



TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 1 of 19

HUANGSHAN MEISEN NEW MATERIAL TECHNOLOGY CO., LTD.
NO.25 XIAGAO ROAD, HUANGSHAN ECONOMIC DEVELOPMENT ZONE, HUANGSHAN CITY, ANHUI,
CHINA

The test results were transferred from Report No.SHCCM150100015 dated Feb. 02, 2015 issued by SGS.
The following sample(s) was/ were submitted and identified on behalf of the client as:

Sample Name : WOOD PLASTIC COMPOSITE (WPC)
Sample Number : SHCCM150100015
Test Required : Please see the next page(s)
Test Standard : Please see the next page(s)
Manufacturer : HUANGSHAN MEISEN NEW MATERIAL TECHNOLOGY CO., LTD.
Date of Receipt : Jan. 04, 2015
Test Period : Jan. 04, 2015 to Jan. 28, 2015
Test result(s) : For further details, please refer to the following page(s)

***** To be continued*****

Signed for SGS-CSTC Standards
Technical Services (Shanghai) Co., Ltd.

Tiffany Liu
Authorized signatory



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center for Textile, Leather, and Plastics

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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 2 of 19

Test conducted: EN 15534-4:2014 Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) Part 4: Specifications for decking profiles and tiles

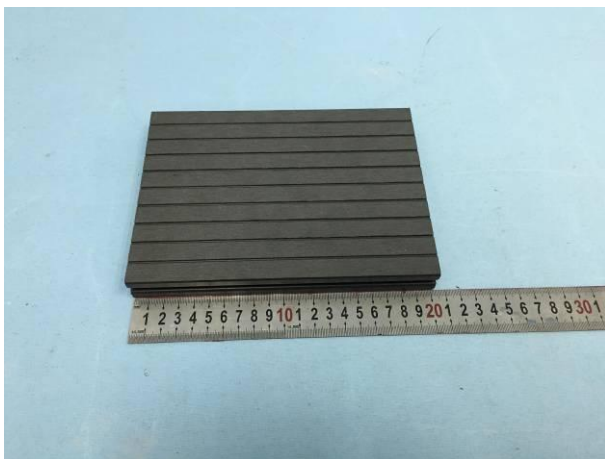
EN 15534-1:2014 Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC)) Part 1: Test methods for characterisation of compounds and products

Test result:

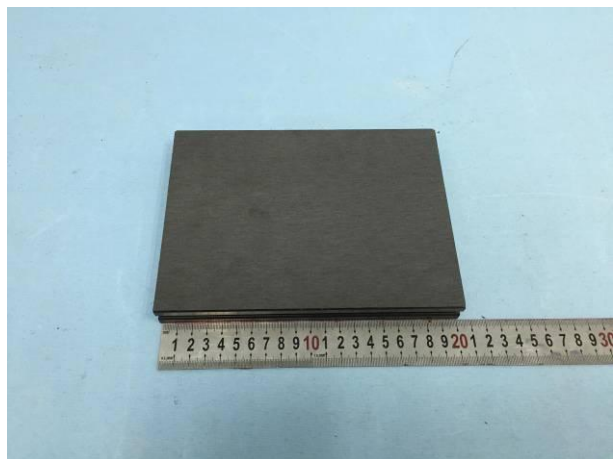
1. Pendulum test

No.	Test method	Slip resistance value		Requirement	Verdict
		Individual value	Average value		
1	EN 15534-1:2014, clause 6.4.2 CEN/TS 15676:2007	60	60	≥36	Pass
2		60			
3		60			
4		60			
5		60			
Remark	Specimen dimension: 200mm×148mm×24mm, 5pcs				

Sample photos:



Front



Back

***** To be continued *****



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TEST REPORT

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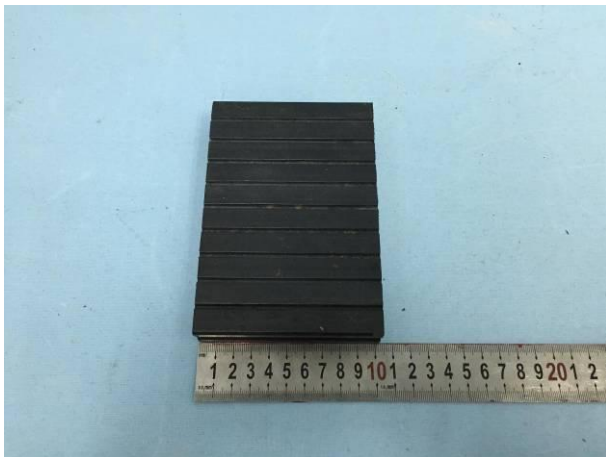
Date : Feb. 02, 2015

Page: 3 of 19

2. Linear mass (applicable to profiles)

No.	Test method	Linear mass (g/m)		Requirement	Verdict
		Individual value	Average value		
1	EN 15534-1:2014, clause 6.5	4769.71	4732.66	Individual values ≥4512g/m (95% declared value)	Pass
2		4692.33			
3		4735.95			
Remark	Specimen dimension: 100mm×148mm×25mm, 3pcs Declared value: 4750g/m				

Sample photos:



Front



Back

***** To be continued*****



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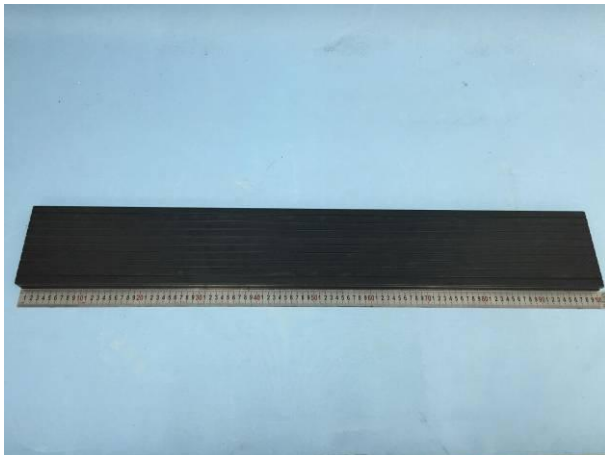
Date : Feb. 02, 2015

Page: 4 of 19

3. Thickness, width and length (applicable to profiles)

Test method	Test item	Test result(mm)	Deviation(mm)	Client's Requirement(mm)	Verdict
EN 15534-1:2014 6.6.2	Length	1004	0	±2 (±0.2%)	Pass
	Width	148.47	+0.47	±1.2	
	Thickness	25.18	+0.18	±1.2	
Remark	Specimen nominal dimension: 1004mm×148mm×25mm, 3pcs				

Sample photos:



Front



Back

***** To be continued*****



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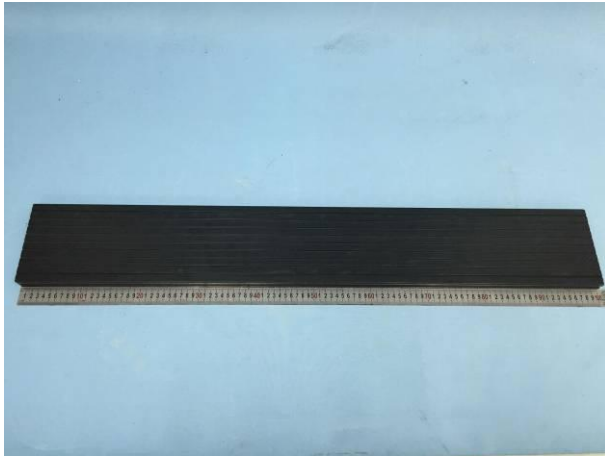
Date : Feb. 02, 2015

