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Material Safety Data Sheet

Finished Material: Pipers Stone Plastic Composite

Materials:

100% waterproof and environmentally friendly. SPC floor is made up of calcium carbonate powder, PVC powder and stabilizer.

Abrasion layer+extruded plank+decor paper hot pressed together and finished with a UV coating.

1. Emission Test for VOC and formaldehyde
2. FloorScore® Indoor Air Quality TVOC
3. Fire Reaction Tests

1. Emission test for VOC and formaldehyde based on standards ISO 16000-3, ISO 16000-6 & 9 and evaluation based on the AgBB/ DiBt requirements

Test method(s)

ISO 16000-3:2011 Indoor air – Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air – Active sampling method

ISO 16000-6:2004 Indoor air – Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS/FID

ISO 16000-9:2006 Indoor air – Part 9: Determination of the emission of volatile organic compounds from building products and furnishing – Emission test chamber method

Test chamber conditions

Test chamber: Corresponding to ISO 16000-9

Test chamber volume: 1 m³

Temperature of supply air: 23 °C ± 2 °C

Relative humidity of supply air: 50 % ± 5 %

Air exchange rate: 0.5/h

Loading factor: 0.4 m²

/m³

Test Results

Table 1. Emission Results after 28 days

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Substance	CAS No.	Chamber concentration ($\mu\text{g}/\text{m}^3$)	LCI/NIK value ($\mu\text{g}/\text{m}^3$)	R value (C/LCI)	Classification (Carc. 1 & 2)/SVOC
n-Dodecane	112-40-3	4	-	-	-
Cyclohexanone	108-94-1	2	410	0.005	-
Total VOC (TVOC) ($\text{C}_6\text{-C}_{16}$)	-	13	-	-	-
Total SVOC (TSVOC) ($> \text{C}_{16}$)	-	n.d.	-	-	-
Formaldehyde	50-00-0	n.d.	100	-	-
Acetaldehyde	75-07-0	n.d.	1200	-	-
Acetone	67-64-1	538	1200	0.448	-

Table 2. Evaluation of results based on the AgBB/ DiBt requirements

Parameter	28 Days	
	Result	AgBB/ DiBt requirement
TVOC ($\text{C}_6 - \text{C}_{16}$)	0.013mg/m ³	$\leq 1.0 \text{ mg}/\text{m}^3$
Σ SVOC ($\text{C}_{16} - \text{C}_{22}$)	n.d.	$\leq 0.1 \text{ mg}/\text{m}^3$
Σ R (dimensionless)	0.453	≤ 1
Σ VOC without LCI	n.d.	$\leq 0.1 \text{ mg}/\text{m}^3$
Σ Carcinogenic	n.d.	$\leq 0.001 \text{ mg}/\text{m}^3$
Formaldehyde	n.d.	$\leq 0.1 \text{ ppm}$

The results can be summarized as follow:

- No carcinogenic substances were detected after 3 days.
- The total VOC (TVOC) after 3 days was below the threshold limit of 10 mg/m³

Abbreviation:

VOC = Volatile Organic Compound

SVOC = Semi Volatile Organic Compound

TVOC = Total Volatile Organic Compound

TSVOC = Total Semi Volatile Organic Compound

C_i = Chamber concentration of compound i

LCI (or NIK) = Lowest Concentration of Interest

n.d. = not detected ($< 1 \mu\text{g}/\text{m}^3$)

)

Carc. = Carcinogenic, classified according to the GHS system

$\mu\text{g}/\text{m}^3$

= micrograms per cubic meter

mg/m^3

= milligrams per cubic meter

ppm = parts per million

Product Certified for Low Chemical Emissions UL.COM/GG UL2818

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

GREENGUARD Gold Certification Criteria for Building Products and Interior Finishes

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC ^(A)	-	0.22	mg/m ³
Formaldehyde	50-00-0	9 (7.3 ppb)	µg/m ³
Total Aldehydes ^(B)	-	0.043	ppm
4-Phenylcyclohexene	4994-16-5	6.5	µg/m ³
Particle Matter less than 10 µm ^(C)	-	20	µg/m ³
1-Methyl-2-pyrrolidinone ^(D)	872-50-4	160	µg/m ³
Individual VOCs ^(E)	-	1/2 CREL or 1/500th TLV	-

^(A) Defined to be the total response of measured VOCs falling within the C₆ – C₁₆ range, with responses calibrated to a toluene surrogate. Maximum allowable predicted TVOC concentrations for GREENGUARD Gold (0.22 mg/m³) fall in the range of 0.5 mg/m³ or less, as specified in CDPH Standard Method v1.2.

^(B) The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.

^(C) Particle emission requirement only applicable to HVAC Duct Products with exposed surface area in air streams (a forced air test with specific test method) and for wood finishing (sanding) systems.

^(D) Based on the CA Prop 65 Maximum Allowable Dose Level for inhalation of 3,200 µg/day and an inhalation rate of 20 m³/day

^(E) Allowable levels for chemicals not listed are derived from the lower of 1/2 the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Level (CREL) as required per the CDPH/EHLB/Standard Method v1.2 and BIFMA level credit 7.6.2 and 1/100th of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).

2. FloorScore®

Indoor Air Quality Certified to SCS-EC10.3-2014 v4.0

Conforms to the CDPH/EHLB Standard Method v1.2-2017 (California Section 01350), effective April 1, 2017, for the school classroom and private office parameters when modeled as Flooring.

