



December 22, 2021

Mr. Bernard Davis
Engineer/IT Director
Mincey Marble Manufacturing, Inc.
1940 New Harvest Road
Gainesville, GA 30507

**Subject: VOC Emissions Testing Report per California Department of Public Health Standard Method Version 1.2
Old World Classic Panel
MAS Project No.: 2100937**

Dear Mr. Davis:

Materials Analytical Services, LLC is pleased to submit this report with results of VOC emissions testing from an application of an Old World Classic Panel.

MAS conducted this test in accordance with the California Department of Public Health (CDPH) *Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2*. This report has been forwarded to the MAS Certified Green[®] Program for evaluation of compliance with Program certification criteria.

MAS is pleased to have been of service to you. If you have any questions or comments, or if we can be of further assistance, please contact us.

Sincerely,

Materials Analytical Services, LLC

Senior Analytical Chemist

Senior Analytical Chemist

Appendices: Appendix A – General Testing Parameters and Data
Appendix B – Chain-of-Custody
Appendix C – Bracketed Products

Materials Analytical Services, LLC - ATLANTA
Corporate Headquarters
3945 Lakefield Court · Suwanee, GA 30024
(770) 866-3200 · Fax (770) 866-3259



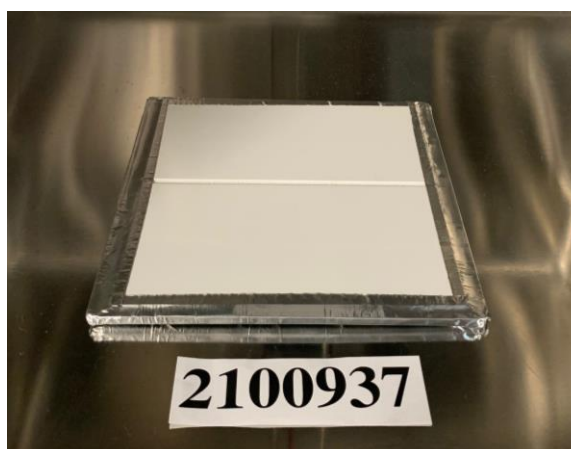
Testing Cert. #2925.01

EMISSIONS TESTING REPORT

California Department of Public Health Standard Method Version 1.2
Cultured Marble Panel Evaluation

SAMPLE DESCRIPTION & TESTING PARAMETERS

Product Name: Old World Classic Panel	MAS Assigned ID: 2100937
Manufacturer: Mincey Marble Manufacturing, Inc. Gainesville, GA	Product Description: TS-CS 6x12 vertical contemporary gloss; cultured marble tile Approx. 6" x 6"
Manufacture Date: December 1, 2021	Testing Period: December 3 - 17, 2021
Collection Date: December 1, 2021	In-Chamber Sampling Dates: Dec. 14 @ 24 hrs.; Dec. 15 @ 48 hrs.; Dec. 17 @ 96 hrs.
Shipping Date: December 2, 2021	Date of Sample Analysis: Dec. 20 – 21, 2021
Laboratory Arrival Date: December 3, 2021	Age of Sample at Testing: 2 days



Old World Classic Panel as received (left) and tested (right)

To prepare the sample for chamber testing, the panel was taped to a stainless-steel tray with an approximate one-quarter inch overlap of tape onto the sample. The sample was placed inside one of MAS's small-scale emissions chambers.

Sample conditioning, collection of samples, and analysis of compounds of interest were conducted in accordance with the California Department of Public Health (CDPH) *Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2*. Test results are provided with reference to the maximum emission limits established by CDPH. Appendix A presents general testing parameters and data.

TEST RESULTS

To compare the chamber-derived data to the standards established under the CDPH Standard Method an emission factor for the tested sample is calculated based on the 96-hour test point data following ten days of in-chamber conditioning. This emission factor is used to predict airborne concentrations of target compounds in a CDPH-defined single-family residence panel system shower enclosure with dimensions of



60” long, 48” deep and 96” high (worst case) with a total surface area of 19 square meters (two showers), as allowed in Section 4.3.6 of the standard. Table I presents the results of the modeled data.

