

Test Report

No. 10253021/11

Date: 09 December, 2011

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Waler Precision Mfg Sdn Bhd
No.2 Jalan Canggih 1
Taman Perindustrian Cemerlang
81800 Ulu Tiram
Malaysia

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

Sample Description : Polymer fibre composite/100% recyclable, Model: FP 200/4

Sample Receiving Date : 11 November 2011

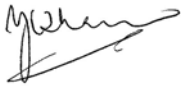
Testing Period : 18 November 2011 to 05 December 2011

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 Result(s) : Please refer to next page(s).

Conclusion : The tested sample **meets** the low flammability requirements of class B1 of building materials under DIN 4102-1 (May 1998). There is no fall-off of burning material.

Signed for and on behalf of
SGS Testing & Control Services Singapore Pte Ltd



Y C Tham (Ms)
Laboratory Manager

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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. Classification in according to DIN 4102-1 (May 1998) Clause 6.1-Class B1 materials

II. Sample details

Color/Density	Grey / About 6.8kg/m ²
Size of Sample	1000x190mmx4.3mm, 190x90mmx4.3mm,

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

Orientation: NA, *Exposed surface:* The front face

*Results of "Brandschacht" Test (Part 1)						
Line No.		Unit	Test assemblies No.			
			A	B	C	D
1	Specimen fixings according to DIN 4102 part 15, table	-	1			
2	Max.flame height above lower sample edge;	cm	37			
3	Time ¹⁾	min:s	9:37			
4	<u>Melting/burning through</u> Time ¹⁾	min:s	No /			
5	<u>Back of specimen</u> Flaming/glowing, Time ¹⁾	min:s				
6	Discolouring, Time ¹⁾	min:s	03:27			
7	<u>Burning droplets</u> Begin ¹⁾	min:s	No /			
8	<u>Amount</u>		/			
9	Specimen material falling off in separate droplets		/			
9	Specimen material falling off continuously		/			
10	<u>Burning parts</u> Begin ¹⁾	min:s	No /			
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			

** To be continued**

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*Results of "Brandschacht" Test (Part 2)						
Line No.		Unit	Test assemblies No.			
			A	B	C	D
14	Burner flame impairment by dripping/falling		No			
	Material					
	Time ¹⁾	min:s	/			
15	Premature ending of test					
16	End of burning at specimen ¹⁾	min:s	/			
16	Time when test terminated (if applicable) ¹⁾	min:s	/			
17	<u>Burning after end of test</u>		No			
	Duration	min:s	/			
	Number of specimens		/			
	Front of specimen		/			
	Back of specimen		/			
21	Height of flame	cm	/			
22	<u>Glowing after end of test</u>		No			
	Duration	min:s	/			
	Number of specimens		/			
	Front of specimen		/			
	Back of specimen		/			
	Top half of specimen		/			
27	Bottom half of specimen		/			
28	<u>Residual length</u>					
	Single results	cm	70	71		
29	Average of the single results		73	70		
		cm	71			
30	<u>Smoke Temperature</u>					
31	Max.of average	°C	105			
31	Time ¹⁾	min:s	10:00			

Note: ¹⁾ time from start of testing

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

Flame application: [] bottom edge ignition, [] surface ignition

*Specimen No.	1	2	3	4	5
Reaching the measuring mark within 20 seconds	No	No	No	No	No
Self extinguishing of the flame (s)	15	15	15	15	15
Max.flame height (cm)	5	3	4	5	5
End of afterflaming (s)	15	15	15	15	15
End of afterglowing (s)	15	15	15	15	15
Molten dripping	No	No	No	No	No
Smoke developmets (visual impression)	Slight				

All timings are from start of testing

*** Tested by an SGS Lab (Ref: AJD201105597)**

** To be continued**

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Criteria for classification for Class B1 (DIN 4102-1 Clause 6.1.2)

All materials, except flooring, may be classed as B1 materials if they met,

- a) Pass DIN 4102-16 "brandschacht" test if
 - 1) The mean value for the residual length of each specimen is at least 15cm, and no individual values are lower than 0cm;
 - 2) The mean effluent temperature does not exceed 200°C in any test;
 - 3) The requirement for the residual length of each specimen is met even where there is afterflame, afterglow, or smouldering.
- b) Pass DIN 4102-1 Clause 6.2.3 Ignitability Test if,
For each specimen, flaming doesn't reach the gage mark within 20s after flame application.

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.

Sample Photo:



SGS authenticate the photo on original report only

End of Report

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