended to test on individual basis.

Component List

Component No	Component-ID	Description	Color(s)	Material	Original Sample ID
1	210768766	main fabric	white	polyester	210757527
2	210768767	main fabric	rose	polyester	210757527
3	210768768	main fabric	petrol	polyester	210757527

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Analytical results

Component No: 1

I. Test conducted

This test was conducted as per DIN 4102-15:1990 & DIN 4102-16:2015 and DIN 4102-1:1998 Clause 6.2, and Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials.

II. Sample details

General description	Fabric
Color	White
Area density	198 g/m ²
Size of sample	190mm×1000mm & 190mm×90mm

Conditioning

Prior to testing, the sample was conditioned at least 14 days to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 5 %.

III. Test results

1) “Brandschacht” Test according to DIN 4102-15 & 16

Exposed surface: One surface

Results of “Brandschacht” Test (part 1)				
Line No.	Unit	Test assemblies No.		
		Lengthwise	Widthwise	
1	Specimen fixings according to DIN 4102 part 15, table	/	/	/
2	Max. flame height above lower sample edge;	cm	40	40
3	Time ¹⁾	min:s	0:09	0:08
4	<u>Melting/burning through</u> Time ¹⁾	min:s	0:07	0:06
5	<u>Back of specimen</u> Flaming/glowing, Time ¹⁾	min:s	0:05	0:04
6	Discolouring, Time ¹⁾	min:s	0:03	0:02
	<u>Burning droplets</u>		No	No

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7	Begin 1)	min:s	/	/
	<u>Amount</u>		/	/
8	Specimen material falling off in separate droplets		/	/
9	Specimen material falling off continuously		/	/

Results of "Brandschacht" Test (part 2)

Line No.	Unit	Test assemblies No.		
		Lengthwise	Widthwise	
	<u>Burning parts</u>	No	No	
10	Begin 1)	min:s	/	/
11	Parts of sample falling off separately		/	/
12	Parts of sample falling off continuously		/	/
13	Duration of continued combustion on mesh base (max.)	min:s	No	No
	<u>Burner flame impairment by dripping/falling material</u>		No	No
14	Time ¹⁾	min:s	/	/
	<u>Premature ending of test</u>		/	/
15	End of burning at specimen ¹⁾	min:s	/	/
16	Time when test terminated (if applicable) ¹⁾	min:s	/	/
	<u>Burning after end of test</u>		No	No
17	Duration	min:s	/	/
18	Number of specimens		/	/
19	Front of specimen		/	/
20	Back of specimen		/	/
21	Height of flame	cm	/	/
	<u>Glowing after end of test</u>		No	No
22	Duration	min:s	/	/
23	Number of specimens		/	/
24	Front of specimen		/	/
25	Back of specimen		/	/
26	Top half of specimen		/	/

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27	Bottom half of specimen	/	/
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Results of "Brandschacht" Test (part 3)						
Line No.	Unit	Test assemblies No.				
		Lengthwise		Widthwise		
	<u>Residual length</u>	/		/		
28	Single results	cm	70	68	69	67
			65	69	65	68
29	Average of the single results	cm	68.0		67.3	
	<u>Smoke temperature</u>		/		/	
30	Max. of average	°C	154.5		162.7	
31	Time ¹⁾	min:s	06:45		05:48	

Note: ¹⁾ time from start of testing

*Reduction in number of test (*DIN 4102 Part 16, clause 5.2*)

Class B1 materials:

If the residual length measured after the first test is 45cm or greater, further tests are not required.

