TEST REPORT

No. : GZIN150901320CCM-02
Date : Mar. 16, 2016

CLIENT NAME: Magic Stone Green Building Material Co.,Ltd.

ADDRESS: B318 China Ceramic City , Foshan, Guangdong Province , P.R. China.

The following sample(s) was/ were submitted and identified on behalf of the client as:

Sample Name	:	MCM FLEX-CLAY, Unfired Flexi Clay Cladding & Flooring
SGS Ref. No.	:	GZIN150901320CCM-02
Test Performed	:	Selected test(s) as requested by applicant
Date of Receipt	:	Sep. 09, 2015
Test Period	:	Sep. 09, 2015 to Feb. 24, 2016

Test result(s) : Please refer to the following page(s)

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

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co.,Ltd
Guangzhou Branch

Jay Xue
Authorized signatory

** Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. The report should not be reproduced except in full without written approval from the Company

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

TEST REPORT

Summary of test results

NO.	Test items	Test methods	Test results		
1	Freeze-Thaw Cycling	With reference to ASTM C1026-13 and Client's requirement	Weight loss: 0.42% Appearance: No visible change		
2	Water absorption	ASTM C97/C97M-15	12.4%		
	Bulk specific gravity		1.83		
3	Stain resistance test	ANSI Z124.6-2007 Clause 5.2	Total rating: 76 The maximum stain depth: 0.101mm (See table 1 and note 1)		
4	Chemical resistance test	ANSI Z124.6-2007 Clause 5.5	See table 2		
5	Static coefficient of friction	ASTM C1028-07$^{\varepsilon 1}$	Dry condition: 1.11 Wet condition: 0.70		
6	Abrasion resistance	ASTM C241/C241M-15$^{\varepsilon 1}$	8		
7	Light Ageing Test-UV Exposure	ASTM G154-12a Cycle1 & ASTM D2244-15a & ASTM D2616-12	Exposure duration	Gray scale	ΔE^*_{ab}
			2500h	4.0	2.6

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

TEST REPORT

Test Information:

Sample description: See photo

Test item 1: Freeze-Thaw Cycling

Test method: With reference to ASTM C1026-13 and Client's requirement

Test condition:

Specimen: 76×76×3.28mm

Condition: ①Drying in 150±5℃,24h→②Boiling water, 5h→③Soaking for an additional 24h→④Freeze in -3℃, 1min→⑤Thaw in 5℃, 1min→④~⑤ as a cycle, There are 20 cycles→⑥Drying in 150±5℃ for 24h→⑦Cooling in the desiccators until room temperature

Test result:

Weight loss: 0.42%

Appearance: No visible change

Test item 2: Water absorption and Bulk specific gravity

Test method: ASTM C97/C97M-15

Test condition:

Specimen: 50×50×3.28mm

Condition: 60±2℃, 48h→Distilled water, 22±2℃, 48h

Test result:

Water absorption: 12.4%

Bulk specific gravity: 1.83

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

TEST REPORT

Test item 3: Stain resistance test

Test method: ANSI Z124.6-2007 Clause 5.2

Test condition:

Specimen: 100×100×3.28mm

Reagents: (see table 1)

Test time: 16h

Test result:

Table 1: Test result of stain resistance test

Reagent	Rating	
	Covered	Uncovered
Black crayon	5(stain depth:0.076mm)	5(stain depth:0.081mm)
Black liquid shoe polish	5(stain depth:0.091mm)	5(stain depth:0.085mm)
Blue washable Ink	5(stain depth:0.083mm)	5(stain depth:0.080mm)
Gentian violet solution	5(stain depth:0.102mm)	5(stain depth:0.103mm)
Beet juice	1	1
Grape juice	1	1
Lipstick	5(stain depth:0.091mm)	5(stain depth:0.092mm)
Hair dye	5(stain depth:0.012mm)	5(stain depth:0.102mm)
Iodine solution	5(stain depth:0.101mm)	5(stain depth:0.092mm)
Wet tea bag	1	1
Total rating	76 (The maximum stain depth: 0.101mm)	

Total rating: 76

The maximum stain depth: 0.101mm

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

Note: 1.Cleaning procedures:

1.1 The specimen shall be washed with tap water and cheesecloth or soft bristle brush using 20 scrub cycles with normal hang 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 or 1-non-sraining.

1.2 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.

1.3 Stains present after the aforementioned cleanings shall be scrubbed 20 scrub cycles with standard souring 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 power shall not constitute staining. Specimens whose strain is removed by the standard souring powder shall have a rating of 3-removable by first application of standard scouring powder.

