

VERIFICATION OF CONFORMITY

No. IN-GZ-CP-5627-21032

It has been stated that the construction product
Econic clay coverings 3D-TECH series

Description of the product(s):

Intended use: **For wall covering under system 4**

placed on the market by

PHOMI MCM CO., LTD

15/F, BUILDING A2, MODERN AVENUE, SCIENCE CITY, HUANGPU DISTRICT, GUANGZHOU

and produced in the manufacturing plant

PHOMI MCM CO., LTD

15/F, BUILDING A2, MODERN AVENUE, SCIENCE CITY, HUANGPU DISTRICT, GUANGZHOU

is submitted by the manufacturer to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the third party- SGS-CSTC Standards Technical Services Co., Ltd. has performed the determination of the product type as required for Regulation 305/2011/EU and the assessment and verification of conformity at system 4.

This verification attests that type testing or type calculation described in Annex ZA of the standard **EN 15102:2007+A1:2011** was applied and that the relevant test report no. is **CANMLC2120687003, CANMLC2120687004**

This verification is customer voluntary act and refers to the tested samples only-type representative of the tested product. The relevant quality management system certificate no. is **15720Q20477R0S**, the manufacturer is obligated to apply factory production control.

This verification is valid from **Jan. 19, 2022** until **Jan. 18, 2025** and remains valid as long as the manufacturing conditions in the plant or the factory production control itself are not modified significantly.



The general principles set out in Article 30 of Regulation (EC) No 765/2008 shall apply to the CE marking. The CE marking shall be affixed to those construction products for which the manufacturer has drawn up a declaration of performance.

Issue 1. Verified since Jan. 19, 2022

Authorised by



IN-GZ-CP-5627-21032

Tim Ke
Guangzhou Branch Manager

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
No.198, Kezhu Road, Sciencetech Park, Economic and Development District, Guangzhou, China 510663
t +86 (0)20 8215 5555 f +86 (0)20 8207 5080
email Industrial.China@sgs.com website www.sgs.com



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BUREAU VERITAS
Certification



Product Carbon Footprint Verification Statement

is awarded to
PHOMI HOLDING CO., LTD.

Verified product: Econiclay Covering

Functional/Declared unit: 1 m² Econiclay Covering and 1 kg Econiclay Covering (Size: 1200mm×600mm×3mm; Weight : 3.9kg/ m²; Packaging material weight: 118.8 g/m²)

System boundary: The life cycle (from cradle to grave) process GHG emission of 1 m² / 1kg Econiclay Covering produced in PHOMI MCM CO., LTD., including upstream raw material acquisition and production, raw material transportation, core production and downstream product transportation, product utilization and disposal process.

Reporting period verified: 1/1/2023 to 31/12/2023

Production Company: PHOMI MCM CO., LTD.

Production address: No.9 Zhijiang Road, Overseas Chinese Investment Zone, Laibin City, Guangxi Zhuang Autonomous Region, China

Re-verification conditions: Re-verification shall be applied when Greenhouse Gas emissions in life cycle of the product has 5% or more than 5% planned changes or has more than 10% unplanned changes, and these changes continue for more than 3 months.

Bureau Veritas Certification (Beijing) Co., Ltd.

certifies that above organization has conducted Greenhouse Gas verification of product carbon footprint in accordance with the requirements of the standard detailed below, and verification data are reasonable measurement and calculation.

ISO 14067: 2018

Greenhouse Gas emission in life cycle of 1 m² Econiclay Covering product (from cradle to grave): 1.02 kgCO₂e

Greenhouse Gas emission in life cycle of 1 kg Econiclay Covering product (from cradle to grave): 0.26 kgCO₂e

Statement No.: EMI21094621GZ-01

Lead verifier: Haoyu HUANG

Issue date: 13/3/2024

Version No.: NO.1

Verification date: 23-24, January, 2024

Expiry date: 12/3/2026

Signed on behalf of
Bureau Veritas Certification (Beijing) Co., Ltd.

Certification body address: Room 02, 9 / F, West Office Building 1, Oriental Economic and Trade City, Oriental Plaza, No.1 East Chang'an Street, Dongcheng District, Beijing, China. 100738

Further clarifications regarding the verification scope of this statement may be obtained by consulting the organization.

To check this statement validity please call: +86 10 59683888 or +86 20 83073800

CERTIFICATE OF COMPLIANCE



Phomi MCM Co Ltd

See product list below

UL 2818 - 2013 Gold Standard for Chemical Emissions for Building Materials, Finishes and Furnishings

Product tested in accordance with UL 2821 test method to show compliance to emission limits on UL 2818. Section 7.1 and 7.2.

Commercial furniture and furnishings are tested in accordance with ANSI/BIFMA M7.1-2011 and determined to comply with ANSI/BIFMA X7.1-2011 and ANSI/BIFMA e3-2014e Credit 7.6.1, 7.6.2, and 7.6.3. Panel based workstations are modeled in the open plan environment. Casework systems and individual furniture items are modeled in the private office environment. Seating products are modeled in the seating environment. Classroom furniture is modeled using the standard classroom model in the California Department of Public Health (CDPH) Standard Method v1.2.

Building Products are determined compliant in accordance with California Department of Public Health (CDPH) Standard Method V1.1-2010, using the applicable exposure scenario.