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2) Normal Flammability Test according to DIN 4102-1 Clause 6.2

Edge ignition

Fire application time: 15s

Parameter	Lengthwise					Crosswise				
	1	2	3	4	5	6	7	8	9	10
Whether or not flaming extinguished before reach the gauge mark (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Whether or not flaming reach the measuring mark within 20 seconds (Yes/No)	No	No	No	No	No	No	No	No	No	No
Time for the flame tip to reach the gauge mark (s)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Afterflame time (s)	0	0	0	0	0	0	0	0	0	0
Max. flame height (cm)	4	6	5	4	6	7	5	4	5	6
Molten dripping (Yes/No)	No	No	No	No	No	No	No	No	No	No
Smoke developments (visual impression)	Slight					Slight				

Note: NA---Not applicable

IV. DIN 4102-1:1998 Criteria for classification

1) All materials, except flooring, may be classed as **B1** materials if they meet the following requirements a) and b):

a) The test using the 'Brandschacht' apparatus described in DIN 4102-15 (cf. subclause 6.1.3.1) shall be deemed passed if

– The mean value for the residual length (portion of specimen that has not burned or charred; cf. subclause 9.1 of DIN 4102-16) of each specimen is at least 15 cm and no individual values are lower than 0 cm,

– The mean effluent temperature does not exceed 200 °C in any test,

– The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.

b) Pass DIN 4102-1: 1998 sub-clause 6.2.3 Ignitability Test if

For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

2) Materials may be classed as **B2** materials if they pass the ignitability test specified in DIN 4102-1: 1998 subclause 6.2.5.

For each specimen, flaming doesn't reach the gage mark (150mm marks) within 20s after flame application.

3) Combustible materials which cannot be classed as B1 or B2 materials shall be classed as **B3** materials.

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STATEMENTS:

This declaration of conformity is only based on the result of this laboratory activity, the impact of the uncertainty of the results was not included.

This test report does not replace any mandatory certification of the product that may be required.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire and smoke hazard of the product in use.

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Component No: 2

Test conducted

This test was conducted as per DIN 4102-15:1990 & DIN 4102-16:2015 and DIN 4102-1:1998 Clause 6.2, and Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials.

V. Sample details

General description	Fabric
Color	Grey
Area density	188 g/m ²
Size of sample	190mm×1000mm & 190mm×90mm

Conditioning

Prior to testing, the sample was conditioned at least 14 days to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 5 %.

VI. Test results

1) "Brandschacht" Test according to DIN 4102-15 & 16

Exposed surface: One surface

Results of "Brandschacht" Test (part 1)				
Line No.	Unit	Test assemblies No.		
		Lengthwise	Widthwise	
1	Specimen fixings according to DIN 4102 part 15, table	/	/	/
2	Max. flame height above lower sample edge;	cm	40	40
3	Time ¹⁾	min:s	0:08	0:07
	<u>Melting/burning through</u>		/	/
4	Time ¹⁾	min:s	0:06	0:06
	<u>Back of specimen</u>		/	/
5	Flaming/glowing, Time ¹⁾	min:s	0:05	0:04
6	Discolouring, Time ¹⁾	min:s	0:03	0:02
	<u>Burning droplets</u>		No	No
7	Begin ¹⁾	min:s	/	/

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	<u>Amount</u>	/	/
8	Specimen material falling off in separate droplets	/	/
9	Specimen material falling off continuously	/	/

Results of "Brandschacht" Test (part 2)

Line No.	Unit	Test assemblies No.	
		Lengthwise	Widthwise
	<u>Burning parts</u>	No	No
10	Begin 1)	/	/
11	Parts of sample falling off separately	/	/
12	Parts of sample falling off continuously	/	/
13	Duration of continued combustion on mesh base (max.)	No	No
	<u>Burner flame impairment by dripping/falling material</u>	No	No
14	Time ¹⁾	/	/
	<u>Premature ending of test</u>	/	/
15	End of burning at specimen ¹⁾	/	/
16	Time when test terminated (if applicable) ¹⁾	/	/
	<u>Burning after end of test</u>	No	No
17	Duration	/	/
18	Number of specimens	/	/
19	Front of specimen	/	/
20	Back of specimen	/	/
21	Height of flame	/	/
	<u>Glowing after end of test</u>	No	No
22	Duration	/	/
23	Number of specimens	/	/
24	Front of specimen	/	/
25	Back of specimen	/	/
26	Top half of specimen	/	/
27	Bottom half of specimen	/	/

