

## TEST REPORT

No. : GZIN1811059952CM

Date : Nov 28, 2018

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CUSTOMER NAME: VEMY QUARTZ SURFACE CO., LTD  
ADDRESS: NO.1 HUIYIN ROAD, SHENCUN MECHANICAL AND PLASTICS ZONE,  
BAINI TOWN SHANSHUI DISTRICT FOSHAN CITY

Sample Name : Quartz Stone  
Manufacturer : VEMY QUARTZ SURFACE CO., LTD

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.

\*\*\*\*\*

Date of Receipt : Nov 15, 2018  
Testing Start Date : Nov 15, 2018  
Testing End Date : Nov 28, 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)

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

Salon

Salon Liu  
Authorized signatory



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

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Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Abrasion Resistance	ASTM C241/C241M-15ε1	32	/
2	Flexural Strength	ASTM C880/C880M-15	Dry condition: 45.5MPa Wet condition: 49.5MPa	/
3	Impact Resistance	EN 14617-9:2005	9.54J	/
4	Compressive Strength	ASTM C170/C170M-17	Dry condition: 181MPa Wet condition: 187MPa	/
5	Absorption and Bulk Specific Gravity	ASTM C97/C97M-18	Water absorption : 0.05% Bulk specific gravity: 2.33	/
6	Stain Resistance Test	ANSI Z124.6-2007 Section 5.2	Stain resistance rating: 64 The maximum stain depth: 0.06mm	Pass
7	Mohs' hardness	EN 101-1991	6	/

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



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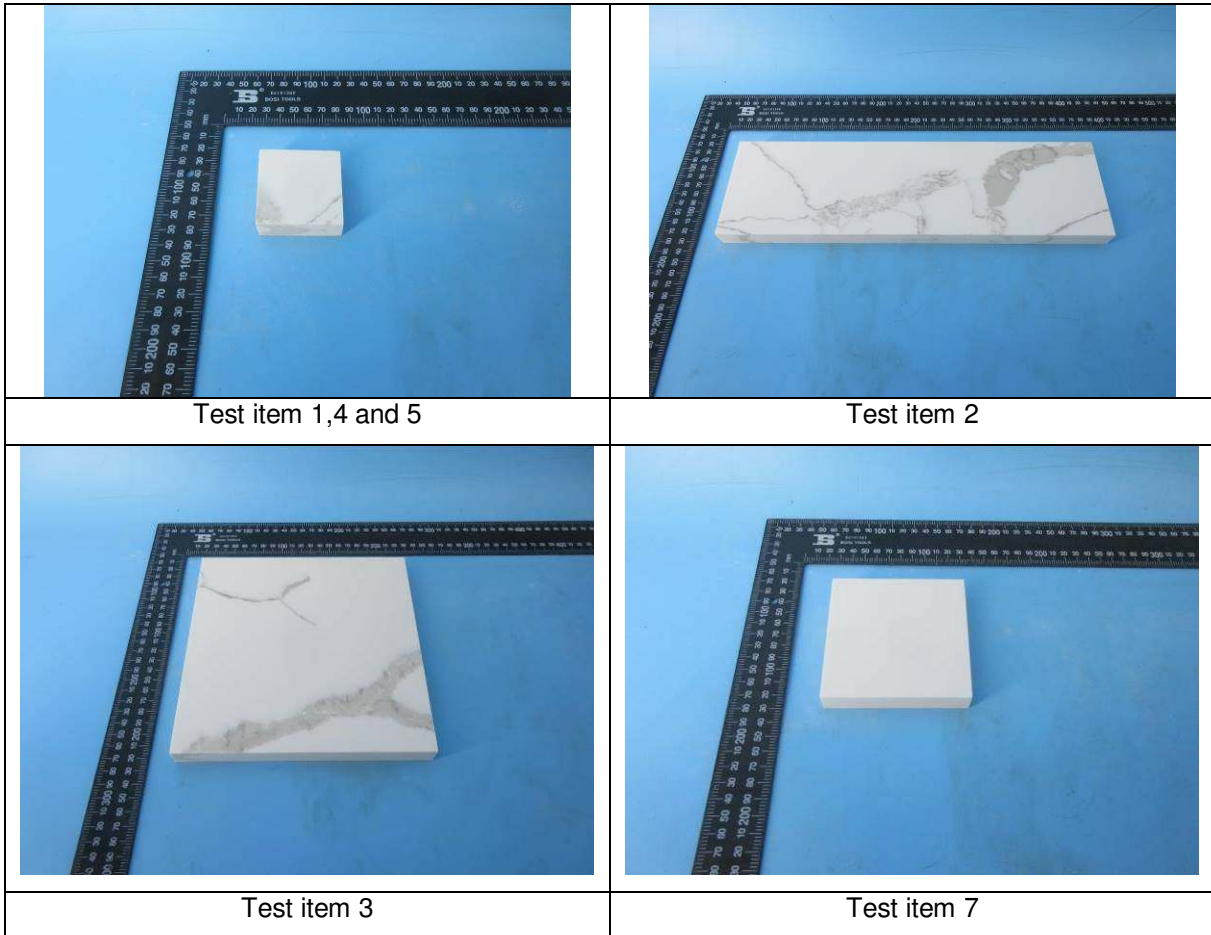
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Original Sample Photo:



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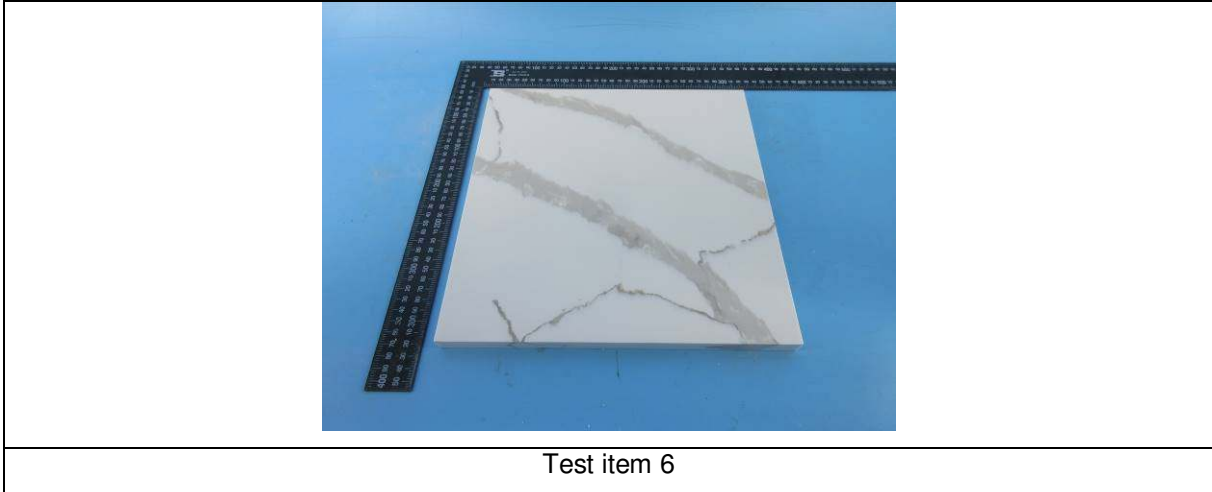
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Test Item 1: Abrasion Resistance

Sample Description: See photo

Test Method: ASTM C241/C241M-15<sup>E1</sup>

Test Condition:

Specimen: 50mm×50mm×20mm, 3pcs

Condition: ①60±2℃, 48h→cooling, 2h→Abrasion resistance test→②Distilled water, 22±2℃, 1h

Load: 2000g

Revolutions: 225

Test Result:

Specimens identification No.	1	2	3
Abrasion resistance	30	34	32
Mean abrasion resistance	32		

Test Item 2: Flexural Strength

Sample Description: See photo

Test Method: ASTM C880/C880M-15

Test Condition:

Specimen: 400mm×102mm×20.4mm

Dry Condition : Dry in an oven at 60±2℃ for 48h→cool them to room temperature in a desiccator

Wet Condition: Immerse in distilled water at 22±2℃ for 48h

Support Span: 200mm

Testing Speed: 4MPa/min

Test Result:

Specimen No.	1	2	3	4	5	Ave.
Flexural strength, (Dry Condition) MPa	46.9	44.2	45.8	44.5	46.3	45.5
Flexural strength, (Wet Condition) MPa	45.5	50.7	50.6	51.8	48.8	49.5



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Test Item 3: Impact Resistance

Sample Description: See photo

Test Method: EN 14617-9:2005

Test Condition:

Specimens: 200mm×200mm×20mm, 4pcs

Test Result:

Specimens identification No.	1	2	3	4
Drop height, <i>h</i> (m)	0.91	1.06	0.91	1.01
Fracture work, <i>L</i> (J)	8.92	10.4	8.92	9.90
Average value (J)	9.54			