UL investigated representative samples of the identified Product(s) to the identified Standard(s) or other requirements in accordance with the agreements and any applicable program service terms in place between UL and the Certificate Holder (collectively "Agreement"). The Certificate Holder is authorized to use the UL Mark for the identified Product(s) manufactured at the production site(s) covered by the UL Test Report, in accordance with the terms of the Agreement. This Certificate is valid for the identified dates unless there is non-compliance with the Agreement.

CERTIFICATE OF COMPLIANCE

UL GREENGUARD Certified Products Listing

Product Name	Certification	Status	Certificate Number	Certification Period	Restrictions
2.5 mm Modified inorganic powder composite building decorative material—MCM Facing Brick Serie	GREENGUARD Gold Certified	Certified	155948-420	09/12/2019-09/12/2020	
2.5mm Modified inorganic powder composite building decorative material—MCM Leather Serie	GREENGUARD Gold Certified	Certified	155949-420	09/12/2019-09/12/2020	
2.5mm Modified inorganic powder composite building decorative material—Wood Serie	GREENGUARD Gold Certified	Certified	155950-420	09/12/2019-09/12/2020	
2.5-10.0mm Modified inorganic powder composite building decorative material—Stone Serie	GREENGUARD Gold Certified	Certified	155951-420	09/12/2019-09/12/2020	
2.5-5.0mm Modified inorganic powder composite building decorative material—Weaving Serie	GREENGUARD Gold Certified	Certified	155952-420	09/12/2019-09/12/2020	

Please refer to current certificates on ul.com/spg for complete compliance information.



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US008505840B2

(12) **United States Patent**
Shi

(10) **Patent No.:** **US 8,505,840 B2**
(45) **Date of Patent:** **Aug. 13, 2013**

(54) **METHOD FOR MODIFYING NOMAL CLAY AND A METHOD FOR PRODUCING COMPOSITE ELASTOMER FROM THE CLAY**

(56) **References Cited**

(76) Inventor: **Lei Shi**, Guangdong (CN)

U.S. PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 947 days.

5,303,871 A * 4/1994 Bateson et al. 241/20
6,601,787 B1 * 8/2003 Langenecker 241/21

* cited by examiner

(21) Appl. No.: **12/451,321**

Primary Examiner — Faye Francis

(22) PCT Filed: **Aug. 20, 2007**

(74) *Attorney, Agent, or Firm* — Raymond Y. Chan; David and Raymond Patent Firm

(86) PCT No.: **PCT/CN2007/002514**

§ 371 (c)(1),

(2), (4) Date: **Nov. 6, 2009**

(57) **ABSTRACT**

(87) PCT Pub. No.: **WO2008/134917**

PCT Pub. Date: **Nov. 13, 2008**

A method for modifying soil and a method for producing composite Elastomer of the soil are disclosed. The method for modifying soil includes drying, pulverizing, sieving, and purifying the soil to obtain soil powder, then dynamically heating the powder and adding surfactant, which includes coupling agent, polysiloxane having reactive functional, emulsifier of organosilicon and aliphatic amine, and water, and then drying the above obtained powder to obtain modified soil. The modified soil and acrylic acid copolymer emulsion are mixed with plasticizer, foaming agent, etc. to form a composite body which is used to produce elastomer floor board, elastomer wall brick, composite soil skin material, and so on. No emission of toxic gas and evaporation of organic solvent can be attained during production and use of the invention, and performance of the product is same as or has superiority over rubber in compression deformation rate, rebound elasticity and durability.

(65) **Prior Publication Data**

US 2010/0098495 A1 Apr. 22, 2010

(51) **Int. Cl.**

B02C 1/00 (2006.01)

B02C 19/00 (2006.01)

B02C 21/00 (2006.01)

(52) **U.S. Cl.**

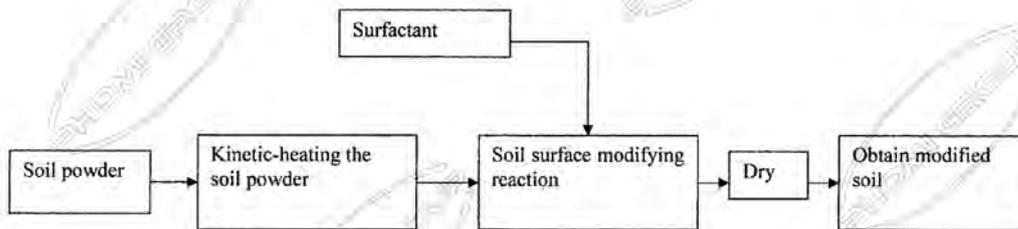
USPC 241/21; 241/22; 241/23

(58) **Field of Classification Search**

USPC 241/21-23

See application file for complete search history.

11 Claims, 2 Drawing Sheets



GUANGXI PHOMI MCM CO.,LTD
NO.9, ZHIJIANG ROAD, OVERSEAS CHINESE INVESTMENT ZONE, LAIBIN CITY, GUANGXI, CHINA

Sample Description : ECONIC CLAY COVERINGS 3D-TECH SERIES
Manufacturer : GUANGXI PHOMI MCM CO.,LTD
Country of Origin : CHINA

As above test item and its relevant information regarding to the submission are provided and confirmed by the applicant. SGS is not liable to either the test item or its relevant information, in terms of the accuracy, suitability, reliability or/and integrity accordingly.