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Results of "Brandschacht" Test (part 3)					
Line No.	Unit	Test assemblies No.			
		Lengthwise		Widthwise	
	<u>Residual length</u>	/		/	
28	Single results	65	68	69	70
29	Average of the single results	69	68	65	67
		67.5		67.8	
	<u>Smoke temperature</u>	/		/	
30	Max. of average	°C		154.8	166.7
31	Time ¹⁾	min:s		06:45	06:11

Note: ¹⁾ time from start of testing

*Reduction in number of test (DIN 4102 Part 16, clause 5.2)

Class B1 materials:

If the residual length measured after the first test is 45cm or greater, further tests are not required.

2) Normal Flammability Test according to DIN 4102-1 Clause 6.2

Edge ignition

Fire application time: 15s

Parameter	Lengthwise					Crosswise				
	1	2	3	4	5	6	7	8	9	10
Whether or not flaming extinguished before reach the gauge mark (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Whether or not flaming reach the measuring mark within 20 seconds (Yes/No)	No	No	No	No	No	No	No	No	No	No
Time for the flame tip to reach the gauge mark (s)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Afterflame time (s)	0	0	0	0	0	0	0	0	0	0
Max. flame height (cm)	3	5	4	6	5	6	4	3	5	6
Molten dripping (Yes/No)	No	No	No	No	No	No	No	No	No	No
Smoke developments (visual impression)	Slight					Slight				

Note: NA---Not applicable

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VII. DIN 4102-1:1998 Criteria for classification

4) All materials, except flooring, may be classed as **B1** materials if they meet the following requirements a) and b):

c) The test using the 'Brandschacht' apparatus described in DIN 4102-15 (cf. subclause 6.1.3.1) shall be deemed passed if

– The mean value for the residual length (portion of specimen that has not burned or charred; cf. subclause 9.1 of DIN 4102-16) of each specimen is at least 15 cm and no individual values are lower than 0 cm,

– The mean effluent temperature does not exceed 200 °C in any test,

– The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.

d) Pass DIN 4102-1: 1998 sub-clause 6.2.3 Ignitability Test if

For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

5) Materials may be classed as **B2** materials if they pass the ignitability test specified in DIN 4102-1: 1998 subclause 6.2.5.

For each specimen, flaming doesn't reach the gage mark (150mm marks) within 20s after flame application.

6) Combustible materials which cannot be classed as B1 or B2 materials shall be classed as **B3** materials.

STATEMENTS:

This declaration of conformity is only based on the result of this laboratory activity, the impact of the uncertainty of the results was not included.

This test report does not replace any mandatory certification of the product that may be required.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire and smoke hazard of the product in use.

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Component No: 3

VIII. Test conducted

This test was conducted as per DIN 4102-15:1990 & DIN 4102-16:2015 and DIN 4102-1:1998 Clause 6.2, and Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials.

IX. Sample details

General description	Fabric
Color	Blue
Area density	197 g/m ²
Size of sample	190mm×1000mm & 190mm×90mm

Conditioning

Prior to testing, the sample was conditioned at least 14 days to constant mass at a temperature of 23 ± 2 °C, and a relative humidity of 50 ± 5 %.

X. Test results

1) “Brandschacht” Test according to DIN 4102-15 &16

Exposed surface: One surface

Results of “Brandschacht” Test (part 1)				
Line No.	Unit	Test assemblies No.		
		Lengthwise	Widthwise	
1	Specimen fixings according to DIN 4102 part 15, table	/	/	/
2	Max. flame height above lower sample edge;	cm	40	40
3	Time ¹⁾	min:s	0:08	0:06
	<u>Melting/burning through</u>		/	/
4	Time ¹⁾	min:s	0:05	0:04
	<u>Back of specimen</u>		/	/
5	Flaming/glowing, Time ¹⁾	min:s	0:03	0:03
6	Discolouring, Time ¹⁾	min:s	0:02	0:02
	<u>Burning droplets</u>		No	No
7	Begin 1)	min:s	/	/
	<u>Amount</u>		/	/

