



TEST REPORT

No. : XMIN181202417CCM

Date : Dec.27, 2018

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CUSTOMER NAME: CHANGZHOU YOUKANG DECORATION MATERIALS CO., LTD
ADDRESS: 12, WEIXI ROAD, WEIXING VILLAGE, HENGLIN TOWN, CHANGZHOU, JIANGSU, CHINA

Sample Name : SPC FLOORING

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Test Required : Selected test(s) as requested by applicant
SGS Ref. No. : SDHL1812028053FB, SHHL1812070116BM, GZIN1812064268MR
Date of Receipt : Dec.06, 2018
Testing Start Date : Dec.06, 2018
Testing End Date : Dec.27, 2018
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

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

Signed for
SGS-CSTC Standards Technical
Services Co., Ltd. Xiamen Branch
Testing Center

Civi Huang Authorized Signatory



SGS-CSTC Standards Technical Services Co., Ltd.
Xiamen Branch Testing Center Commercial Construction Material Laboratory

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Sample Information:

Flooring, See the photograph.

Test Result(s):

No.	Test item(s)	Test method(s)	Test condition	Test result(s)
1	Static Load Limit	ASTM F970-17	Specimen: 50mm×50mm×4.5mm, 3pcs Condition: 23±2°C, 50±5%RH, 24h Diameter of indenter: 28.6mm Applied load: 250 PSI, 24h Recovery time: 24h	Residual Indentation: 0.28mm
2	Dimensional stability (see note 2)	ASTM F2199-18	Specimen: 305mm×180mm×4.5mm, 3pcs Condition: 23±2°C, 50±5%RH, 24h →82±2°C, 360min→ 23±2°C, 50±5%RH, 24h	Length Direction: -0.23% Width Direction: -0.08%
3	Wear resistance	EN 13329:2016 Annex E	Specimens: 100mm×100mm×4.5mm, 3pcs Type of wheel: CS-0 Load: 5.4±0.2N/wheel Abrasive paper: S-42	Average abrasion cycles: 2300 revolutions Abrasion class: AC3 (See Table 1)
4	Thickness swelling in water	ANSI NALFA LF-01:2011 section3.2	Specimens: 150mm×150mm×4.5mm, 2pcs Immerse in water for 24h	Thickness swelling: 0.13%
5	Large ball impact resistance	ANSI NALFA LF-01:2011 section3.5	Specimens: 300mm×180mm×4.5mm, 3pcs Mass of steel ball: (224±3)g	Impact height: >2000mm No cracking or fracturing

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



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No.	Test item(s)	Test method(s)	Test condition	Test result(s)
6	Specific optical density	ASTM E 662-17a	See annex A	See annex A
7	Static Coefficient	ASTM D 2047-2011	See annex B	See annex B
8	Small Ball Impact Resistance	With reference to NALFA LF-01:2011 Section 3.6 and client's requirement	See annex C	Impact Resistance: No cracking or fracturing at 915mm drop height See annex C
9	Impact sound insulation	ASTM E492-09(2016) ^{e1}	See annex D	IIC = 54 See annex D

Note:

1. All test specimens were cut from the samples, see the photographs.
2. Dimensional stability, % = (The average final length – The average initial length)/ the average initial length ×100.
3. Test item 6 was carried out by SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch.
4. Test item 7 was carried out by SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
5. Test item 8 was carried out by SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch.
6. Test item 9 was carried out by Center for Building Environment Test, Tsinghua University.

Table 1: Abrasion Classes

Abrasion class	AC1	AC2	AC3	AC4	AC5	AC6
Average abrasion cycles	≥500	≥1000	≥2000	≥4000	≥6000	≥8500

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Annex A

Specific optical density

Test Conducted:

This test is conducted accordance with ASTM E 662-17a Specific optical density of smoke generated by solid materials

I. Sample Description and Conditioning

Sample name (provided by sponsor):	SPC FLOORING
Color:	Khaki
Thickness :	About 4.5 mm
Density:	About 6.7 kg/m ²
Tested face:	Wood grain surface
Precondition:	Oven: Temperature: (60±3)°C; Duration: 24hours
	Conditioner: (23±2)°C; Relative Humidity: (50±5)%; Duration: 96h Remark: Test specimens shall be conditioned before testing, until constant mass is achieved.