Sample Receiving Date : Dec 01, 2022
Test Performing Date : Dec 05, 2022 to Feb 27, 2023
Test Performed : Selected test(s) as requested by applicant
Test Result(s) : For further details, please refer to the following page(s)

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


Peter Zhao
Authorized Signatory



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SDHL 216545

Test Result Summary

No.	Test(s) Requested	Result(s)	Comments
1	Light Ageing Test-UV Exposure ASTM G154-16 Cycle1 & ISO 105-A02:1993/Cor.2:2005 & ASTM D2244-21	See results	/
2	Resistance to Freeze-Thaw Cycling ASTM C1026-13(2018) & Client's Requirement	Number of damaged specimens: 0	/
		Total weight loss: 0.34%	
	Absorption and Bulk Specific Gravity ASTM C97/C97M-18	Absorption: 8.02%	/
		Bulk Specific Gravity: 1.892	
Scrub Resistance With reference to ASTM D2486-17 Method A and client's requirement	No substrate exposed after 4000 cycles	/	
For further details, please refer to the following page(s)			

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SDHL 216546

PART 1:

Test Item: Light Ageing Test-UV Exposure

Sample Description: See photos

Test Method: ASTM G154-16 Cycle1 & ISO 105-A02:1993/Cor.2:2005 & ASTM D2244-21

Test Condition:

Exposure cycle:

Lamp type: UVA-340

8h UV at (60±3)°C BPT, 0.89W/(m²·nm)@340nm

4h condensation at (50±3)°C BPT

Exposure duration: 2000h

Test Result:

Sample	Exposure duration	Grey scale	Δ E*ab
A	1500h	4-5	1.8
	2000h	4-5	2.2

Note:

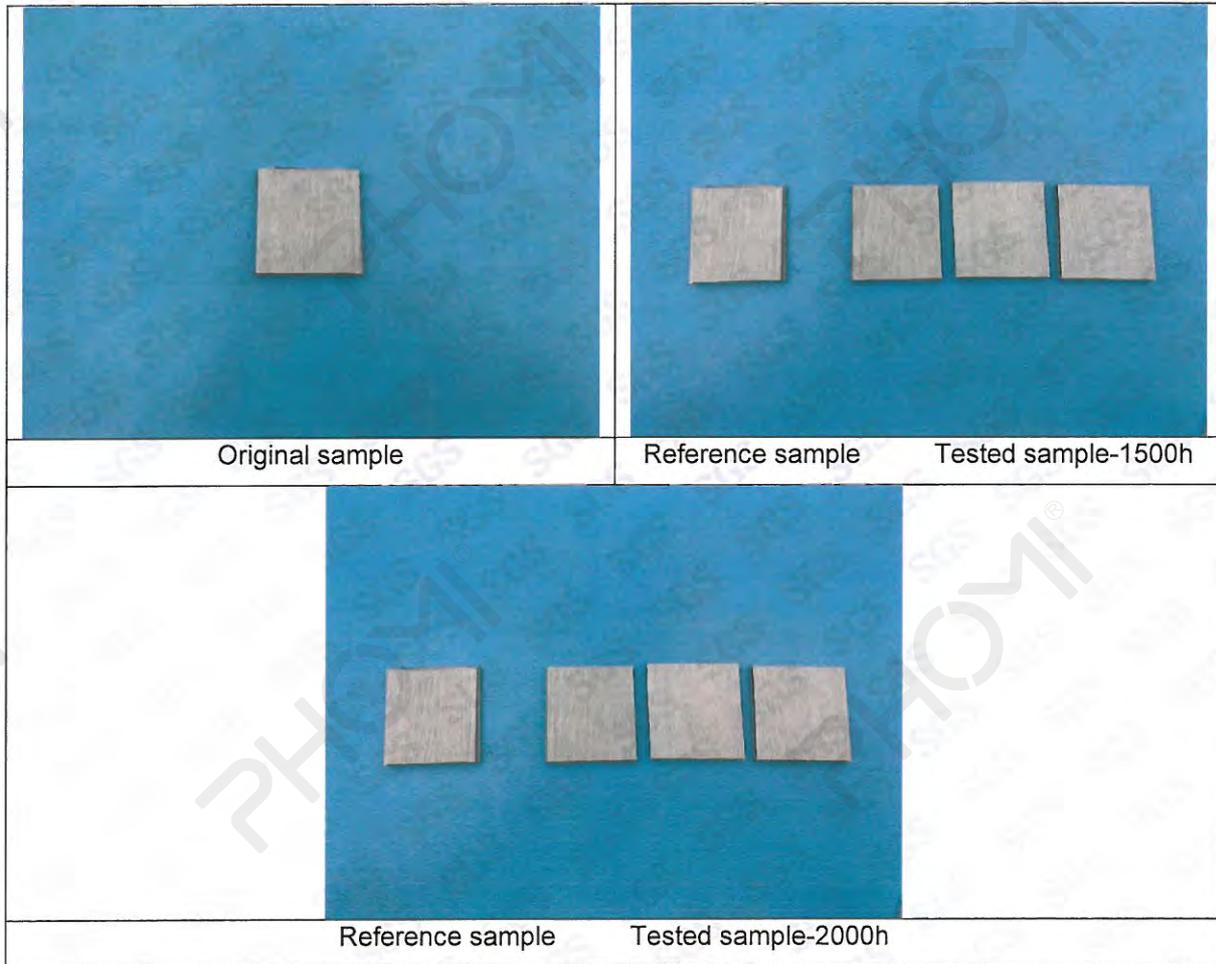
1. According to ISO 105-A02:1993/Cor.2:2005, the grey scale was determined under the D65 standard light, with scale 5 as the best and scale 1 as the worst.
2. The results were carried out within 1 hour after above specified durations for the intermediate inspection as well as at the end of the exposure.
3. Δ E*ab was measured by sphere spectrophotometer under D65 standard light source and with 10° observer. The results include specular component reflection condition, 25 mm aperture.

