

No. : SHIN2206016735CM

Date : Aug 01, 2022 Page: 1 of 20



Sample Name : SPC FLOORING Product Specification : 1220*180mm

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	:	Please see the next page(s)
Ref. Standard	:	Please see the next page(s)
Date of Receipt	:	Jun 21, 2022
Testing Start Date	:	Jun 21, 2022
Testing End Date		Jul 26, 2022
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)

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

Wang Ziven

Ziven Wang Authorized signatory



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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Dimension Size	With Reference to EN 13329:2016+A1:2021 Clause 4.1 & Annex A	See Result	/
2	Openings and Height Differences Between Elements	With Reference to EN 13329:2016+A1:2021 Clause 4.1 & Annex B	See Result	/
3	Resistance to Staining	With Reference to EN 13329:2016+A1:2021 Clause 4.2 & EN 438- 2:2016+A1:2018 Clause 26	See Result	/
4	Dimensional Stability and Curling after Exposure to Heat	ISO 23999:2021	See Result	/
5	Locking Strength	ISO 24334:2019	See Result	/
6	Micro-Scratch Resistance	With Reference to EN 16094:2012	See Result	/
7	Formaldehyde Emission	EN 717-1:2004	See Result	/
8	Fire Classification for Burning Behavior of Flooring Material	EN 13501-1:2018 Clause 9 & EN ISO 9239-1:2010 & EN ISO 11925-2:2020	B _{fl} -s1	/

Note: Pass : Meet the requirements; Fail : Does not meet the requirements; / : Not Apply to the judgment.



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Original Sample Photo(s):





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1. Test Item: Dimension Size

Test Method: With Reference to EN 13329:2016+A1:2021 Clause 4.1 & Annex A Test Condition:

Specimen: 1220mm×180mm×4mm, 5pcs

Lab Environmental Condition: 23±2°C, 50±5%RH

Test Result:

Test Item		Test Result	
Ler	ngth (mm)	Average value: 1220.0	
		Average value: 179.90	
Wi	idth (mm)	Maximum value:180.00	
		Minimum value:179.80	
Thickness (mm)		Average value: 4.05	
		Maximum value:4.10	
		Minimum value:4.03	
Squareness (mm)		Maximum value: 0.05	
Straigh	tness (mm/m)	Maximum value: 0.05	
Elatness (%)	Length flatness	Concave: 0.01	
	Width flatness	Concave: 0.02	



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2. Test Item: Openings and Height Differences Between Elements

Test Method: With Reference to EN 13329:2016+A1:2021 Clause 4.1 & Annex B Test Condition:

Specimen: 1220mm×180mm×4mm, 8pcs

Lab Environmental Condition: 23±2°C, 50±5%RH

Test Result:

Test Item	Test Result
Openings (mm)	Average value: 0.05 Maximum value:0.10
Height Differences (mm)	Average value:0.05 Maximum value:0.10



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3. Test Item: Resistance to Staining

Test Method: With Reference to EN 13329:2016+A1:2021 Clause 4.2 & EN 438-2:2016+A1:2018 Clause 26

Test Condition:

Specimen: 100mm×100mm×4mm, 5pcs

Test surface: Front view

Lab Environment Condition: 23±2°C, 50±5%RH

Test Result:

	Test Item	Test Result	
	Acetone	Rating 5	
	120g/L Coffee	Rating 5	
Resistance to Staining	25% Sodium hydroxide	Rating 5	
	30% Hydrogen peroxide	Rating 5	
	Carbon black suspension in	Rating 5	
	paraffin oil (Shoe polish simulant)	Rating 5	

Note: Test specimens were cut from original sample.



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Rating code:

Numerical rating	Description
5	No change
5	Test area indistinguishable from adjacent surrounding area
	Minor change
4	Test area distinguishable from adjacent surrounding area, only when the light
4	source is mirrored on the test surface and is reflected towards the observer's
	eye, e.g. discoloration, change in gloss and colour
	Moderate change
3	Test area distinguishable from adjacent surrounding area, visible in several
	viewing directions, e.g. discoloration, change in gloss and colour
	Significant change
2	Test area clearly distinguishable from adjacent surrounding area, visible in all
2	viewing directions, e.g. discoloration, change in gloss and colour, and/or
	structure of the surface slightly changed, e.g. cracking, blistering
	Strong change
1	The structure of the surface being distinctly changed and/or discoloration,
	change in gloss and colour, and/or surface material being totally or partially
	delaminated



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4. Test Item: Dimensional Stability and Curling After Exposure to Heat

Test Method: ISO 23999:2021

Test Condition:

Specimen: 610mm×180mm×4mm, 3pcs

Heating temperature: 80°C

Heating time: 6h

Lab Environmental Condition: 23±2°C, 50±5%RH

Test Result:

Test Item	Test Result			
Dimensional Change (%)	Manufacturing direction	Average value: 0.00		
Dimensional enange (70)	Across-manufacturing direction	Average value: 0.00		
Curling (mm)	0			

Note: (1) Test specimens were cut from original sample.