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8	Specimen material falling off in separate droplets	/	/
9	Specimen material falling off continuously	/	/

Results of "Brandschacht" Test (part 2)			
Line No.	Unit	Test assemblies No.	
		Lengthwise	Widthwise
	<u>Burning parts</u>	No	No
10	Begin 1)	/	/
11	Parts of sample falling off separately	/	/
12	Parts of sample falling off continuously	/	/
13	Duration of continued combustion on mesh base (max.)	No	No
	<u>Burner flame impairment by dripping/falling material</u>	No	No
14	Time ¹⁾	/	/
	<u>Premature ending of test</u>	/	/
15	End of burning at specimen ¹⁾	/	/
16	Time when test terminated (if applicable) ¹⁾	/	/
	<u>Burning after end of test</u>	No	No
17	Duration	/	/
18	Number of specimens	/	/
19	Front of specimen	/	/
20	Back of specimen	/	/
21	Height of flame	/	/
	<u>Glowing after end of test</u>	No	No
22	Duration	/	/
23	Number of specimens	/	/
24	Front of specimen	/	/
25	Back of specimen	/	/
26	Top half of specimen	/	/
27	Bottom half of specimen	/	/

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Results of "Brandschacht" Test (part 3)

Line No.	Unit	Test assemblies No.			
		Lengthwise		Widthwise	
	<u>Residual length</u>	/		/	
28	Single results	70	68	66	67
		67	65	70	68
29	Average of the single results	67.5		67.8	
	<u>Smoke temperature</u>	/		/	
30	Max. of average	161.5		154.8	
31	Time ¹⁾	06:45		05:45	

Note: ¹⁾ time from start of testing

*Reduction in number of test (*DIN 4102 Part 16, clause 5.2*)

Class B1 materials:

If the residual length measured after the first test is 45cm or greater, further tests are not required.

2) Normal Flammability Test according to DIN 4102-1 Clause 6.2

Edge ignition

Fire application time: 15s

Parameter	Lengthwise					Crosswise				
	1	2	3	4	5	6	7	8	9	10
Whether or not flaming extinguished before reach the gauge mark (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Whether or not flaming reach the measuring mark within 20 seconds (Yes/No)	No	No	No	No	No	No	No	No	No	No
Time for the flame tip to reach the gauge mark (s)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Afterflame time (s)	0	0	0	0	0	0	0	0	0	0
Max. flame height (cm)	4	5	6	5	3	6	5	4	7	5
Molten dripping (Yes/No)	No	No	No	No	No	No	No	No	No	No
Smoke developments (visual impression)	Slight					Slight				

Note: NA---Not applicable

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XI. DIN 4102-1:1998 Criteria for classification

7) All materials, except flooring, may be classed as **B1** materials if they meet the following requirements a) and b):

e) The test using the 'Brandschacht' apparatus described in DIN 4102-15 (cf. subclause 6.1.3.1) shall be deemed passed if

– The mean value for the residual length (portion of specimen that has not burned or charred; cf. subclause 9.1 of DIN 4102-16) of each specimen is at least 15 cm and no individual values are lower than 0 cm,

– The mean effluent temperature does not exceed 200 °C in any test,

– The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.

f) Pass DIN 4102-1: 1998 sub-clause 6.2.3 Ignitability Test if

For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

8) Materials may be classed as **B2** materials if they pass the ignitability test specified in DIN 4102-1: 1998 subclause 6.2.5.

For each specimen, flaming doesn't reach the gage mark (150mm marks) within 20s after flame application.

9) Combustible materials which cannot be classed as B1 or B2 materials shall be classed as **B3** materials.

STATEMENTS:

This declaration of conformity is only based on the result of this laboratory activity, the impact of the uncertainty of the results was not included.

This test report does not replace any mandatory certification of the product that may be required.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire and smoke hazard of the product in use.

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Attachment: Picture of sample



*** End of test report ***

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