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Test Photo:



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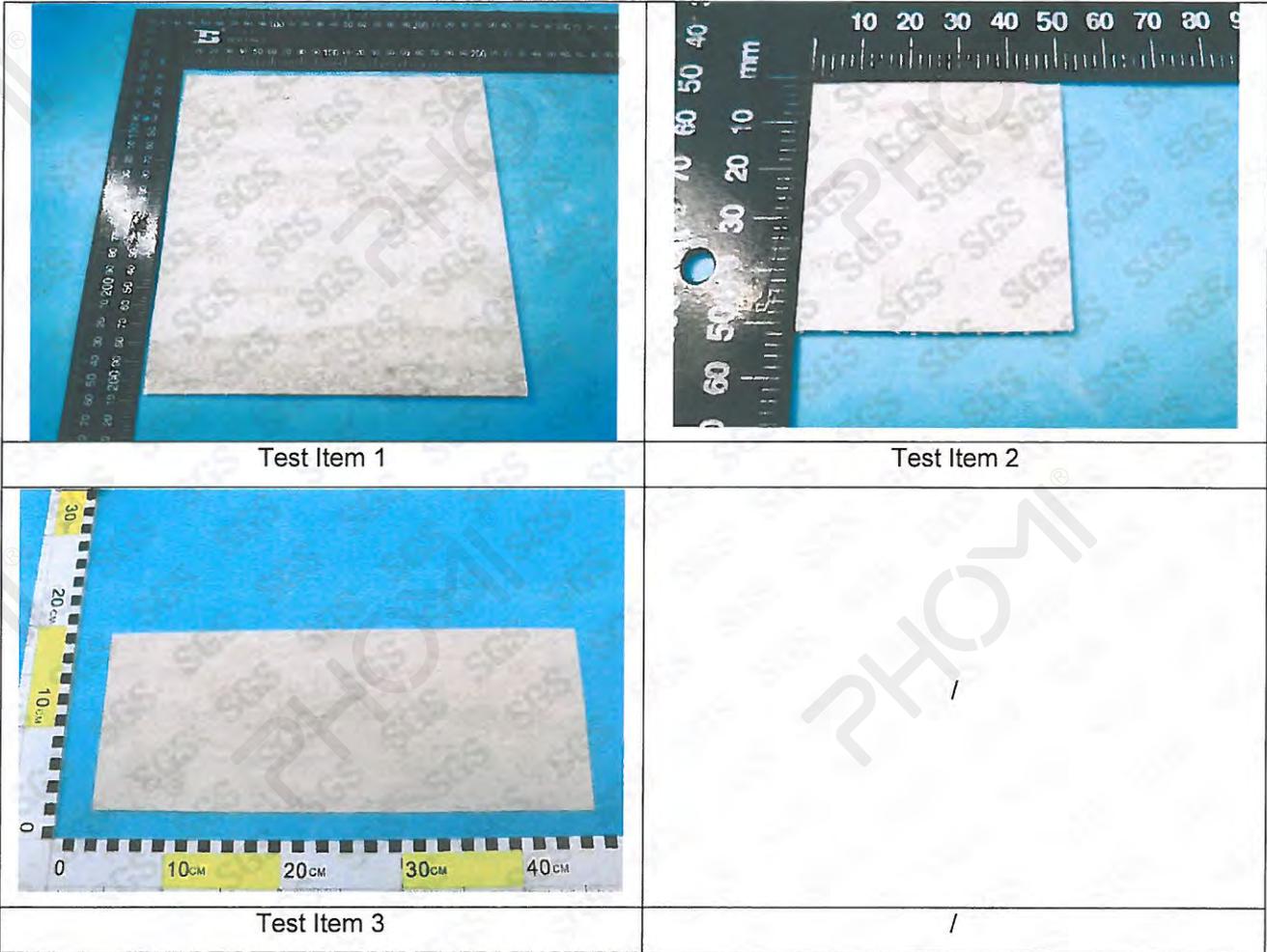


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SDHL 216548

Part 2 (SGS Ref. No.: GZIN2212007283CM)

Original Sample Photo:



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Test Item 1: Resistance to Freeze-Thaw Cycling

Sample Description: See photo

Test Method: ASTM C1026-13(2018) & Client's Requirement

Test Condition:

Specimens: 200mm×200mm×1.96mm

Condition: ①Dry in an oven at 150°C for 24h→②Cool down in a desiccator→③put in boiling deionized water for 5 h, soak for 24h, then remove from water→④-3°C, 1h→⑤5°C, 1h

④-⑤as a cycle, 20 cycles in total→⑥Dry in an oven at 150°C for 24h.