II. Test Result

Mode 1: Under Non-flaming Exposure

Measurement or Observation	Specimen 1	Specimen 2	Specimen 3	Average Value
D _m , maximum specific optical density/occurrence time	340.25	343.98	351.18	345.14
	16:22	17:09	18:15	
D _m (corr)	202.63	301.49	268.28	257.47
D _{s1.5} (Specific optical density at 1.5 minutes)	0.91	0.88	0.98	0.92
D _{s4} (Specific optical density at 4 minutes)	101.70	85.40	112.70	99.93
Burning characteristics /occurrence time(min)	Expanded	Expanded	Expanded	---
	02:00	02:00	02:00	
Smoke-generating properties	White smoke			---

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



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Mode 2: Under Flaming Exposure

Measurement or Observation	Specimen 1	Specimen 2	Specimen 3	Average Value
D_m , maximum specific optical density/occurrence time	493.60	532.19	522.72	516.17
	09:33	07:53	08:29	
D_m (corr)	407.63	335.04	379.50	374.06
$DS_{1.5}$ (Specific optical density at 1.5 minutes)	76.72	91.13	99.30	89.05
DS_4 (Specific optical density at 4 minutes)	325.10	338.80	346.50	336.80
Burning characteristics /occurrence time(min)	Expanded	Expanded	Expanded	---
	01:00	01:00	01:00	
Smoke-generating properties	White smoke			---

Statements:

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

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





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Annex B

Static Coefficient of Friction

Test Conducted:

Determination of Static Coefficient Measured by James Machine (ASTM D 2047-2011)

Test Property	Test procedure/requirements	Rating/ Result
Static Coefficient of Friction	<p>Dry condition:</p> <ol style="list-style-type: none"> Place the panel on the test table in firm contact with the retaining bar. Lightly dust the test panel to remove any extraneous matter. Carefully place the leather-shoe into the strut yoke and gently lower the entire assembly into contact with the test panel. Disengage the small hand wheel. Release the recording pen, making sure it is on the zero line of the chart. Move the test table forward at a uniform rate of 60in./min(1524mm.min),±3 in./min(±76mm/min), until the shoe slips and the vertical column drops. The table movement should be started within 5s after the contact in step2 has been made. Record as the static coefficient of friction the point at which the horizontal curve made on the chart by the recording pen changes to a vertical line. <p>Wet condition: Before test, wipe the surface of the sample with water, other produces are same to the test method of the dry condition. Note: Obtain four readings on each panel. Rotate the panels 90° between each of the four readings so that a fresh surface is tested each time and directional effects, if any, are cancelled.</p>	<p>Static Coefficient of Friction:</p> <p>Dry condition: 0.35 Wet condition: 0.43</p>

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Annex C

Small Ball Impact Resistance

Sample Description: See photo

Test Method: With reference to NALFA LF-01:2011 Section 3.6 and client's requirement

Test Condition:

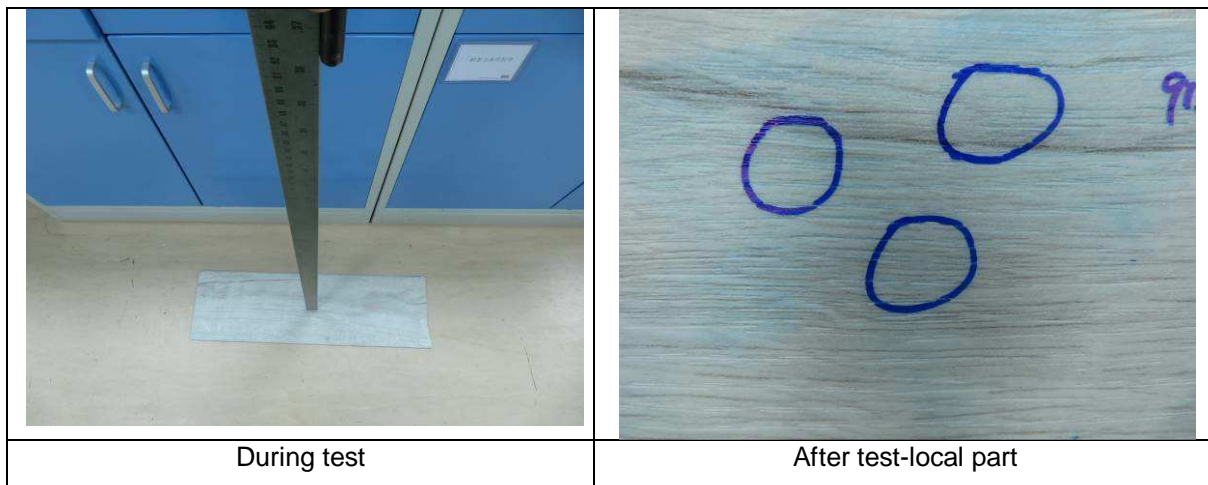
Impact head: ϕ 5mm

Drop weight: 25g

Test Result:

Sample	Impact Resistance
A	No cracking or fracturing at 915mm drop height

Test Photo:



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Annex D

Laboratory measurements of impact sound insulation of floors

Test Conducted:

ASTM E492-09(2016)^{ε1} Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E989-06(2012) Standard Classification for Determination of Impact Insulation Class (IIC)

Test Condition:

Sample Description : Flooring (see the photo)

Total Thickness:4.5mm, surface density: about 6.7kg/m²

Test method : Two adjacent rooms, one the source room directly above the other the receiving room. A standard tapping machine is placed in operation on the flooring system in source room. The average spectrum of the sound pressure levels produced by the tapping machine is measured in the receiving room.

Test Equipment : RTA840 system

Test Environment : Source room volume 125m³, receiving room volume 100m³, air temperature 18.3°C, air humidity 30.2%

Test Result

Test Item	Test Standard	Result
Determination of Impact Sound Insulation Class	ASTM E492-09(2016) ^{ε1} ASTM E989-06(2012)	IIC = 54

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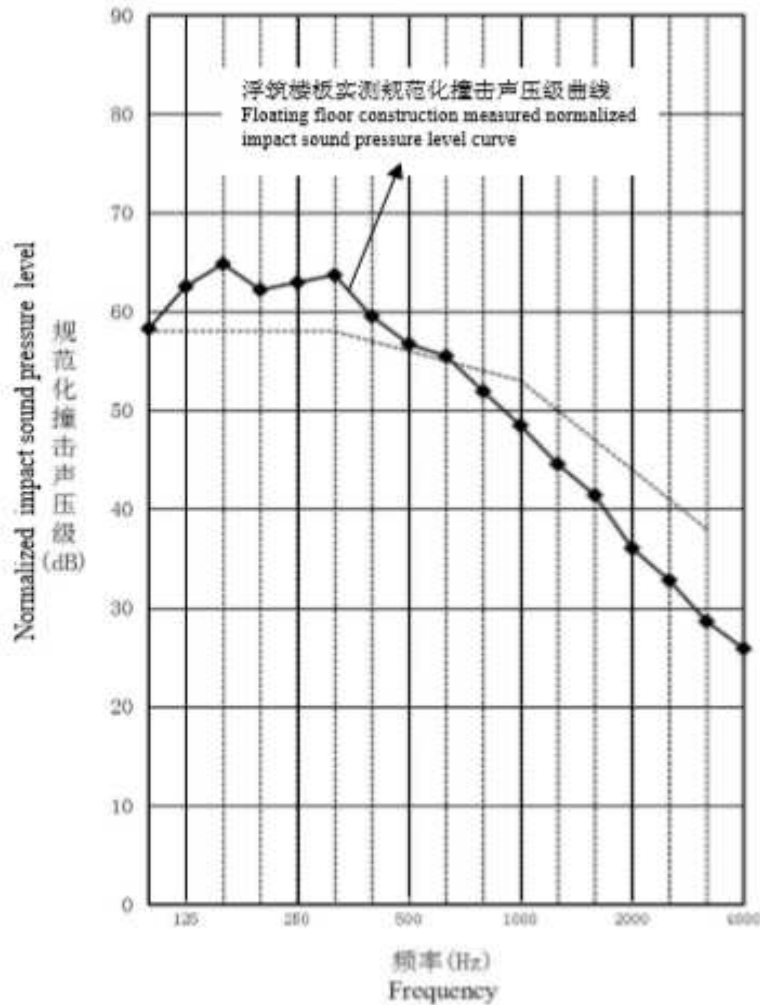
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Appendix 1:

f Hz	L_n dB
100	58.3
125	62.5
160	64.8
200	62.2
250	62.9
315	63.7
400	59.5
500	56.7
630	55.5
800	51.9
1000	48.5
1250	44.6
1600	41.4
2000	36.1
2500	32.8
3150	28.7
4000	25.9
IIC	54



Remark: L_n as the weighted normalized impact sound pressure level

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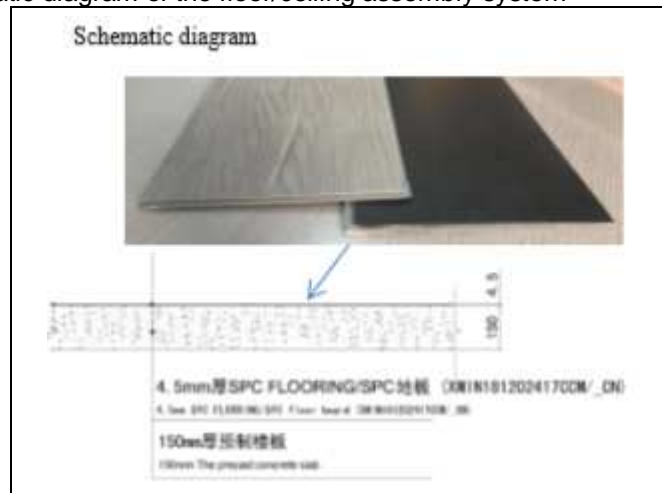
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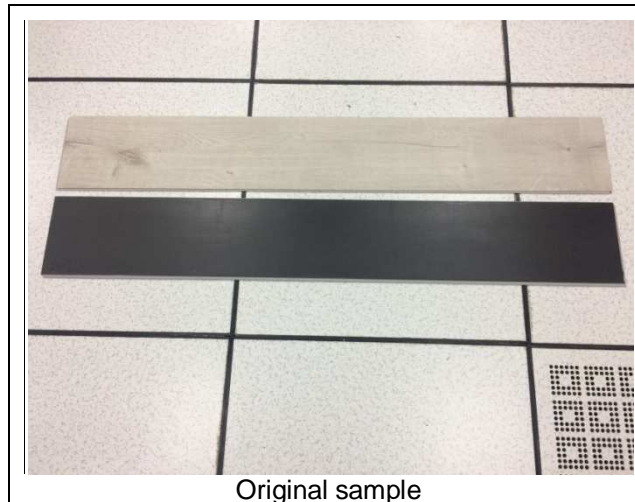
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Appendix 2: The schematic diagram of the floor/ceiling assembly system



Specimen photograph:



Original sample

SGS authenticate the photo on original report only

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