Table I
Comparison of Emission Factors and Predicted 96-Hour Airborne Concentrations
from a Traditional Ceramic Tile in Residential Shower Settings

VOC Name	Calculated Emission Factor ($\mu\text{g}/\text{m}^2\text{hr}$)	Predicted Airborne Concentration ($\mu\text{g}/\text{m}^3$)*	Maximum Concentration Limits ($\mu\text{g}/\text{m}^3$)
		Residential	
Total VOCs (TVOC)	230	38	NA†
Formaldehyde ^{1,2}	24	4.1	9
Acetaldehyde ^{1,2}	4.4	0.73	70
Isopropanol	<2.9	<0.49	3500
1,1-dichloroethylene	<2.9	<0.49	35
Methylene chloride ²	<2.9	<0.49	200
Carbon disulfide ^{1,2}	<2.9	<0.49	400
MTBE ²	<2.9	<0.49	4000
Vinyl acetate ²	<2.9	<0.49	100
Hexane ²	<2.9	<0.49	3500
Chloroform ^{1,2}	<2.9	<0.49	150
2-methoxyethanol ¹	<2.9	<0.49	30
1,1,1-trichloroethane ²	<2.9	<0.49	500
Benzene ^{1,2}	<2.9	<0.49	1.5
1-methoxy-2-propanol	<2.9	<0.49	3500
Carbon tetrachloride ^{1,2}	<2.9	<0.49	20
Ethylene glycol ²	<2.9	<0.49	200
1,4-dioxane ^{1,2}	<2.9	<0.49	1500
Trichloroethylene ^{1,2}	<2.9	<0.49	300
Epichlorohydrin ^{1,2}	<1.5	<0.25	1.5
2-ethoxyethanol ¹	<2.9	<0.49	35
n,n-dimethylformamide ²	<2.9	<0.49	40
Toluene ^{1,2}	<2.9	<0.49	150
2-methoxyethanol acetate ¹	<2.9	<0.49	45
Tetrachloroethylene ^{1,2}	<2.9	<0.49	17.5
Chlorobenzene ²	<2.9	<0.49	500
Ethylbenzene ^{1,2}	<2.9	<0.49	1000
m & p-xylene ²	<2.9	<0.49	350
Styrene ^{1,2}	140	23	450
2-ethoxyethyl acetate ¹	<2.9	<0.49	150
o-xylene ²	<2.9	<0.49	350
Phenol ²	<2.9	<0.49	100



1,4-dichlorobenzene ^{1,2}	<2.9	<0.49	400
Isophorone ²	<2.9	<0.49	1000
Naphthalene ^{1,2}	<1.5	<0.25	4.5

* Assumes a single-family home with a floor area of 2,272 square feet and two full bathrooms with a ventilation rate of 0.23 h⁻¹ as defined by CDPH/EHLB/Standard Method V.1.2

† TVOC is not included as a target compound in the CDPH Standard, but is reported as part of the requirements of the Standard.

1 Compound included on Cal/EPA OEHHA Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) list

2 Compound included on Cal/EPA ARB list of Toxic Air Contaminants (TAC)

LIMITATIONS

This report is for the exclusive use of Materials Analytical Services, LLC's client, Mincey Marble Manufacturing, Inc., and is provided pursuant to the agreement between MAS and its client. MAS's responsibility and liability are limited to the terms and conditions of the agreement. If other parties wish to rely on this report, please contact MAS so an agreement on the terms and conditions for its use can be established prior to the use of this information. MAS assumes no liability to any party, other than the client in accordance with the agreement, for any loss, expense or damage caused by the use of this report. This report shall not be reproduced, except in full, without the written approval of Materials Analytical Services, LLC. The observations and test results contained in this report are relevant only to the sample tested.

Emissions generally decay over time, and the representativeness of the analytical data reported is directly dependent upon the age and conditions under which the tested sample was received.



