

TEST REPORT

No. : SHIN2206016735CM

Date : Aug 01, 2022

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scan to see the report



SHIN2206016735CM

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.

Ziven Wang

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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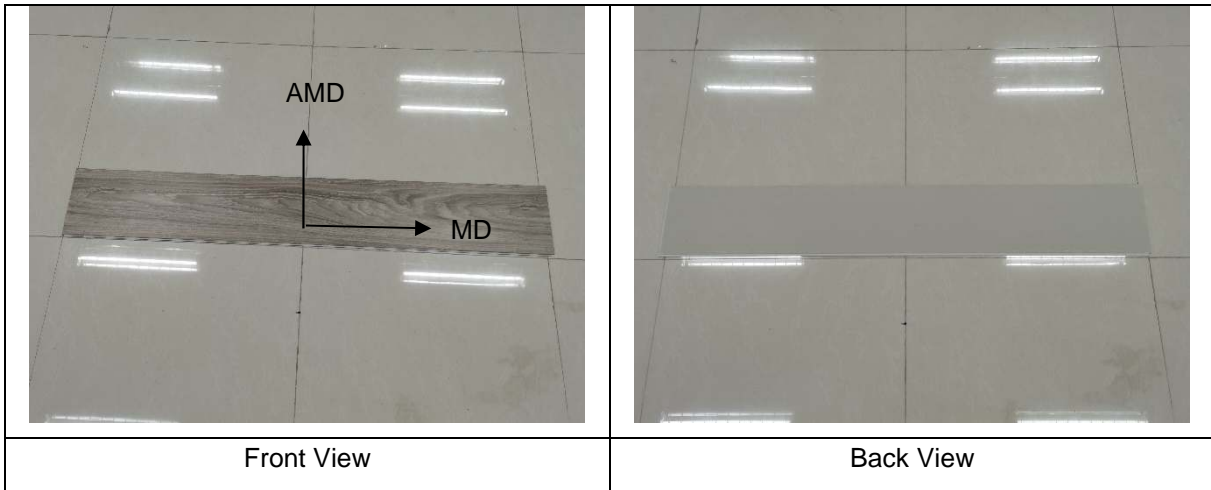
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Original Sample Photo(s):



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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
Length (mm)		Average value: 1220.0
Width (mm)		Average value: 179.90 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
Straightness (mm/m)		Maximum value: 0.05
Flatness (%)	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
Resistance to Staining	Acetone	Rating 5
	120g/L Coffee	Rating 5
	25% Sodium hydroxide	Rating 5
	30% Hydrogen peroxide	Rating 5
	Carbon black suspension in 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 Test area indistinguishable from adjacent surrounding area
4	Minor change Test area distinguishable from adjacent surrounding area, only when the light source is mirrored on the test surface and is reflected towards the observer's eye, e.g. discoloration, change in gloss and colour
3	Moderate change Test area distinguishable from adjacent surrounding area, visible in several viewing directions, e.g. discoloration, change in gloss and colour
2	Significant change Test area clearly distinguishable from adjacent surrounding area, visible in all viewing directions, e.g. discoloration, change in gloss and colour, and/or structure of the surface slightly changed, e.g. cracking, blistering
1	Strong change 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
	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
	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 $\Phi 95\text{mm}$ (Contact area $\Phi 90\text{mm}$)

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 ΔR^i (85°) (See note 1),%	Micro-scratch resistance class (See note 2)
A	1	-3.6	MSR-A1
	2	-9.5	MSR-A1
	3	2.7	MSR-A1

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



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Note:

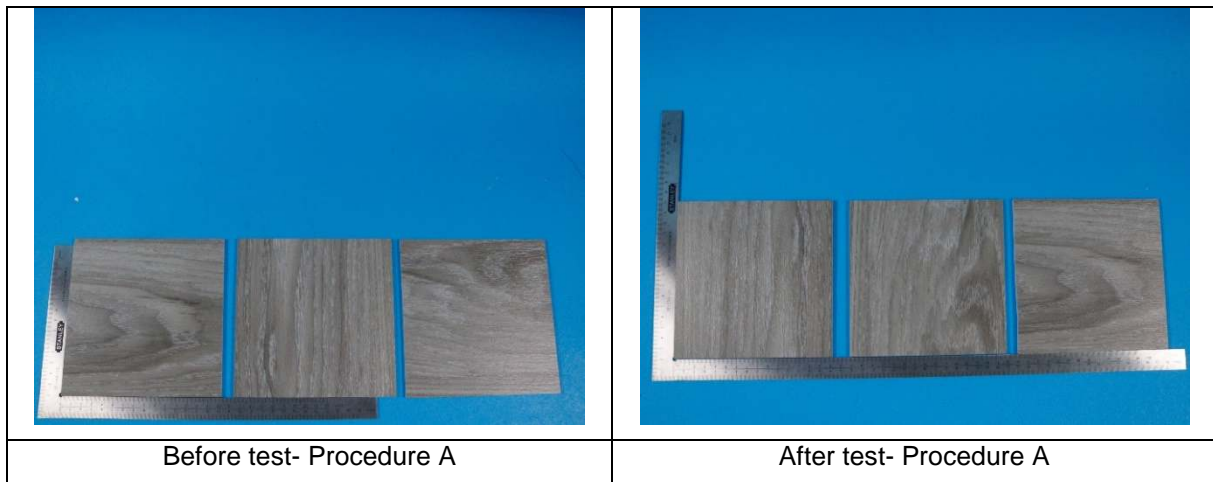
1. $\Delta R' = (R_i - R_f) / R_i \times 100\%$, R_i is the mean value at initial state, R_f is the mean value after finishing the test. The gloss value was measured along the texture direction.