(2) A positive value indicates expansion, and a negative value indicates shrinkage.



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5. Test Item: Locking Strength

Test Method: ISO 24334:2019

Test Condition:

Specimen: Long side: 230mm×200mm×4mm, 5pcs

Short side: 230mm×180mm×4mm, 5pcs

Test rate: 0.5mm/min

Pre-tension: 10N

Lab Environmental Condition: 23±2°C, 50±5%RH

Test Result:

Test Item		Test Result			
		F _{max} (kN/m)	F _{0.2} (kN/m)	Δ _s (mm)	
Locking Strength	Long side	6.0	1.8	0.55	
Looking Grongar	Short side	5.2	2.4	0.39	

Note: Test specimens were cut from original sample.



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6. Test Item: Micro-Scratch Resistance

Sample Description: Board

Test Method: With Reference to EN 16094:2012

Test Condition:

Rubbing finger: Outer diameter Ф95mm(Contact area Ф90mm)

Procedure A:

Rubbing material: SB 7447

Load: (612 ±2) g

Cycles: 80

Procedure B:

Rubbing material: SB 7440 Load: (413 ±2) g Cycles: 160

Test Result:

Procedure	Sample	Gloss change $\Delta R'$ (85°)	Micro-scratch resistance class
		(See note 1),%	(See note 2)
	1	-3.6	MSR-A1
A	2	-9.5	MSR-A1
	3	2.7	MSR-A1

Procedure	Sample	Appearance	Class (See note 3)
В	1	No visible change.	MSR-B1
	2	No visible change.	MSR-B1



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Note:

1. $\Delta R' = (R_I - R_F)/RI \times 100\%$, R_I is the mean value at initial state, R_F is the mean value after finishing the test. The gloss value was measured along the texture direction.

2. Classification of mean values of gloss change:

Micro-scratch resistance class according to procedure A	I Change of gloss I	
MSR-A1	≤10%	
MSR-A2	> 10 % to 30 %	
MSR-A3	> 30 % to 50 %	
MSR-A4	> 50 % to 70 %	
MSR-A5	> 70 %	

3. According to EN 16094:2012 Table B.1, MSR-B1 is the best while MSR-B5 is the worst.

Test Photo:







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7. Test Item: Formaldehyde Emission

Test Part Description: Grey/light grey/dark grey wood board Test Method: With Reference to EN 717-1:2004, analysis was performed by UV-Vis.

Test Result(s):			
Test Item(s)	Unit	MDL	Result
Formaldehyde Emission (In air)	mg/m³	0.080	ND

Notes:

(1) The reported result is for reference only.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w =0) stated in ILAC-G8:09/2019.

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated



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8. Test Item: Fire Classification for Burning Behavior of Flooring Material

Sample Description: Floor

Test Method: EN 13501-1:2018 Clause 9 & EN ISO 9239-1:2010 & EN ISO 11925-2:2020 Test Result:

I . EN ISO 9239-1:2010 Reaction to fire tests for floorings-Part 1: Determination of the burning

behaviour using a radiant heat source

Specimen: 1050mm × 230mm (make up of 2 pieces sample)

Flame application time: 10min

Mounting and fixing: Calcium silicate board, with its density about 1016kg/m3, thickness about

21.4mm, is as the substrate. The specimens were fixed mechanically to the substrate.

Specimen	Furthest extent of	Critical heat flux	Integrated smoke
No.	spread of flame, mm	(CHF),kW/m2	value, %∙min
1	40	≥11	43.4
2	50	≥11	72.0
3	30	≥11	55.5
Average	40	≥11	57

Note:

1. Test specimens were cut from the sample.

2. Specimens that do not ignite or which spread flame less than 110 mm have a critical heat flux ≥ 11kW/m2.

3. The grain surface was faced to the flame.

4. Observations of the burning characteristics: Charring.



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II. EN ISO 11925-2:2020 Reaction to fire tests-Ignitability of products subjected to direct impingement

of flame-Part 2: Single-flame source test.