1.4 Stains present after the aforementioned cleanings shall be scrubbed 40 scrub cycles with standard souring 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 power shall not constitute staining. Specimens whose strain is removed by this additional shall have a rating of 4-removable by two standard scouring powder scrubbings.

1.5 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 4: Chemical resistance test

Test method: ANSI Z124.6-2007 Clause 5.5

Test condition:

Specimen: 100×100×3.28mm

Reagents: (see table2)

Test time: 16h

Test result: See table 2

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

Table 2: Test result of chemical resistance test

Reagent	Results	
	Covered	Uncovered
Naphtha	No visible change	No visible change
Ethyl alcohol	No visible change	No visible change
Amyl acetate	No visible change	No visible change
Household ammonia (10%)	No visible change	No visible change
Citric acid (10%)	Lightly affected	Lightly affected
Urea 6% water solution	No visible change	No visible change
Hydrogen peroxide solution (3%)	No visible change	No visible change
Concentrated sodium hypochlorite solution	No visible change	No visible change
Toluene	No visible change	No visible change
Ethyl acetate	No visible change	No visible change
Lye solution (1% to 2%)	No visible change	No visible change
Acetone	No visible change	No visible change
Trisodium phosphate (5%)	No visible change	No visible change
Vinegar	No visible change	No visible change
Pine oil	No visible change	No visible change

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

Test item 5: Static coefficient of friction

Test method: ASTM C1028-07$^{\varepsilon 1}$

Test condition:

Specimen: 200×200×3.28mm

Contact area: 75×75mm^2

Load: 23.8kg

Test result:

Dry condition: 1.11

Wet condition: 0.70

Test item 6: Abrasion resistance

Test Method:

ASTM C241/C241M-15$^{\varepsilon 1}$ Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic

Specimens: 50mm×50mm×25mm, 3pcs

Test Result:

Testing surface: see the photo

Specimens identification No.	1	2	3
Abrasive hardness	8	8	7
Mean abrasive hardness	8		

Note: The test item 6 was carried out by a SGS internal laboratory.

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

Test item 7: Light Ageing Test-UV Exposure

Test method: ASTM G154-12a Cycle1 & ASTM D2244-15a & ASTM D2616-12

Test condition:

Exposure cycle:

ASTM G154-12a cycle 1

Lamp type: UVA-340

8h UV at (60±3)℃ BPT, 0.89W/(m^2•nm)@340nm

4h condensation at (50±3)℃ BPT

Exposure duration: 2500h

Test result:

Sample	Exposure duration	Gray scale(See note 1)	ΔE^*_{ab} (See note 2)
1	2500h	4.0	2.6

Note:

1. According to ASTM D2616-12, the gray scale was determined under the D65 standard light, with scale 5.0 as the best and scale 1.0 as the worst.

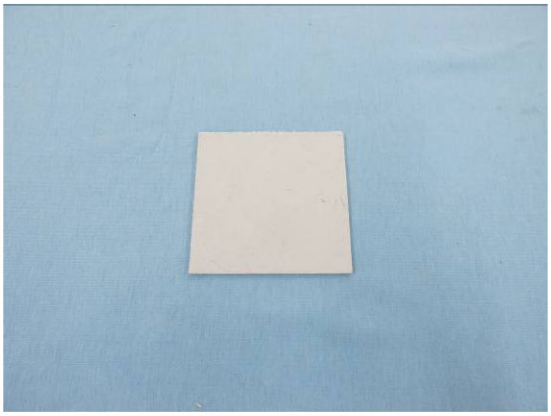
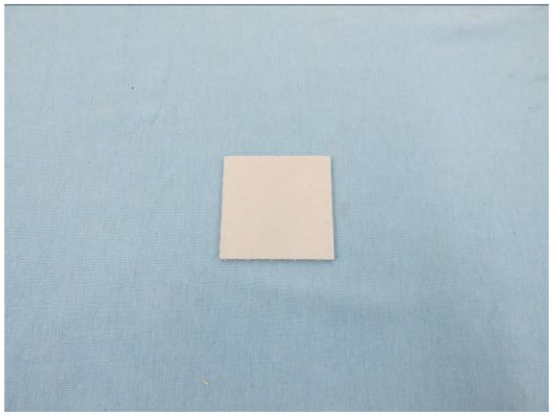
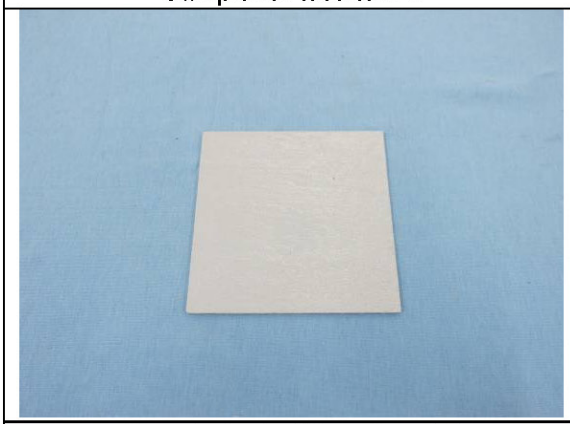
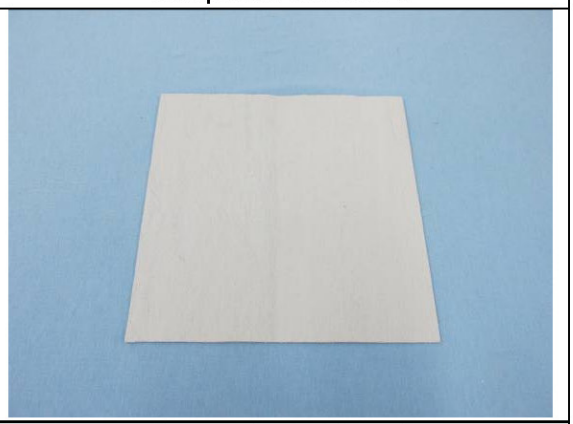
2. ΔE^*_{ab} was measured by sphere spectrophotometer under D65 standard light source and with 10° observer. The results exclude specular reflection condition, 25mm aperture.