Page: 5 of 19

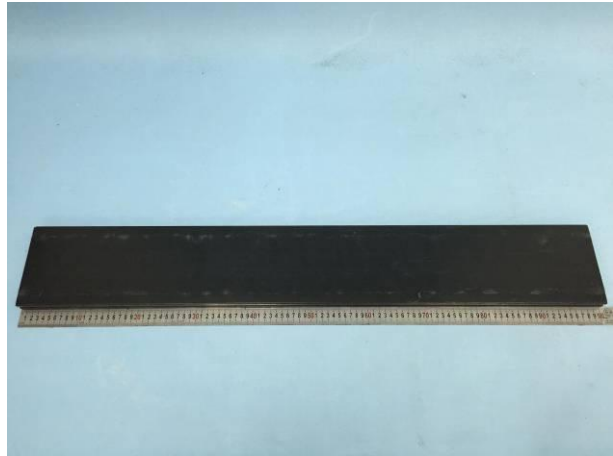
4. Deviation from straightness (applicable to profiles)

No.	Test method	Deviation from straightness (mm/m)		Client's Requirement (mm/m)	Verdict
		Individual value	Max value		
1	EN 15534-1:2014, clause 6.4.3	0.04	0.04	≤1	Pass
2		0.03			
3		0.03			
Remark	Specimen nominal dimension: 1004mm×148mm×25mm, 3pcs				

Sample photos:



Front



Back

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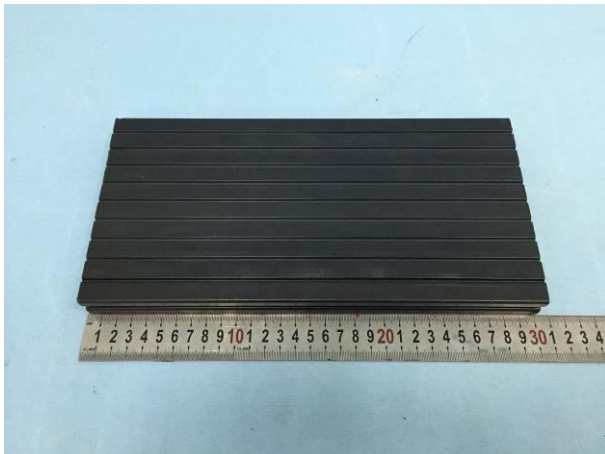
Date : Feb. 02, 2015

Page: 6 of 19

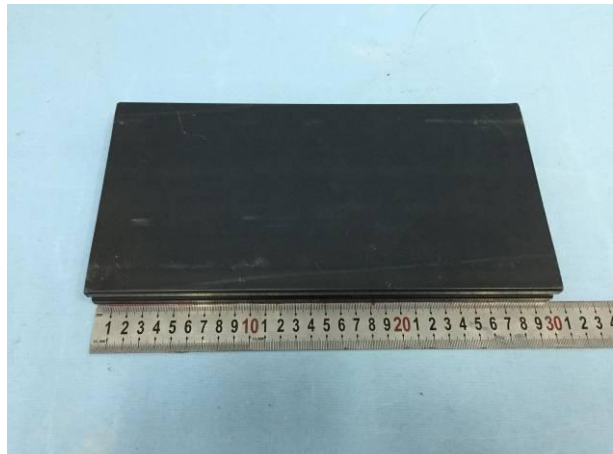
5. Falling mass impact resistance

No.	Test method	Depth of residual indentation (mm)	Requirement	Verdict
1	EN 15534-1:2014, clause 7.1.2.1	0.11	None of 10 test specimens shall show a failure with a depth of residual indentation $\geq 0.5\text{mm}$.	Pass
2		0.16		
3		0.16		
4		0.10		
5		0.27		
6		0.21		
7		0.20		
8		0.15		
9		0.16		
10		0.15		
Remark	Specimen dimension: 300mm×148mm×25mm, 10pcs Test profiles: Solid profiles			

Sample photos:



Front



Back

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 7 of 19

6. Flexural properties (applicable to compounds)

No.	Test method	Flexural stress (MPa)		Flexural modulus (MPa)	
		Individual value	Average value	Individual value	Average value
1	EN 15534-1:2014, clause 7.3.1 ISO 178:2010/Amd.1:2013	28.33	29.03	3400	3480
2		29.24		3640	
3		29.47		3230	
4		29.06		3640	
5		29.06		3470	
Remark	Specimen dimension: 80mm×10mm×4mm, 5pcs Test span: 64mm Loading rate: 2mm/min				