Test Result:

Test Item	Test Result
Number of damaged specimens	0
Total weight loss	0.34%

Test Item 2: Absorption and Bulk Specific Gravity

Sample Description: See photo

Test Method: ASTM C97/C97M-18

Test Condition:

Specimens: 50mm×50mm×1.96mm

Condition: Dry in an oven at 60°C for 48h → Cool them to room temperature in a desiccator →

Immerse in distilled water at 22°C for 48h

Test Result:

Test Item	Test Result
Absorption	8.02%
Bulk Specific Gravity	1.892

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Test Item 3: Scrub Resistance

Sample Description: Sheet

Test Method: With reference to ASTM D2486-17 Method A and client's requirement

Test Condition:

Brush: Nylon Bristle Brush

Abrasive Scrub Medium: Leneta standardized scrub medium SC-2

Load: (454±10) g

Speed: (37±1) cycles/min

Test Result:

Test Item	Result
Scrub Resistance	No substrate exposed after 4000 cycles

Test Photo:



Remark: Part 2 test was subcontracted to SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch.

End of Report

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PHOMI MCM CO., LTD.

TEST REPORT

SCOPE OF WORK

Phomi Flexi Econic Clay

REPORT NUMBER

220228007SHF-001

TEST DATE(S)

2022-02-28 - 2022-03-14

ISSUE DATE

2022-03-14

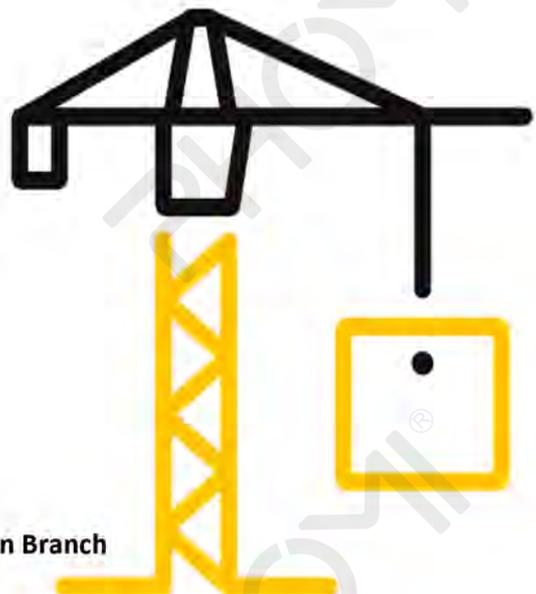
PAGES

5

DOCUMENT CONTROL NUMBER

LFT-APAC-SHF-OP-10k(May 1, 2021)

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Test Report

Statement

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- 7.The report was digital signed by Shang Hai, Intertek Group plc, please using Adobe Acrobat Reader to verify the authenticity.



Test Report

Issue Date: 2022-03-14 Intertek Report No. 220228007SHF-001
 Applicant: PHOMI MCM CO., LTD.
 Address: 15/F, BUILDING A2, MODERN AVENUE, SCIENCE CITY, HUANGPU DISTRICT, GUANGZHOU
 Attn: Robin Lei
 Test Type: Performance test, samples provided by the applicant.

Product Information

Product Name	Phomi Flexi Eonic Clay	Brand	/
Sample Description	Good Condition	Sample Amount	7 pcs
		Received Date	2022-02-25
Sample ID	Model	Specification	
S220228007SHF.001	Slate series	1200*600mm	

Test Methods And Standards

Test Standard	ASTM E84-19a Standard Test Method for Surface Burning Characteristics of Building Materials
Specification Standard	/
Test Conclusion	The samples were tested according to the above standards, and the results are shown in the following page.

Note:

1.This report relates specifically to the sample(s) that were drawn and provided by the applicant or their nominated third party. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment and only relate to the sample(s) as received and tested.

Report Authorized

Harrison Li
 Name: Harrison Li Title: Reviewer

Lu Cheng
 Name: Lu Cheng Title: Project Engineer

Test Report

Issue Date: 2022-03-14

Intertek Report No. 220228007SHF-001

Test Items, Method and Results:

Test Method: ASTM E84-19a Standard Test Method for Surface Burning Characteristics of Building Materials

Specimen Mounting Method:

The 24.02-ft. long test specimen was consisted of six 3.94-ft. long x 23.62-in. wide x 0.11-in. thick and one 0.39-ft. long x 23.62-in. wide x 0.11-in. thick "Phomi Flexi Eonic Clay".

Per sponsor's requirement, surface with patterned texture was exposed to the fire.

The specimen was supported with 0.25-in. diameter metal rods that were spaced approximately every 24-in.

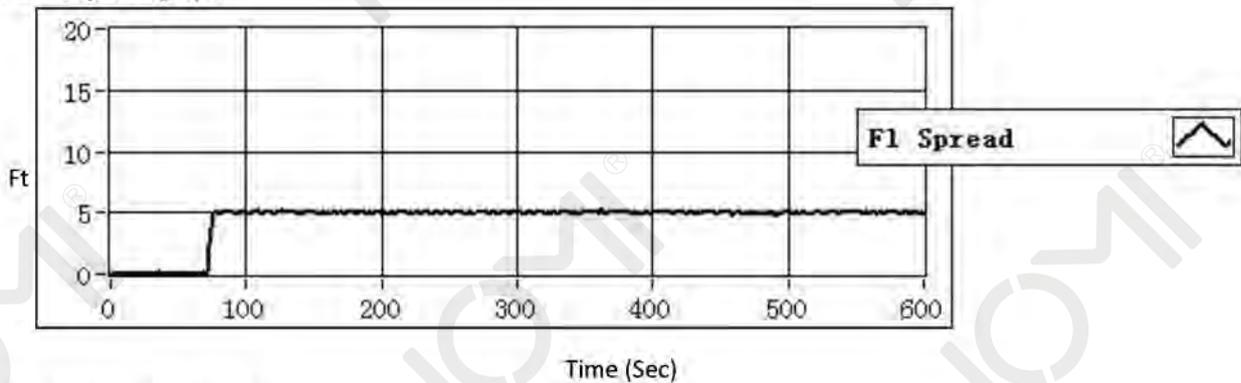
Test Observation (min:sec)