APPENDIX A

GENERAL TESTING PARAMETERS AND DATA

Under the provisions of the testing method referenced in this report, testing consisted of the following procedural steps:

- Storage of test specimens in original shipping containers prior to emissions testing for up to 10 days in a ventilated and conditioned room maintained at a temperature of $23 \pm 2^{\circ}\text{C}$ and a relative humidity of $50\% \pm 15\%$.
- For quality assurance purposes the emission chamber was cleaned and air purged prior to testing. Air samples were collected and analyzed from the chamber exhaust prior to loading to establish background levels.
- Collection of air samples at method-specified intervals from the chamber exhaust port utilizing mass flow controllers calibrated at 180 cc/min for VOCs and 150 cc/min for aldehydes.
- Tenax TA[®] tubes are used for VOC analysis performed by thermal desorption gas chromatography/mass spectrometry (TD-GC/MS) using a modified EPA TO-17 method. Samples are also collected on DNPH tubes for aldehyde analysis performed using high performance liquid chromatography (HPLC) using a modified NIOSH 2016 method. All samples are drawn and analyzed in duplicate.
- Instrument calibration, analysis of quality control samples and quantitation of the CDPH target list of 35 chemicals of concern, and reporting and speciation of top 10 tentatively identified compounds.
- All data, including but not limited to raw instrument files, calibration fits, and quality control checks used to generate the test results are available to the client upon request.
- During the testing period, the relative humidity and/or temperature within the test chamber may have fluctuated out of specification for a short time period. Based on the reported results, and a review of historical test data and scientific literature regarding the effect of differing temperature and/or humidity conditions on sample emissions, MAS does not believe your test was impacted in any way. Our review also indicated that chamber conditions were in compliance with ANSI/BIFMA standard specifications while emission samples were being collected during each sampling point. This data is available to you upon request. Please contact us with any questions or concerns.

The operating parameters for the small-scale emissions chamber used for this project included:

Parameter	Value	Parameter	Value
Chamber Volume	0.053 m ³	Area Specific Flow Rate	2.4 m/h
Loading Factor	0.42 m ² /m ³	Temperature	$23 \pm 1^{\circ}\text{C}$
Air Exchange Rate	$1.0 \pm 0.05 \text{ h}^{-1}$	Relative Humidity	$50 \pm 5\%$

Total volatile organic compounds (TVOC) are defined as the compounds eluting between hexane ($n\text{-C}_5$) and hexadecane ($n\text{-C}_{17}$) and in this protocol quantified as toluene. Table A-I presents the measured concentration and emission factor of TVOC at each of the three sampling intervals.



Table A-I
Total Volatile Organic Compounds (TVOC) between n-C₅ and n-C₁₇ Measured by GC/MS*

Sample Interval (hours)	TVOC Concentration (µg/m ³)	TVOC Emission Factor (µg/m ² h)
24	120	290
48	130	300
96	95	230

*TVOC values are background corrected

Table A-II presents measured concentrations and emission factors of formaldehyde at each of the three sampling intervals.

Table A-II
Formaldehyde Concentrations and Emission Factors as Measured by HPLC

Sample Interval hours	Target Compound	Concentration (µg/m ³)	Emission Factor (µg/m ² h)
24	Formaldehyde	13	30
48	Formaldehyde	11	27
96	Formaldehyde	10	24

Table A-III present the individual volatile organic compounds (IVOC) identified by GC/MS after 96 hours.

Table A-III
Speciation of Tentatively Identified IVOCs* by GC/MS after 96 hours

CAS Number	Tentatively Identified Compounds	Concentration (µg/m ³)	Emission Factor (µg/m ² h)
100-42-5	styrene	57	140
100-52-7	benzaldehyde	15	37
96-09-3	styrene oxide	6.7	16
122-78-1	benzeneacetaldehyde	2.3	5.5
141-78-6	ethyl acetate	1.5	3.5
No other IVOCs were identified above laboratory instrument detection limits			

*All IVOCs detected were identified using the average response factor of toluene calibration standards. The sum concentration of IVOC's does not necessarily correlate with the TVOC concentration under the analytical conditions.

