

TEST REPORT

No. : XMIN2308000853CM01_EN

Date : 2023-09-13

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CUSTOMER NAME: NAN'AN AOLI STONE CO,LTD
ADDRESS: NANLIAN INDUSTRIAL ZONE,GUANQIAOTOWM,NANAN CITY

Sample Name : IMITATION MARBLE
Product Specification : 150*150
Manufacturer : NAN'AN AOLI STONE CO,LTD
Material : Resin based products

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.

SGS Ref. No. : GZMR230802437401
Date of Receipt : 2023-08-21
Testing Period : 2023-08-21 ~ 2023-09-13
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
Services Co.,Ltd. Xiamen Branch.

Bryan

Bryan Hong
Authorized signatory



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Summary of Results:

No.	Test Item	Test Method	Result
1	Apparent Density and Water Absorption	Refer to EN 14617-1:2013	Apparent Density: 2549 kg/m ³ Water Absorption: 0.03%
2	Flexural Strength	EN 14617-2:2016	29.3 MPa
3	Abrasion Resistance	EN 14617-4:2012	38.5 mm
7	Resistance To Fixing (Dowel Hole)	EN 14617-8:2007	2100 N
4	Impact Resistance	EN 14617-9:2005	7.34 J
5	Linear Thermal Expansion Coefficient	EN 14617-11:2005	18.4×10 ⁻⁶ /°C
6	Compressive Strength	EN 14617-15:2005	92 MPa
8	Slip Resistance	EN 14231:2003	Dry: 63 Wet: 52
9	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: * test project/method was carried out by subcontractors.

Original Sample Photo:



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1. Test Item: Apparent Density and Water Absorption

Sample Description: See photo

Test Method: Refer to EN 14617-1:2013 Agglomerated stone - Test methods - Part 1: Determination of apparent density and water absorption

Test Condition:

Specimens: 100mm×100mm×30mm, 6pcs

Test Result:

Specimens identification No.	1	2	3	4	5	6
Water absorption (%)	0.03	0.03	0.03	0.03	0.03	0.03
Arithmetic mean of the water absorption (%)	0.03					
Apparent density (kg/m ³)	2549	2549	2550	2549	2549	2550
Arithmetic mean of the apparent density (kg/m ³)	2549					



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2. Test Item: Flexural Strength

Sample Description: See photo

Test Method: EN 14617-2:2016 Agglomerated stone - Test methods - Part 2: Determination of flexural strength (bending)

Test Condition:

Specimens: 200mm×50mm×30mm, 10pcs

Loading rate: (0.25±0.05) MPa/s

Test Result:

Specimens identification No.	1	2	3	4	5	6	7	8	9	10
Flexural strength (MPa)	29.7	29.5	31.1	28.7	29.1	29.1	29.7	28.5	28.9	29.0
Mean value (MPa)	29.3									
Standard deviation (MPa)	0.8									
Lower expected value (MPa)	27.8									



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3. Test Item: Abrasion Resistance

Sample Description: See photo

Test Method: EN 14617-4:2012 Agglomerated stone - Test methods - Part 4: Determination of the abrasion resistance

Test Condition:

Specimens: 150mm×100mm×30mm, 6pcs

Testing surface: honed

Test Result:

Specimens identification No.	1	2	3	4	5	6
The length of the groove (mm)	39.5	38.0	38.5	38.5	38.5	38.0
Mean value(mm)	38.5					



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4. Test Item: Resistance To Fixing (Dowel Hole)

Sample Description: See photo

Test Method: EN 14617-8:2007 Agglomerated stone - Test methods - Part 8: Determination of resistance to fixing (dowel hole)

Test Condition:

Specimen: 200mm×200mm×30mm, 3pcs, 4 holes were drilled on each specimen

Diameter of the hole: 10mm; Diameter of the dowel: 6mm

Condition: Dry in an oven at 70±5°C to a constant mass → Stord at 20±5°C to room temperature
→ Placing the dowels → Stord at 20±5°C for 48h

Loading rate: (50±5) N/s

Test Result:

Specimen No.	Hole No.	d ₁ (mm)	b _A (mm)	Breaking load F (N)
1	1	11	43	2050
	2	11	46	1950
	3	12	45	2850
	4	10	41	1950
2	1	11	38	1700
	2	10	49	2250
	3	11	46	2300
	4	10	36	1850
3	1	10	42	1850
	2	10	43	2400
	3	9	42	2200
	4	9	35	1850
Mean value		10	42	2100
Lower expected value		/	/	1544
Standard deviation		/	/	320

d₁: Distance from the hole to the face

b_A: Maximum distance from the centre of the hole to the edge of the fracture



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5. Test Item: Impact Resistance

Sample Description: See photo

Test Method: EN 14617-9:2005 Agglomerated stone - Test methods - Part 9: Determination of impact resistance

Test Condition:

Specimens: 200mm×200mm×30mm, 4pcs

Test Result:

Specimens identification No.	1	2	3	4
Drop height, h (m)	0.80	0.65	0.70	0.70
Fracture work, L (J)	8.24	6.69	7.21	7.21
Average value (J)	7.34			

Note: The fracture work L in joule is expressed by the formula

$$L=M \times h \times g$$

Where

M is the sphere mass, 1.050kg

h is the drop height in meters of the sphere which causes the sample to break

g is the gravity acceleration equal to 9.806m/s²



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6. Test Item: Linear Thermal Expansion Coefficient

Sample Description: See photo

Test Method: EN 14617-11:2005 Agglomerated stone - Test methods - Part 11: Determination of linear thermal expansion coefficient

Test Condition:

Specimen: 50mm×10mm×9mm, 3pcs

Temperature range: 30°C~60°C

Heating rate: 3°C/min

Test Result:

Specimen No.	1	2	3
Linear thermal expansion coefficient (10 ⁻⁶ /°C)	18.8	19.4	16.9
Mean value (10 ⁻⁶ /°C)	18.4		

7. Test Item: Compressive Strength

Sample Description: See photo

Test Method: EN 14617-15:2005 Agglomerated stone - Test methods - Part 15: Determination of compressive strength

Test Condition:

Specimen: 50mm×50mm×50mm, 6pcs

Condition: 70±5°C, 48h

Test speed: 1MPa/s

Test Result:

Specimens identification No.	1	2	3	4	5	6
Compressive strength (MPa)	88	86	99	82	100	95
Mean value (MPa)	92					



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8. Test Item: Slip Resistance

Sample Description: See photo

Test Method: EN 14231:2003 Natural stone test methods - Determination of the slip resistance by means of the pendulum tester

Test Condition:

Specimen: 200mm×150mm×30mm, 6pcs

Type of slider: Slider 57

Test surface: honed

Test Result:

Specimens identification No.	1	2	3	4	5	6
Mean pendulum value (Dry condition)	64	60	66	65	62	62
Slip resistance value (SRV "dry")	63					
Mean pendulum value (Wet condition)	55	52	54	51	51	47
Slip resistance value (SRV "wet")	52					



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9. Test item: Fire Classification for Burning Behavior of Flooring Material

Sample Description: See photo

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 × 8.0 mm

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	60	≥11	76.6
2	50	≥11	89.7
3	60	≥11	89.8
Average	60	≥11	85

Note:

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

2. Observations of the burning characteristics: Charring, shrinkage.



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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 × 8.0 mm

Flame application time: 15s

Exposure conditions	Edge exposure			Surface exposure		
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: Observations of the burning characteristics: Charring.

Result:

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 _{fl}	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	Fs ≤ 150 mm within 20 s	
E _{fl}	EN ISO 11925-2 ^h : Exposure = 15 s	Fs ≤ 150 mm within 20 s	-
F _{fl}	EN ISO 11925-2 ^h : Exposure = 15 s	Fs > 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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TEST REPORT

No. : XMIN2308000853CM01_EN

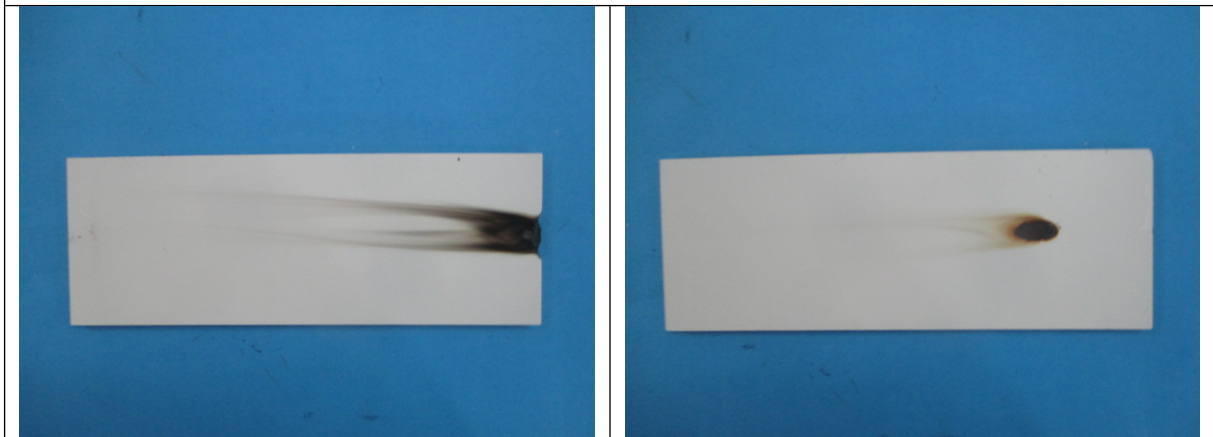
Date : 2023-09-13

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Test Photo:



After test- Radiant heat source



After test- Ignitability- Edge exposure

After test- Ignitability- Surface exposure

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



SGS-CTS Standards Technical Services Co., Ltd.
Xiamen Branch Testing Laboratory

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