Melting	Blistering	Transient Ignition	Steady Ignition	Flaming drops
/	/	/	1:09	/
Delamination	Sagging	Shrinkage	Cracking	Floor Flames
/	/	/	/	/

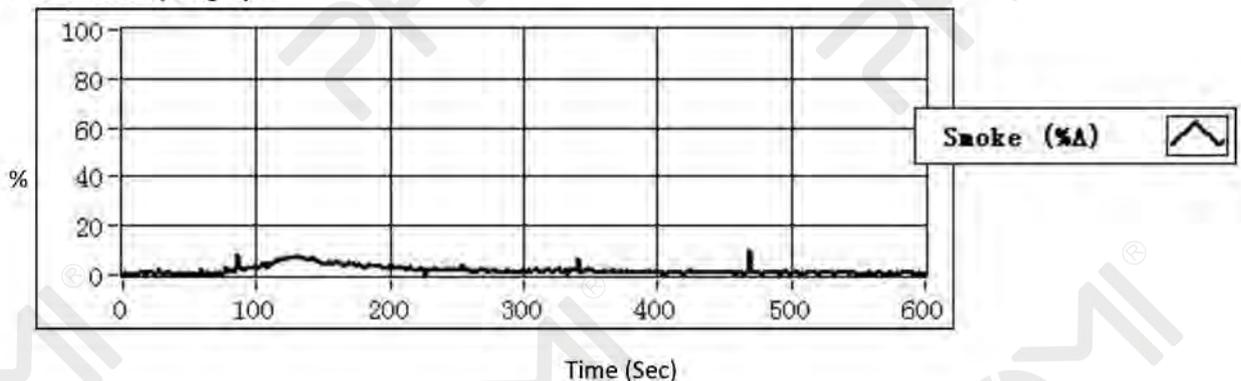
Test Result

Flame Spread Index (FSI)	25	Smoke Developed Index(SDI)	20
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Flame spread graph



Smoke developed graph



Test Report

Issue Date: 2022-03-14

Intertek Report No. 220228007SHF-001

Appendix A: Sample Received Photo



Revision:

NO.	Date	Changes
220228007SHF-001	2022-03-14	First issue



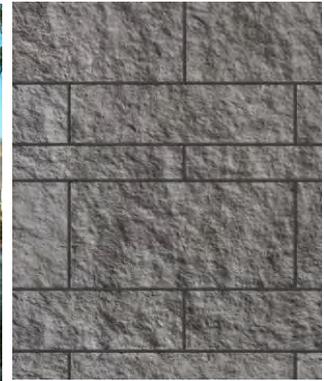
Environmental Product Declaration

EPD

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

PHOMI

PHOMI MCM CLADDING



Conducted by



Owner of the declaration: PHOMI Holding
Issue date: 2022-03-25
Valid until: 2027-03-26

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to continuous updating and tracking of changes.

GENERAL INFORMATION

Owner of the declaration:

PHOMI Benelux
Hilversumsestraatweg 1B
3744KB Baarn
Netherlands

Declared product / functional unit:

1 m² of PHOMI MCM CLADDING

Scope:

This declaration refers to MCM Cladding, produced by PHOMI Benelux, a member of PHOMI Holding. The declared reference product in this EPD is 1m² of Standard Line cladding products used for façades, floors, ceilings and indoor/outdoor pathways.

The PHOMI CLADDING presented in this declaration is produced in Laibin (China) transported to Amsterdam. The production data corresponds to the year of 2021.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programs may not be comparable. EPDs if not complied with EN 15804 are not comparable. For further information about comparability, see EN 15804 and ISO 14025.

DETAILED PRODUCT INFORMATION

The LCA study is done according to the PCR for kaolin and clay products. The product that is reported in this document is cladding from PHOMI based on the Standard Line. The products of the Standard Lines (SL) are the classic PHOMI MCM products. The core ranges of the SL are characterized by their thinness and light weight. The maximum dimensions are 1200 x 600 mm, with an average width around 3mm. The density between the various products in the Standard Line is highly dependable on the desirable cladding and therefore very different.

Phomi cladding is nearly completely made of natural components (see table 1 below). The main ingredients are Kaolin (Clay from China) and Quartz Sand. The material is primarily used within the built environment as a cladding material, floor material, ceiling material, or at the inner and outer façade of buildings. Special Moulds are used in combination with special innovative technology that makes sure that the texture of each and every produced slab is unique.

Component (>1%)	[kg / %]
<i>Kaolin Clay</i>	53%
<i>Quartz Sand</i>	43%
<i>Binder material</i>	4%

Tabel 1 Components of Phomi MCM cladding



Figure 1 Kaolin Clay



Figure 2 Quartz Sand

SCOPE & TYPE

The factory for the cladding created by Phomi is located in China in the city Laibin. From there the cladding is shipped all over the world, as Phomi is active in 30 countries spread over Asia and Europe and is also active in Canada.