Chain-of-Custody



California Department of
Public Health 

Chain-of-Custody

Client Information		Testing Specifications (per MAS) check appropriate test below		
Company: Mincey Marble Manufacturing Inc.		<input type="checkbox"/> R&D (custom): Specify Details		
Street Address: 1940 New Harvest Road		<input type="checkbox"/> 24-hour Comparative R&D Test		
City/State: Gainesville, Ga.		<input type="checkbox"/> 72-hour Comparative R&D Test		
Zip/Postal Code: 30507		<input type="checkbox"/> 14-day CDPH Compliance Test		
Country: USA				
Contact Name: Bernard Davis				
Title: Engineer/IT Dir				
Phone Number: 6789972480				
Fax Number:				
Email Address: bdavis@minceymarble.com				
Manufacturer Information (if different than client)		Construction Details (as applicable)		
Company:		Covering Type: Fabric <input type="checkbox"/> (Primary Fiber type: _____), Vinyl <input type="checkbox"/> , Leather <input type="checkbox"/>		
City/State/Country:		Plastic Type(s): Nylon <input type="checkbox"/> , PVC <input type="checkbox"/> , PE <input type="checkbox"/> , PP <input type="checkbox"/> , PU <input type="checkbox"/> , PS <input type="checkbox"/> , PC <input type="checkbox"/> , ABS <input type="checkbox"/> , Acrylic <input type="checkbox"/> , Lexan <input type="checkbox"/>		
Contact Name/Title:		Substrate Type(s): MDF <input type="checkbox"/> , Particle Board <input type="checkbox"/> , Plywood <input type="checkbox"/> , Solid Wood <input type="checkbox"/> , Other <input type="checkbox"/>		
Phone Number:		Outer Finish Type(s): Oil Base <input type="checkbox"/> , Water Base <input type="checkbox"/> , Catalyzed/Conversion Var <input type="checkbox"/> , Polyurethane <input type="checkbox"/> , Plastic Laminated <input type="checkbox"/> , Melamine <input type="checkbox"/> , UV <input type="checkbox"/> , Other <input type="checkbox"/>		
		Foam Type: Polyurethane <input type="checkbox"/> , Memory <input type="checkbox"/> , Latex <input type="checkbox"/> , Evlon <input type="checkbox"/> , High Resilience <input type="checkbox"/> , High Density <input type="checkbox"/>		
		Paint Type: Latex <input type="checkbox"/> , Oil <input type="checkbox"/> , Low VOC <input type="checkbox"/> , No VOCs <input type="checkbox"/> , Powder Coat <input type="checkbox"/> , Chrome <input type="checkbox"/>		
Sample Details		Special Notes or Comments from Manufacturer:		
Unique Sample ID (if applicable): 001				
Product Name & Catalog #: TS-CS 6x12 vertical contemporary gloss				
Product Type: Ceiling/Wall Panels X, Flooring <input type="checkbox"/> , Trim <input type="checkbox"/> , Wall Paint <input type="checkbox"/> , Wall Coverings <input type="checkbox"/> , Thermal Insulation <input type="checkbox"/> , Adhesives <input type="checkbox"/> , Ceiling Tiles <input type="checkbox"/> , Other <input type="checkbox"/>				
Date of Product Manufacturing Completion: 1 Dec 2021				
Sample Location: Factory X, Warehouse <input type="checkbox"/> , Production Stack/Roll <input type="checkbox"/> , Container <input type="checkbox"/>				
Sample Submitted by: Bernard Davis				
Date of Sample Shipment : 2 Dec 2021				
Number of Boxes or Pallets: 1				
Shipping Details		Laboratory Receipt (to be completed by Laboratory Representative)		
Packed By: Bernard Davis		Received By:		
Shipping Date: 2 Dec 2021		Received Date:		
Carrier/Airbill Number:		Condition of Shipping Package:		
		Condition of Sample:		
		Remarks:		
Sample Handling				
Relinquished By	Company	Received By	Company	Date/Time
Bernie Davis	Mincey Marble	Charles Smith	Peter Byness	12/1/21
			Materials Analytical Services	12/03/21

Shipping Package Inspected By:
1. [Signature] Date 12/03/2021
2. [Signature] Date 12.03.2021

SECRET

Shipping
1. _____
2. _____



APPENDIX C

Mincey Marble Manufacturing, Inc.

Bracketed Products

Shower Panels

Contemporary	Diamond	Evolution	Old World Classic*
Reflections	Traditional	Vintage	Vision

Shower Pans

Conversion	Curved Front	Custom	Renovation
Roll-In/ADA	Standard	Transfer	

* Product tested as representative exemplar of products listed above.

Per CDPH standards, products must be re-evaluated if significant changes to materials, processes, or the facility occur that affect the eligibility of the products for any credits available under these or other applicable standards.