Specimen: 250mm × 90mm

Flame application time: 15s

Exposure conditions	Edge exposure		Surface exposure		xposure	
Specimen No.	1	2	3	1	2	3
Whether ignition occurs	Yes	Yes	Yes	Yes	Yes	Yes
Whether the flame tip reaches 150 mm above the flame application point within 20s	No	No	No	No	No	No
Whether ignition of the filter paper occurs	No	No	No	No	No	No

Note:

1. Test specimens were cut from the sample.

2. The grain surface was faced to the flame.

3. Observations of the burning characteristics: Charring.

Conclusion:

According to the test result and classification criteria (See table 1), the submitted sample satisfies Class $B_{\rm fl}$

Reaction to fire classification: $B_{fl}\!-\!s1$

Statement: The test results relate to the behavior 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 hazard of the product in use.





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 Table 1. Classes of reaction to fire performance for floorings

Class	Test method(s)	Classification criteria	Additional classification	
A1 _{fl}	EN ISO 1182 ª	$\Delta T \leq 30 ^{\circ}\text{C}; \text{ and}$		
	and	∆ <i>m</i> ≤ 50 %; and	-	
		<i>t</i> _f = 0 (i.e. no sustained flaming)		
	EN ISO 1716	PCS ≤ 2,0 MJ/kg ^a and		
		PCS ≤ 2,0 MJ/kg ^b and		
		$PCS \le 1,4 \text{ MJ/m}^2 \circ \text{and}$	-	
		PCS ≤ 2,0 MJ/kg ^d		
A2 fl	EN ISO 1182 ª	$\Delta T \le 50$ °C and		
	or	∆ <i>m</i> ≤ 50 % and	-	
		<i>t</i> r ≤ 20 s		
	EN ISO 1716	PCS ≤ 3,0 MJ/kg ^a and		
	and	$PCS \le 4,0 \text{ MJ/m}^{2 \text{ b}} \text{ and}$		
		$PCS \le 4,0 \text{ MJ/m}^{2 \text{ c}} \text{ and}$	-	
		PCS ≤ 3,0 MJ/kg ^d		
	EN ISO 9239-1 ^e	Critical flux $f \ge 8,0 \text{ kW/m}^2$	Smoke production ^g	
B _{fl}	EN ISO 9239-1 ^e	Critical flux $f \ge 8,0 \text{ kW/m}^2$	Smoke production a	
	and		Smoke production -	
	EN ISO 11925-2 h:	$F_{\rm S} \le 150$ mm within 20 s		
	Exposure = 15 s		-	
C fl	EN ISO 9239-1 ^e	Critical flux $f \ge 4,5 \text{ kW/m}^2$		
	and		Smake production a	
	EN ISO 11925-2 h:	<i>F</i> s ≤ 150 mm within 20 s	Smoke production ^a	
	Exposure = 15 s			



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	EN ISO 9239-1 ^e	Critical flux ^f ≥ 3.0 kW/m ²	
Dfl	and		Smoke production ^g
	EN ISO 11925-2 h:	<i>F</i> s ≤ 150 mm within 20 s	
	Exposure = 15 s		
Efi	EN ISO 11925-2 ^h :	<i>F</i> s ≤ 150 mm within 20 s	
	Exposure = 15 s		-
Ffl	EN ISO 11925-2 ^h :	Fs $>$ 150 mm within 20 s	
	Exposure = 15 s		-

^a For homogeneous products and substantial components of non-homogeneous products.

^b For any external non-substantial component of non-homogeneous products.

^c For any internal non-substantial component of non-homogeneous products.

^d For the product as a whole.

^e Test duration = 30 min.

^f Critical flux is defined as the radiant flux at which the flame extinguishes or the radiant flux after a test period of 30 min, whichever is the lower (i.e. the flux corresponding with the furthest extent of spread of flame).

 $g s1 = Smoke \le 750 \%$ minutes;

s2 = not s1.

^h Under conditions of surface flame attack and, if appropriate to the end use application of the product, edge flame attack





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Test Photo:





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or of main: <u>Constructions and Statis</u> Mo.68, Bioki (MS, Bark Kang Ulas Boada, Pudong District, Shanghai, China. 201319 t(86-21) 61196300 f(86-21) 61191853/68183920 www.sgsgroup.com.cn 中国・上海・浦东康桥东路1159弄69号 邮编: 201319 t(86-21) 61196300 f(86-21) 61191853/68183920 e sgs.china@sgs.com



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Equipment Information:

	Model	Equipment No.	Collibration data	Next Calibration	
Equipment			Calibration date	date	
Ignitability tester	SIT	GZMR-PL-E226	2022-03-25	2023-03-24	
Flooring Radiant	EDD		2022-05-24	2023-05-23	
Panel Tester			2022-03-24	2023-03-23	

Note: Test item 8 was performed by SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center.

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

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