

Test Report

No. SHAEC1700438301 Date: Jan. 26, 2017

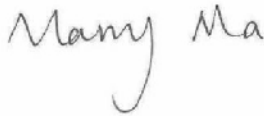
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MITTANT TEXTECH PTE. LTD
2 VENTURE DRIVE, #11-30, VISION EXCHANGE, SINGAPORE (608526)

The following sample(s) was/were submitted and identified on behalf of the clients as: Membrane Structures Fabric

SGS Job No.: SP17-000420-SH
Date of sample received: 08 Jan 2017
Testing Period: 08 Jan 2017 –26 Jan 2017
Test Requested: To determine the flammability (building materials class B1) in accordance with DIN 4102-1 (May 1998) Fire behaviour of building materials and elements Part 1: Classification of building materials, Requirements and testing
Test Method: Please refer to next page(s)
Test Results: Please refer to next page(s)
Classification: The tested sample meets class B1 building materials requirements of DIN 4102-1 (May 1998).

Signed for and on behalf of
MITTANT TEXTECH PTE. LTD (Singapore)



Marry Ma
Approved Signatory



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I. Test conducted

This test was conducted as per DIN 4102-15:1990 DIN 4102-16:1998 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 / Color	膜材料/ White
Density	About 850 g/m ²
Size of sample	1000mm×190mm & 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 ± 6 %.

III. Test results

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

Exposed surface: The front face

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	50	50
3	Time ¹⁾	min:s	0:47	0:43
4	<u>Melting/burning through</u> Time ¹⁾	min:s	0:22	0:23
5	<u>Back of specimen</u> Flaming/glowing, Time ¹⁾	min:s	0:26	0:25
6	Discolouring, Time ¹⁾	min:s	0:11	0:11
7	<u>Burning droplets</u> Begin 1)	min:s	No	No
	<u>Amount</u>		/	/
8	Specimen material falling off in separate droplets		/	/
9	Specimen material falling off continuously		/	/



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Results of "Brandschacht" Test (part 2)			
Line No.	Unit	Test assemblies No.	
		Lengthwise	Widthwise
	<u>Burning parts</u>	/	/
10	Begin 1)	0:38	0:38
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	
28	<u>Residual length</u>				
	Single results	50	52	48	53
		54	51	51	54
29	Average of the single results	51.8		51.5	
30	<u>Smoke temperature</u>				
	Max. of average	143.3		138.2	
31	Time ¹⁾	07:11		07:35	

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

Flame application: 15s

[√] bottom edge ignition

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	5	4	4	5	6	6	5	5
Molten dripping(Yes/No)	No	No	No	No	No	No	No	No	No	No
Smoke developments (visual impression)	Medium					Medium				

Note:

NA---Not applicable



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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.

STATEMENTS:

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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Photo Appendix:



*** End of Report ***



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