Measured Concentration of Total Volatile Organic Compounds (TVOC): Between 0.5 – 5.0 mg/m³

(in compliance with

CDPH/EHLB Standard Method v1.2-2017)



Test Report

No. SHAMLC1700155901

Date: 06 Jan 2017

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA17-001559.001	Gray solid board

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) ".*" = Not Regulated

American Society for Testing and Materials –ASTM F 963-11 – soluble heavy metal in Substrate Materials/paint and similar surface-coating materials

Test Method : Soluble Heavy Metal contents (Clause 4.3.5) - Sample was extracted by dilute hydrochloric acid in accordance with ASTM F 963-11(Clause 8.3), analysis was performed by ICP-OES.

Test Item(s)	Limit	Unit	MDL	001
Soluble Lead (Pb)	90	mg/kg	5	ND
Soluble Antimony (Sb)	60	mg/kg	5	ND
Soluble Arsenic (As)	25	mg/kg	2.5	ND
Soluble Barium (Ba)	1000	mg/kg	10	ND
Soluble Cadmium (Cd)	75	mg/kg	5	ND
Soluble Chromium (Cr)	60	mg/kg	5	ND
Soluble Mercury (Hg)	60	mg/kg	5	ND
Soluble Selenium (Se)	500	mg/kg	10	ND

Notes :

- (1) Results shown are of the adjusted analytical results

3. Fire Reaction Tests

The Notified Body (No. 0766) Entwic lungs- und Prüflabor Holztechnologie GmbH (EPH) was instructed to carry out selected tests of SPC Floorings according to EN 14041:2008 for CE-labelling. 2 Material
For the tests, the client has sent following SPC floorings (entrance at the EPH laboratory 14 July 2017):

Variant 1: SPC Flooring

Structure: BP (shallow texture)

Dimensions: 1218 mm x 180 mm x 4.0 mm

Furthermore a manufacture Information report with an overview about the collection was sent.

3 Test performance

3.1 Reaction to fire tests

The test procedures were carried out at the Development and Examination Laboratory for Wood Technology Ltd. (EPH) in Dresden in accordance with the following in DIN EN 13501-1:2010 for floor coverings issued reaction to fire tests:

DIN E ISO 11925-2: Reaction to fire test - Ignitability of products subjected to direct

impingement of flame - Part 2: Single-flame source test;

DIN EN ISO 9239-1: Reaction to fire tests for floorings - Part 1: Determination of the burning

behaviour using a radiant heat source.

For the flooring collection, described in article 2, specimens with maximum and minimum nominal thickness were tested with reduced number of specimen (1 x lengthwise (L); 1 x crosswise (Q)) for determination of the relevant nominal thickness due to the worst case performance. Subsequently the relevant variant was tested completely.

For testing, the products were mounted mechanically at 8 mm fibre cement board according to loose laying at mineral subfloor in end use application, i.e. the results are valid for products used as horizontal floor covering installed on a mineral subfloor according to EN 13238:2010, using adhesives or not.

The final Classification for the reaction to fire performance according to EN 13501-1:2010 was determined due to the worst case variant in terms of the results of the both tests.

3.2 Determination of the sliding behaviour

For the test, a mass with a defined shape and sliders of rubber + leather (1 x rubber, 2 x leather) according to EN 13893:2003 (dry conditions) were used. Ibis sliding module acts with a defined force on the sample surface and is drawn over the surface with a constant velocity. The force necessary to move the mass is measured along the whole distance. The sliding coefficient is the ratio of that force to the force acting vertically. The assessment of the sliding coefficient p estimated according to E 13893:2003 was done according to EN 14041:2008 (harmonised norm for resilient, textile and laminate floor coverings).

4 Results

4.1 Reaction to fire performance according to EN 13501-1:2010

The tested products attained the following results:

Variant	Testing procedure according to EN 13501-1:2010			Fire class according to EN 13501-1:2010
	Single-flame source test according to DIN EN ISO 11925-2:2011	Burning behaviour using a radiant heat source according to DIN EN ISO 9239-1:2010		
	Requirement max. extent of flame ≤ 150 mm	Critical heat flow in kW/m^2	Integral smoke production in % x min	
1+2	fulfilled	11.10	362.3	B _f -s1

Critical heat flow $\geq 3.0 \text{ kW/m}^2 \Rightarrow$ Fire class D_s
 Critical heat flow $\geq 4.5 \text{ kW/m}^2 \Rightarrow$ Fire class C_s
 Critical heat flow $\geq 8.0 \text{ kW/m}^2 \Rightarrow$ Fire class B_f

Smoke production $\leq 750 \% \cdot \text{min} \Rightarrow$ Smoke parameter s1
 else \Rightarrow Smoke parameter s2

The corresponding test and classification reports with the detailed results of the tested variants are enclosed in annex of this report.

4.2 Sliding behaviour according to EN 13893:2003

Variant	Estimated sliding coefficient μ according to EN 13893:2003 (1 rubber slider, 2 leather sliders)	Classification according to EN 14041:2008*
1	0.30	DS
2	0.28	-

* Requirement for class DS according to EN 14041: $\mu \geq 0.3$

5 Evaluation

The tested variants of SPC floorings can be classified regarding to both properties according to EN 14041:2008 for the CE-labelling as follows:

Variant	Properties	Results	Declaration according to EN 14041:2008
1+2	Reaction to fire performance according to EN ISO 9239-1 and EN ISO 11925-2, Classification according to EN 13501-1:2010 - Critical heat flow - Smoke production	11.1 kW / m^2 362 % x min	Reaction to fire class B _f -s1
1 2	Sliding behaviour according to EN 13893:2003	$\mu = 0.29$ $\mu = 0.28$	class DS -


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 Engineer in charge

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