2. Classification of mean values of gloss change:

Micro-scratch resistance class according to procedure A	Change of gloss
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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<p>The close-up after test- Procedure A</p>	<p>Before test- Procedure B</p>
	
<p>After test- Procedure B</p>	<p>The close-up after test- Procedure B</p>



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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/m ³	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 No.	Furthest extent of spread of flame, mm	Critical heat flux (CHF), kW/m ²	Integrated smoke 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		
	1	2	3	1	2	3
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_{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 and	$\Delta T \leq 30 \text{ }^\circ\text{C}$; and $\Delta m \leq 50 \%$; and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716	$PCS \leq 2,0 \text{ MJ/kg}$ ^a and $PCS \leq 2,0 \text{ MJ/kg}$ ^b and $PCS \leq 1,4 \text{ MJ/m}^2$ ^c and $PCS \leq 2,0 \text{ MJ/kg}$ ^d	-
A2 _{fl}	EN ISO 1182 ^a or	$\Delta T \leq 50 \text{ }^\circ\text{C}$ and $\Delta m \leq 50 \%$ and $t_f \leq 20 \text{ s}$	-
	EN ISO 1716 and	$PCS \leq 3,0 \text{ MJ/kg}$ ^a and $PCS \leq 4,0 \text{ MJ/m}^2$ ^b and $PCS \leq 4,0 \text{ MJ/m}^2$ ^c and $PCS \leq 3,0 \text{ MJ/kg}$ ^d	-
	EN ISO 9239-1 ^e	Critical flux ^f $\geq 8,0 \text{ kW/m}^2$	Smoke production ^g
B _{fl}	EN ISO 9239-1 ^e and	Critical flux ^f $\geq 8,0 \text{ kW/m}^2$	Smoke production ^g
	EN ISO 11925-2 ^h : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	-
C _{fl}	EN ISO 9239-1 ^e and	Critical flux ^f $\geq 4,5 \text{ kW/m}^2$	Smoke production ^g
	EN ISO 11925-2 ^h : Exposure = 15 s	$F_s \leq 150 \text{ mm}$ within 20 s	