The scope of this EPD is the entire life cycle. The following modules have been included. The product stage (A1-A3): extraction of raw materials and energy (A1), transport to the production location (A2) and the production phase (A3). The construction stage (Module A4 - A5), the use stage (Module B), End-of-Life (Module C) and reuse and recycling stage (Module D) are also included.

The chosen Reference Services Life (RSL) of 50 years is the same as from PHOMI's actual technical life span.

PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND SYSTEM BOUNDRIES
Raw materials	Transport	Production	Transport to building site	Installation into building	Use/application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X			X	X			X			X	X		X			X

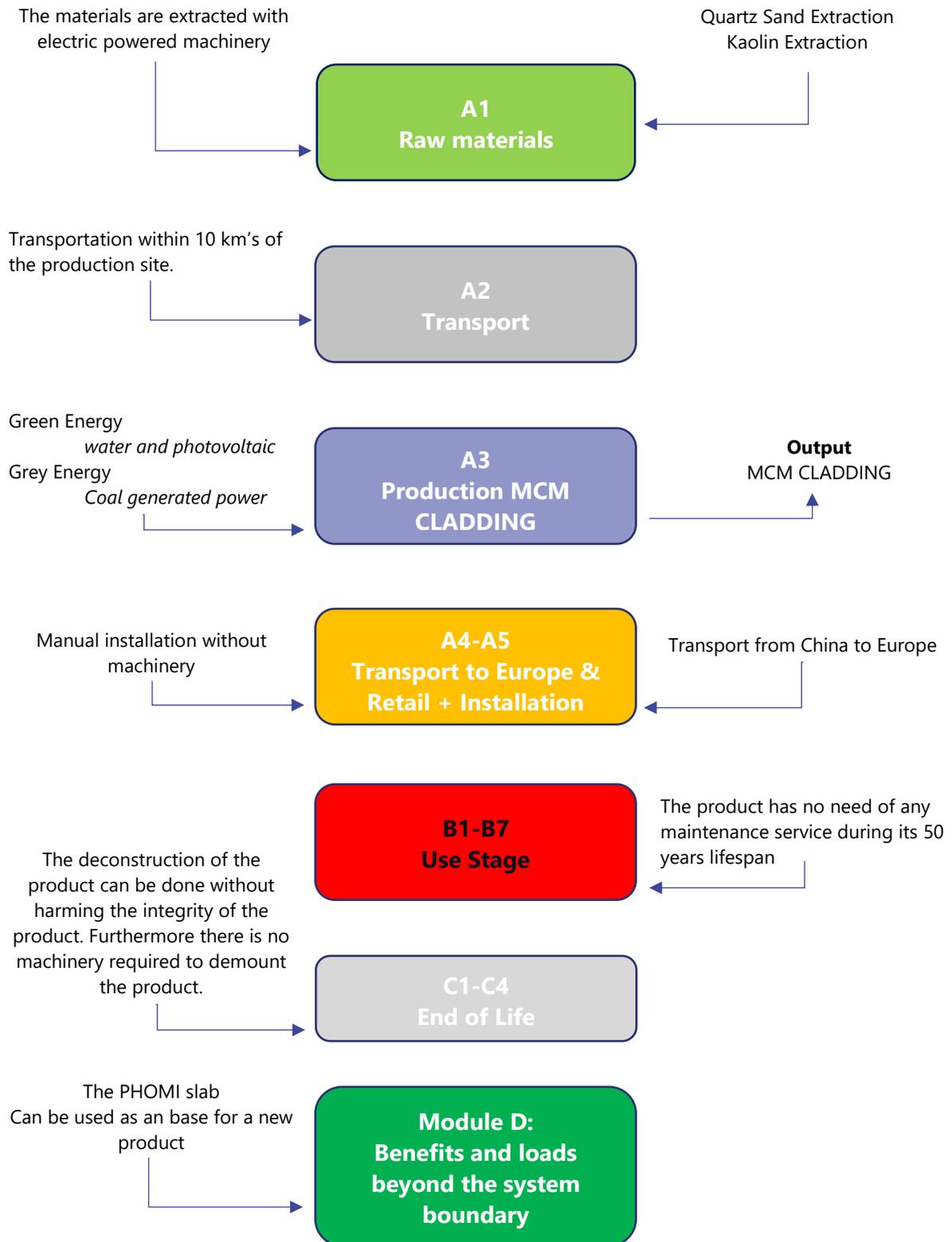
x = modules assessed

The EPD is compiled using the "NMD Bepalingsmethode Milieuprestatie Bouwwerken v1.0" as PCR, Ecoinvent v3.5 & 3.6 for background processes, and Mobius Software to make the LCA calculations. The main impact categories have been calculated with the characterization factors in "EN 15804 +A2 Method v.100/ EF 3.0 Normalization and weighting set" and "NMD Bepalingsmethode 1.0, jul 2020 (NMD3.3) V.3.04/MKI-SBK single-score.

REPRESENTATIVENESS

This EPD represents all of the Phomi MCM cladding from the Standard Line. Variability of the results for the Phomi MCM cladding is based on the transport distances from Guangzhou (China) to different ports in Europe. This effects the outcome of the LCA results calculated to the environmental cost indicator with a differ of maximum 9%.