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

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

Where

*M* is the sphere mass, 1kg

*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/s<sup>2</sup>

Test Item 4: Compressive Strength

Sample Description: See photo

Test Method: ASTM C170/C170M-17

Test Condition:

Specimen: 50mm×50mm×40mm (Two layers piled up)

Dry Condition: Dry in an oven at 60±2°C for 48h→cool them to room temperature in a desiccators

Wet Condition: Immerse in distilled water at 22±2°C for 48h

Testing speed: 0.5MPa/s



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Test Result:

Specimen No.	1	2	3	4	5	Ave.
Compressive strength, Dry Condition (MPa)	183	183	181	177	183	181
Compressive strength, Wet Condition (MPa)	225	174	180	173	182	187

Test Item 5: Water Absorption and Bulk Specific Gravity

Sample Description: See photo

Test Method: ASTM C97/C97M-18

Test Condition:

Specimen: 50mm×50mm×20mm

Condition: Dry in an oven at 60±2°C for 48h→Cool down in a desiccator for 30min→Immerse in distilled water at 22±2°C for 48h

Test Result:

Water absorption: 0.05%

Bulk specific gravity: 2.33

Test Item 6: Stain Resistance Test

Sample Description: See photo

Test Method: ANSI Z124.6-2007 Clause 5.2

Test Condition:

Specimen: 100mm×100mm×20mm

Test reagents: see table 1

Contact time: 16h

Test Result:

Stain resistance total rating: 64; The maximum stain depth: 0.06mm

ANSI Z124.6-2007 section 5.2.5 requirement:

The Maximum stain resistance total rating: 64; The maximum stain depth: 0.127mm

Conclusion: Pass



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Table 1: Test result of stain resistance test

Reagent	Rating	
	Covered	Uncovered
Black crayon	3	3
Black liquid shoe polish	4	4
Blue washable Ink	2	2
Gentian violet solution	5(stain depth:0.04mm)	5(stain depth:0.03mm)
Beet juice	1	1
Grape juice	1	1
Lipstick	5(stain depth:0.01mm)	5(stain depth:0.06mm)
Hair dye	5(stain depth:0.01mm)	5(stain depth:0.01mm)
Iodine solution	5(stain depth:0.02mm)	5(stain depth:0.02mm)
Wet tea bag	1	1
Total rating	64 (The maximum stain depth: 0.06mm)	

Note: Cleaning procedures:

1. The specimen shall be washed with tap water and cheesecloth or soft bristle brush using 20 scrub cycles with normal hand pressure and dried by blotting. A stain shall be defined as a change in surface texture or a change in color. Specimens not staining at this point shall have a rating of 1-non-staining.
2. Stains present after initial wash with water shall be washed with alcohol or naphtha using cheesecloth or soft bristle brush for 20 cycles using normal hand pressure. The specimens shall be washed with tap water and dried by blotting. Specimens not staining at this point shall have a rating of 2-removable by alcohol or naphtha.
3. Stains present after the aforementioned cleanings shall be scrubbed 20 scrub cycles with standard scouring powder and wet cheesecloth or soft bristle brush using normal hand pressure. The specimens shall be washed with tap water and dried by blotting. Reduction of gloss due to scrubbing with standard scouring powder shall not constitute staining. Specimens whose stain is removed by the standard scouring powder shall have a rating of 3-removable by first application of standard scouring powder.
4. Stains present after the aforementioned cleanings shall be scrubbed 40 scrub cycles with standard scouring powder and wet cheesecloth or soft bristle brush using normal hand pressure. The specimens shall be washed with tap water and dried by blotting. Reduction of gloss due to scrubbing with standard scouring powder shall not constitute staining. Specimens whose stain is removed by this additional shall have a rating of 4-removable by two standard scouring powder scrubbing.



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5. Any specimen with stain remaining after the aforementioned cleanings shall have a rating of 5. Any specimen with stain remaining after the above cleanings shall be tested to determine the depth of staining. The affected area shall be cut and lightly sanded with 600 grit abrasive cloth until the stain is removed. The depth shall be measured to the nearest 0.025mm.

Test Item 7: Mohs' hardness

Sample Description: See photo

Test Method: EN 101-1991: Ceramic tiles – Determination of scratch hardness of surface according to Mohs

Test Condition:

Specimens: 100mm×100mm×20.0mm

Test Result:

Specimens identification No.	1	2	3
Mohs' hardness	6	6	6
Mean value	6		

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



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