Sample photo:



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 8 of 19

7. Flexural properties (applicable to non-load bearing products)

No.	Test method	Bending strength (MPa)		Modulus of elasticity in bending (MPa)	
		Individual value	Average value	Individual value	Average value
1	EN 15534-1:2014, Annex A	26.87	28.56	3100	3460
2		27.77		3520	
3		28.19		3440	
4		28.49		3430	
5		29.78		3510	
6		30.03		3890	
7		28.50		3280	
8		28.81		3490	
Remark	Specimen dimension: 600mm×148mm×25mm, 8pcs Test span: 350mm (as per client's requirement) Loading rate: 18.5mm/min				

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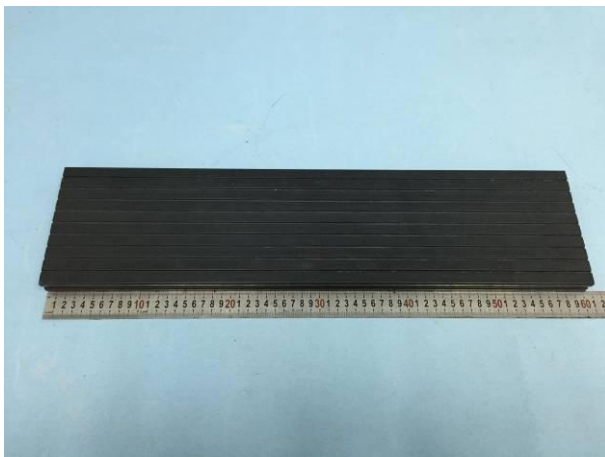
No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 9 of 19

No.	Test method	Maximum load (F_{max}) (N)		Deflection under a load of 500N (mm)		Requirement		Verdict
		Individual value	Average value	Individual value	Average value	Individual value	Average value	
1	EN 15534-1:2014, Annex A	4917	5148	0.665	0.719	$F_{max} \geq 3000$ N Deflection under a load of 500N ≤ 2.5 mm	$F_{max} \geq 3300$ N Deflection under a load of 500N ≤ 2.0 mm	Pass
2		5014		0.759				
3		5102		0.770				
4		5277		0.750				
5		5206		0.739				
6		5282		0.688				
7		5173		0.706				
8		5217		0.677				
Remark	Specimen dimension: 600mm×148mm×25mm, 8pcs Test span: 350mm (as per client's requirement) Loading rate: 18.5mm/min							

Sample photos:



Front



Back

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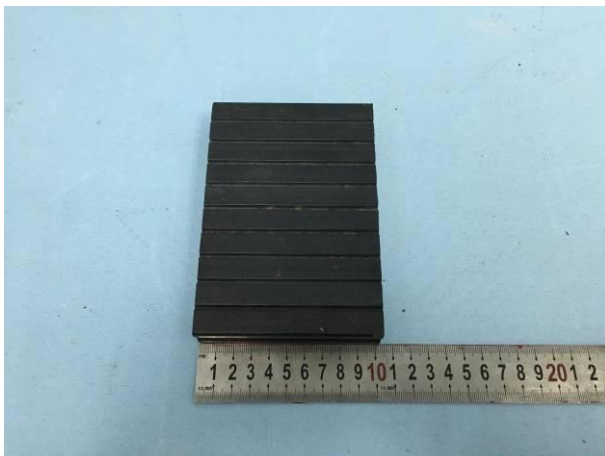
Date : Feb. 02, 2015

Page: 10 of 19

8. Moisture resistance (boiling test)

No.	Test method	Water absorption in weight (%)		Requirement (%)		Verdict
		Individual value	Average value	Individual value	Average value	
1	EN 15534-1:2014, clause 8.3.3	1.46	1.39	≤9	≤7	Pass
2		1.38				
3		1.42				
4		1.28				
5		1.42				
Remark	Specimen dimension: 100mm×148mm×25mm, 5pcs					