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D _{fi}	EN ISO 9239-1 ^e and	Critical flux ^f ≥ 3.0 kW/m ²	Smoke production ^g
	EN ISO 11925-2 ^h : Exposure = 15 s	F _s ≤ 150 mm within 20 s	
E _{fi}	EN ISO 11925-2 ^h : Exposure = 15 s	F _s ≤ 150 mm within 20 s	-
F _{fi}	EN ISO 11925-2 ^h : Exposure = 15 s	F _s > 150 mm within 20 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 ≤ 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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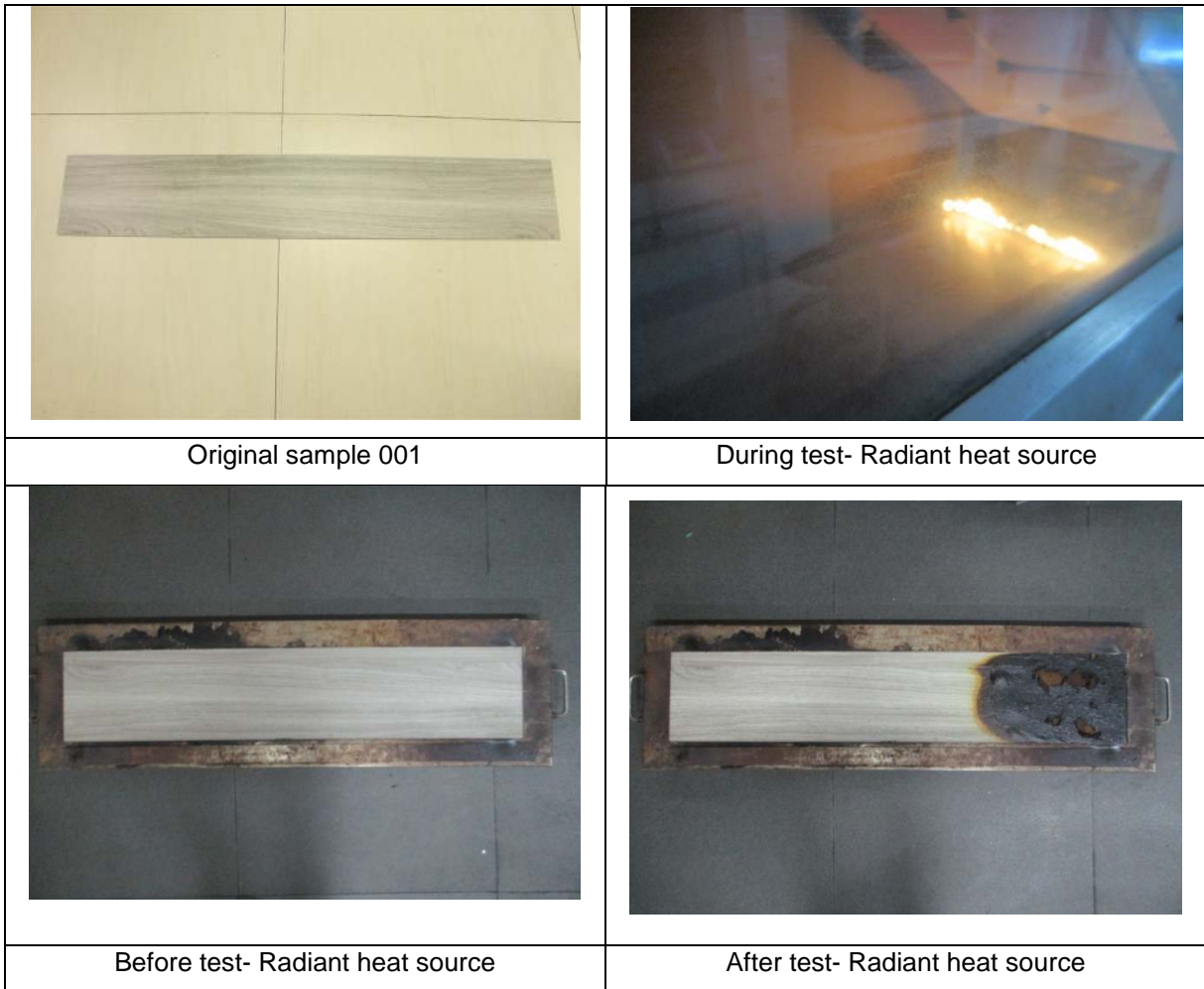
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Test Photo:



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<p>During test- Ignitability- Edge exposure</p>	<p>During test- Ignitability- Surface exposure</p>
	
<p>Before test- Ignitability-Edge exposure</p>	<p>After test- Ignitability- Edge exposure</p>



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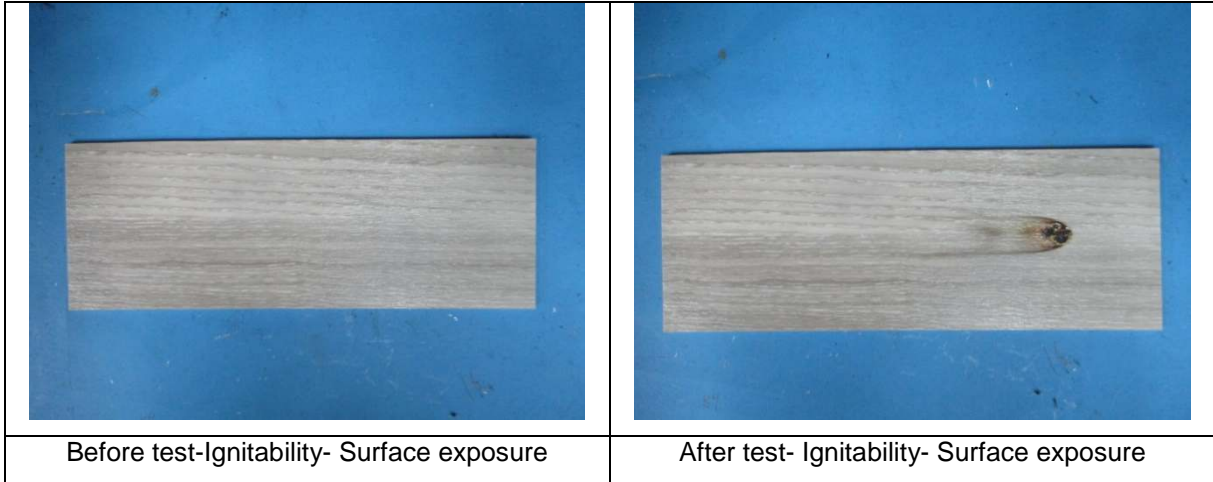
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Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Ignitability tester	SIT	GZMR-PL-E226	2022-03-25	2023-03-24
Flooring Radiant Panel Tester	FPR	GZMR-PL-E227	2022-05-24	2023-05-23

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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