LCA PROCESS DIAGRAM ACCORDING TO EN 15804



LCA RESULTS - ENVIRONMENTAL IMPACT PER FUNCTIONAL UNIT

Impact category name	Reference unit	A1	A2	A3	A4-A5	B1-B7	C1-C4	D
ADPF	kg Sb eq	3,89E-03	3,94E-05	2,98E-03	5,89E-03	0,00E+00	2,80E-04	-1,18E-03
ODP	kg CFC-11 eq	4,56E-08	9,50E-10	1,67E-08	1,51E-07	0,00E+00	5,91E-09	-1,43E-10
POCP	kg C2H4 eq	1,82E-04	3,23E-06	1,34E-04	1,05E-03	0,00E+00	2,14E-05	-4,49E-06
AP	kg SO2 eq	2,82E-03	2,35E-05	2,75E-03	1,86E-02	0,00E+00	1,75E-04	1,53E-04
ADPE	kg Sb eq	1,80E-05	1,37E-07	2,71E-06	8,35E-06	0,00E+00	6,97E-07	-1,08E-07
EP	kg PO4--- eq	2,70E-04	4,62E-06	2,47E-04	2,10E-03	0,00E+00	3,28E-05	1,18E-05
GWP	kg CO2 eq	5,54E-01	5,35E-03	4,62E-01	9,11E-01	0,00E+00	3,83E-02	1,31E-01

ADPF = Abiotic depletion, fuel
 ODP = Ozone layer depletion
 POCP = Photochemical oxidation
 AP = Acidification
 ADPE = Abiotic depletion, non-fuel
 EP = Eutrophication
 GWP = Global warming

LCA RESULTS – RESOURCE USE PER FUNCTIONAL UNIT

Impact category name	Reference unit	A1	A2	A3	A4-A5	B1-B7	C1-C4	D
PERM	MJ	0,00E+00						
PENRM	MJ	0,00E+00						
NRSF	MJ	0,00E+00						
RSF	MJ	0,00E+00						
PERE	MJ	0,00E+00						
SM	kg	0,00E+00						
PENRE	MJ	0,00E+00						
PENRT	MJ	7,14E+00	8,64E-02	4,76E+00	1,31E+01	0,00E+00	5,97E-01	-1,87E+00
FW	m3	7,37E-03	9,92E-06	2,73E-03	9,47E-04	0,00E+00	1,89E-04	-5,09E-03
PERT	MJ	5,29E-01	1,02E-03	2,01E+00	9,75E-02	0,00E+00	1,57E-02	-1,77E-02

PERM = Energy, primary, renewable, materials
 PENRM = Energy, primary, non-renewable, materials
 NRSF = Secondary fuel, non-renewable
 RSF = Secondary fuel, renewable
 PERE = Energy, primary, renewable, excluding materials
 SM = Secondary material
 PENRE = Energy, primary, non-renewable, excluding materials
 PENRT = Energy, primary, non-renewable
 FW = Water, fresh water use
 PERT = Energy, primary, renewable

LCA RESULTS – OUTPUT FLOWS AND WASTE CATEGORIES

Impact category name	Reference unit	A1	A2	A3	A4-A5	B1-B7	C1-C4	D
HWD	kg	6,48E-06	2,06E-07	1,98E-05	1,55E-05	0,00E+00	1,27E-06	-2,80E-06
MFR	kg	0,00E+00						
CRU	kg	0,00E+00						
EET	MJ	0,00E+00						
RWD	kg	1,46E-05	5,35E-07	2,37E-06	8,48E-05	0,00E+00	3,23E-06	-1,88E-06
EEE	MJ	0,00E+00						
NHWD	kg	4,37E-02	5,16E-03	3,72E-02	3,13E-01	0,00E+00	3,79E-02	-2,69E-03
MER	kg	0,00E+00						

- HWD = Waste, hazardous
MFR = Materials for recycling
CRU = Components for re-use
EET = Exported energy, thermal
RWD = Waste, radioactive
EEE = Exported energy, electric
NHWD = Waste, non-hazardous
MER = Materials for energy recovery

ADDITIONAL TECHNICAL INFORMATION

Material extraction (A1)

The different base materials used to form the MCM CLADDING have been connected to representative LCA references.

Transport to factory (A2)

Means of transport were modelled based on supplier information from the transporter to the production location. It is important that return transports are also taken into account, stated in EN-17160. In the transport reference used in the LCA program this is already incorporated and therefore taken into account.

Manufacturing (A3)

All products and processes relevant to producing the mcm cladding are included in this study. PHOMI MCM is partly produced with renewable and partly with coal-generated electricity. The steam from the coal powerplant's cooler is used to create conditions where the MCM powder is mixed with water to form a slurry. After the steam cools down, it condensates and this water is re-used, so that there is no form of water waste.

Transport to Europe and in Europe to retail (A4)

The product is shipped to Europe with large container vessels. From there it is shipped to retail with a fixed value.

Installation (A5)

The product does not need any use of machinery, only manual labor is needed by installation.

Use Phase (B1 – B7)

Stated by PHOMI the product has no need of any maintenance, repair, replacement or refurbishment under conditions of normal use during its 50 years lifespan. Coating of the cladding is optional and therefore not considered in the scope of this research.

End of Life (C1 – C4)

The deconstruction of the product can be done without harming the integrity of the product or products nearby, furthermore there is no machinery required to demount the product. At the end of its lifecycle the product carries close to 100% of its initial physical mass and content, therefore the product is crushed into smaller fractions before it goes to a local material processor.

Module D (Reuse, recovery, recycling)

The recycle potential of the product is very high. As stated, should it be crushed into smaller fractions before it can be used to mix with other similar materials out of which it was essentially created in order to become a new product again.



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