Sample photos:



Front



Back

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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 11 of 19

9. Light Ageing Test-Xenon-arc Exposure

Sample Description: Black board

Test Method: EN 15534-1:2014 Section 8.1 & ISO 4892-2:2013 Cycle 1

Test Condition:

Exposure cycle:

Irradiance: 0.51W/(m²·nm)@340nm

102min light at (65±3)°C BST, (38±3)°C, (50±10)%RH

18min light and water spray

Filter: Daylight-B/B

Exposure period: 300h

Test Result:

Sample	Grey scale (See note 1)	Appearance	Color change (See note 2)							
			Δ L*		Δ a*		Δ b*		Δ E* _{ab}	
			SCE	SCI	SCE	SCI	SCE	SCI	SCE	SCI
1	4	No other visible change in excess of grey scale.	0.59	0.40	0.04	0.01	1.28	1.42	1.4	1.5

Note:

1. According to ISO 105-A02:1993/Cor.2:2005, the grey scale was determined under the D65 standard light, with scale 5 as the best and scale 1 as the worst.
2. According to ISO 7724/1-1984, ISO 7724/2-1984 and ISO 7724/301984, ΔE*_{ab} values were measured by sphere spectrophotometer. Use D65 standard light source with 10° observer, 6mm aperture.
SCE: exclude specular reflection.
SCI: include specular reflection.
3. As the samples have surface texture, this result is for reference only.
4. The results were carried out within 1 hour after above specified durations for the intermediate inspection as well as at the end of the exposure.

***** To be continued*****



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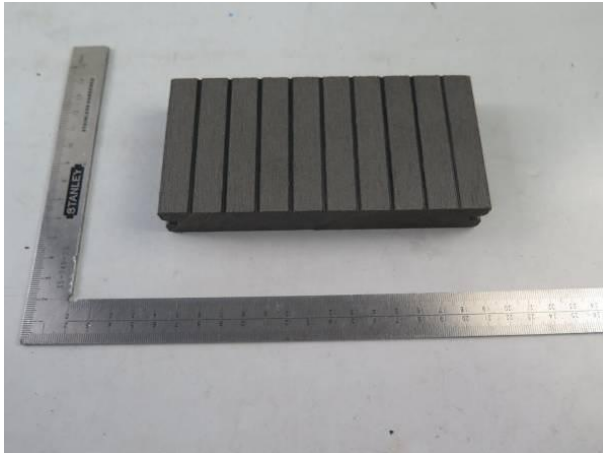
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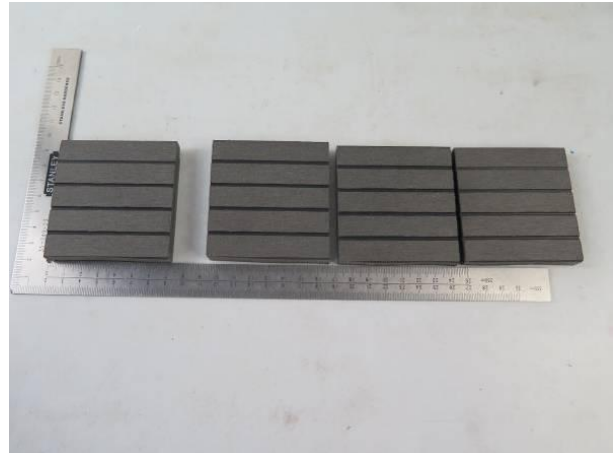
Date : Feb. 02, 2015

Page: 12 of 19

Test photos:



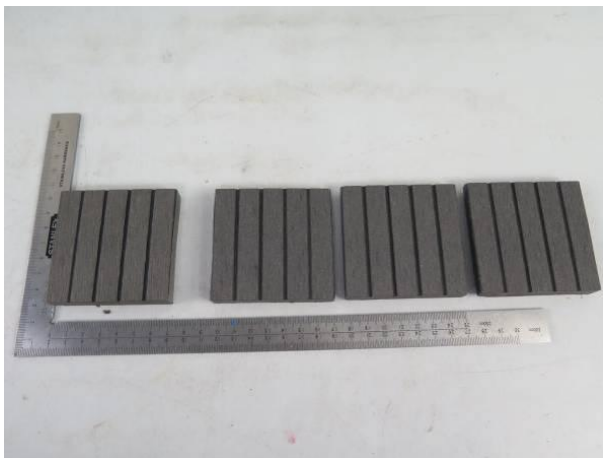
Original sample



Reference sample

Test sample

Before test



Reference sample

Test sample

After test



Reference sample

Test sample

The close-up after test

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 13 of 19

10. Neutral Salt Spray Test

Sample Description: Black board

Test Method: EN 15534-1:2014 Section 8.6 & ISO 9227:2012

Test Condition:

Concentration of solution collected: (50±5)g/L NaCl

Chamber temperature: (35±2)°C

Volume of salt solution collected: (1.5±0.5)ml/(80cm²·h)

pH of collected solution at 25°C: 6.5~7.2

Exposure period: 300 h

Test Result:

Sample	Grey scale (See note)	Appearance
1	4-5	No other visible change in excess of grey scale.

Note:

1. According to ISO 105-A02:1993/Cor.2:2005, the grey scale was determined under the D65 standard light, with scale 5 as the best and scale 1 as the worst.
2. The results were carried out within 1 hour after above specified durations for the intermediate inspection as well as at the end of the exposure.

***** To be continued*****



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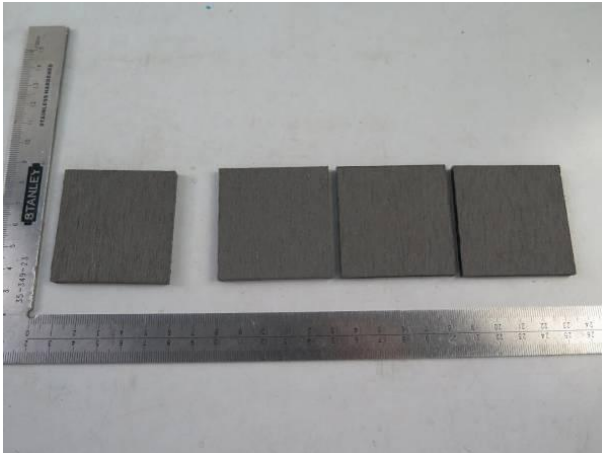
TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 14 of 19

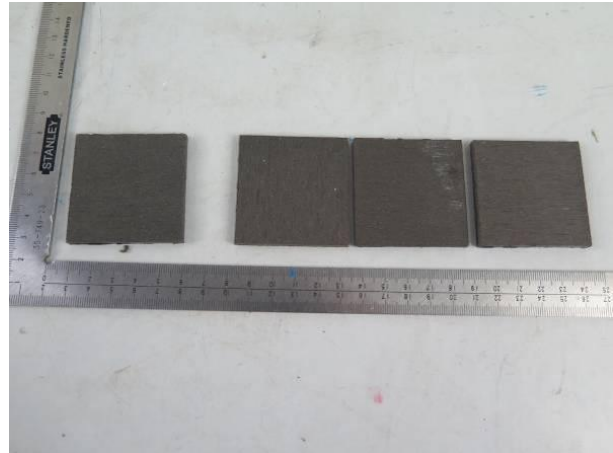
Test photos:



Reference sample

Test sample

Before test



Reference sample

Test sample

After test

11. Cupping

Sample description: See photo

Test method: EN 15534-1:2014 Section 6.6.4

Test condition:

Specimen: 600×148.9×25.0mm, 3pcs

Test result:

The maximum flatness deviation: 0.60mm

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 15 of 19

Sample photo:



***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 16 of 19

12. Radiant heat source test

I. Test conducted

This test is conducted as per EN 15534-1:2014 clause 9.6.3 Radiant heat source test (floorings) & EN ISO 9239-1:2010 Reaction to fire tests for floorings —Part 1: Determination of the burning behaviour using a radiant heat source.