3. This test report supersedes the test report GZIN150901320CCM-01, the original test reports (paper and electronic) are voild.

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

TEST REPORT

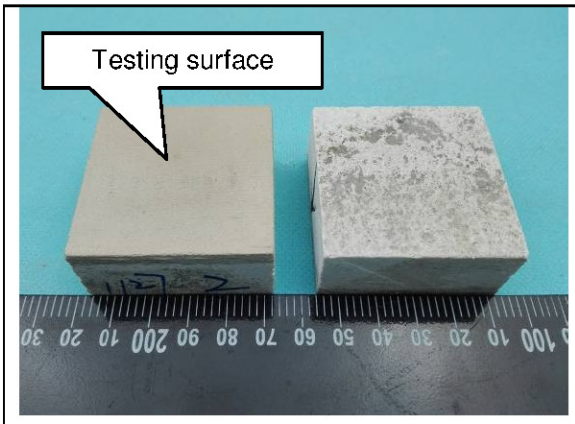
Photo:

	
Sample for test item 1	Sample for test item 2
	
Sample for test item 3 and 4	Sample for test item 5

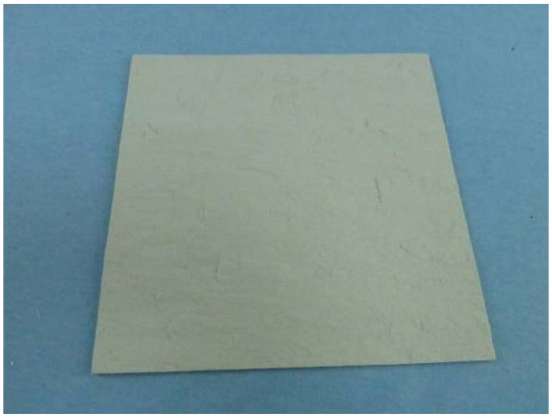
********To be continued********

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com

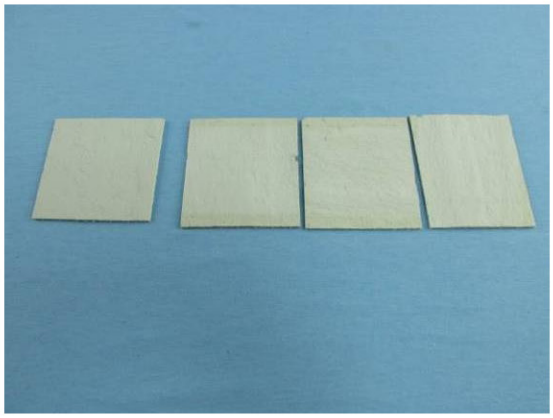
TEST REPORT



Sample for test item 6



Original sample for test item 7



Reference sample Tested sample-2500h
Test item 7

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

198 Kezhu Road, Scientech Park, Economic & Technical Development District, Guangzhou, China. 510663 t (86-20) 82155555 f (86-20) 82075080 www.sgsgroup.com.cn
中国・广州・经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075080 e sgs.china@sgs.com