II. Sample details

Name / Color	WPC / Black
Thickness / Area Density	About 19mm / About 17.4kg/m ²
Specimen size	Length: 1050 mm Width: 230mm

III. Conditioning

Prior to testing, the sample was conditioned,

T: 23± 2°C RH: 50±10%, Test specimens shall be conditioned at least 48 h before testing, until constant mass is achieved. The curing time for flooring, which is glued to the substrate, is at least three days.

Mounting of Test Assembly:

Fire cement board, with its density approximate 1800kg/m³, thickness approximate 8mm, is as the substrate. The test specimens are fixed mechanically to the substrate with no cavity behind it. No joint.

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 17 of 19

IV. Test results

Distance (mm)	S1	S2	S3
	Time (min:s)	Time (min:s)	Time (min:s)
50	4:24	4:12	4:36
100	6:50	6:52	7:01
150	8:05	8:12	7:41
200	10:07	9:42	9:36
250	11:57	11:42	12:12
300	14:37	14:52	15:02
350	19:46	17:51	18:42
400	25:33	26:52	27:10
450	---	---	---
500	---	---	---
550	---	---	---
600	---	---	---
650	---	---	---
700	---	---	---
750	---	---	---
800	---	---	---
850	---	---	---
900	---	---	---
950	---	---	---
1000	---	---	---
Extinguishing time	30:00	30:00	30:00
The final maximum flame spread distance(mm)	440	435	430
CHF value at extinguishment (kW/m ²)	4.6	4.65	4.7

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 18 of 19

	S1	S2	S3	Average
Flame front distance at 10 min (mm)	195	200	205	-
Flame front distance at 20 min (mm)	350	370	360	-
Flame front distance at 30 min (mm)	440	435	430	-
Heat Flux at 10 minutes, HF-10/ kW/m ²	9.4	9.35	9.3	-
Heat Flux at 20 minutes, HF-20/ kW/m ²	6.3	5.9	6.1	-
Heat Flux at 30 minutes, HF-30/ kW/m ²	4.6	4.65	4.7	-
the integral of the smoke(%×min)	87	85	78	83.3
Max. light attenuation (%)	12	9	11	10.7

Conclusion:

	S1	S2	S3	Average
HF-30 / kW/m ²	4.6	4.65	4.7	4.65

13. Single-flame source test

I. Test conducted

This test is conducted as per EN 15534-1:2014 clause 9.6.1 single flame source test & EN ISO 11925-2:2010 Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test.

II. Sample details

Name / Color	WPC / Black
Density*	About 17.4kg/m ²
Size of sample	250mm×90mm×19mm, 6 pcs

*---Measured by laboratory

	Temperature (°C)	Humidity (%)	Duration (h)
Precondition	23±2	50±5	144
Flame application time	15s		

Remark: Test specimens shall be conditioned at least 48 h before testing, until constant mass is achieved.

***** To be continued*****



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TEST REPORT

No. : SHCCM150200291

Date : Feb. 02, 2015

Page: 19 of 19

III. Test Results

1. Face ignition

Parameter	1	2	3
Occurrence of ignition (Yes/No)	Yes	Yes	Yes
Whether flame reaches 150 mm	No	No	No
Time to reach 150 mm	--	--	--
Ignition of the filter paper (Yes/No)	No	No	No

2. Bottom edge ignition

Parameter	1	2	3
Occurrence of ignition (Yes/No)	Yes	Yes	Yes
Whether flame reaches 150 mm	No	No	No
Time to reach 150 mm	--	--	--
Ignition of the filter paper (Yes/No)	No	No	No

Remark: "--" means not reached 150mm

Sample photo:



Note: Test 11-13 were performed by SGS internal laboratory.

Statement: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

***** End of report *****



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