

## STATE OF MISSOURI



## DEPARTMENT OF NATURAL RESOURCES

### MISSOURI AIR CONSERVATION COMMISSION

## PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **022007 - 016** Project Number: 2006-08-048

Parent Company: Show Me Marble

Parent Company Address: 2993 State Road TT, New Bloomfield, MO 65063

Installation Name: K. Olsen LLC dba Show Me Marble

Installation Address: 2993 State Road TT, New Bloomfield, MO 65063

Location Information: Callaway County, S08, T45, R10W

Application for Authority to Construct was made for:  
Construction of a cultured marble manufacturing facility. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

- 
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

FEB 28 2007

EFFECTIVE DATE

  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

**You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review.** In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located with 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2006-08-048

## SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

### Show Me Marble

Callaway County, S08, T45, R10W

#### 1. Emission Limitation

- A. Show Me Marble shall emit less than ten (10) tons individually or twenty-five (25) tons combined of Hazardous Air Pollutants (HAPs) from the entire installation in any consecutive 12-month period.
- B. Attachment A and Attachment B or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1(A). Show Me Marble shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used in the cultured marble manufacturing process.
- C. Show Me Marble shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1(B) indicate that the source exceeds the limitation of Special Conditions Number 1(A).

#### 2. Operational Requirements

Show Me Marble shall keep all of the solvents and cleaning solutions in sealed containers whenever the materials are not in use. Show Me Marble shall provide and maintain suitable, easily read, permanent markings on all solvent and cleaning solution containers used with this equipment.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT  
SECTION (5) REVIEW

Project Number: 2006-08-048  
Installation ID Number: 027-0059  
Permit Number:

Show Me Marble  
2993 State Road TT  
New Bloomfield, MO 65063

Complete: September 01, 2006  
Reviewed: October 24, 2006

Parent Company:  
Show Me Marble  
2993 State Road TT  
New Bloomfield, MO 65063

Callaway County, S08, T45, R10W

REVIEW SUMMARY

- Show Me Marble has applied for authority to construct a cultured marble manufacturing facility.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are styrene, methyl methacrylate (MMA) and xylene.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart WWWW, *National Emission Standards for Pollutants: Reinforced Plastic Composites Production*, does not apply to this installation, since HAP emissions are conditioned to less than ten (10) tons individually or twenty-five (25) tons combined, from the entire installation in any consecutive 12-month period by this permit.
- A self-contained, in plant exhaust, grinding booth is being used to control the PM<sub>10</sub> emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of HAP are conditioned to below de minimis source levels.
- This installation is located in Callaway County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was performed for this review. This installation has the potential to emit styrene in amounts greater than the screening model action level (SMAL) of 1.0 tons/year for styrene.
- Emission testing is not required for the equipment by this permit.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Show Me Marble is a manufacturer of cultured marble products. It is located in New Bloomfield, Callaway County, Missouri and is an existing installation. This installation has not received any permits from the Air Pollution Control Program. A complete Application for Authority to Construct was received by the Air Pollution Control Program on August 14, 2006.

Show Me Marble commenced construction and begun operating after that construction without first obtaining a permit from the Air Pollution Control Program as stipulated in 10 CSR 10-6.060(1)(C) of the Air Pollution Control Regulations.

Show Me Marble is considered a minor source of air emissions by the Air Pollution Control Program.

### PROJECT DESCRIPTION

Show Me Marble has applied for authority to construct a cultured marble product manufacturing facility.

A job specific mold is prepared to begin the process. The mold is measured and set up in place according to daily production tickets. Waxes are applied with a rag. Once the wax has dried any residue is removed with a clean rag. Clay is used to secure bowl molds in place and divider bars are placed to order specification. All areas not intended to be sprayed are covered with paper and taped down.

The mold is transported via conveyor to the gel coat booth. The mold is sprayed with polyester gel coat using a gel coat application spray gun connected to pumps for both gel coat and catalyst (Methyl Ethyl Ketone Peroxide). The spray booth filters strains out the over-spray particles with its dry filter media. The sprayed mold then goes through a heat tunnel rated at 200,000 btu/hr. The heater burns natural gas.

The mold is then conveyed to the marble mixing area. The marble matrix (polyester resin, calcium carbonate, methyl ethyl ketone peroxide and pigments) is mixed using mixing pots and then cast onto the hardened gel coated mold surface. The liquid mix is spread on to the mold and leveled. The mold is then conveyor or table vibrated before the chemical reaction can take place. The chemical reaction is initiated by the catalyst. This reaction causes the resin to polymerize and harden. The resulting mass cures and retains the shape of the mold.

The cultured marble is then sent to the grinding booth. Grinding is performed to remove

rough edges and other minor imperfections. Dust from the grinding process is collected by a self contained, in plant exhaust, grinding booth. The grinding booth has filtration efficiency of over 95%.

The cultured marble is finished, inspected, wrapped and staged for delivery.

Acetone is utilized throughout for cleaning of spray equipment, mixing equipment and for mold preparation.

## EMISSIONS/CONTROLS EVALUATION

The styrene emission factors used to determine styrene emissions from the application of gelcoat and resin were obtained from Composite Fabricators Association's table, *Unified Emission Factors from Open Molding Composites (07/2001)*. Styrene emissions from the catalyst were calculated based on information provided by the applicant.

VOC emission factors used in this analysis were estimated using information obtained from the Material Safety Data Sheets for the gelcoat, resin and catalyst as well as the solvent used for cleaning. A mass balance approach was used to conservatively estimate that 100% of the VOC content would be emitted into the atmosphere.

Emission factors used to determine emissions from the natural gas heater were obtained from EPA document Factor Information Retrieval (FIRE) V6.25, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants (SCC 1-05-001-06)*.

PM<sub>10</sub> emissions from grinding the mold are based on a collection efficiency of 95% and a control efficiency of 95% as provided by the applicant. 100% of the material collected from the grinding is assumed to be emitted as PM<sub>10</sub> and is collected by a self-contained, in plant exhaust, grinding booth.

Potential emissions of the application represent the potential of the new equipment, assuming an operating schedule of 8760 hours per year. Since this installation has not received any construction permits, there are no existing potential emissions. Existing actual emissions were taken from the Application for Authority to Construct form, dated July 21, 2006, as this installation has not submitted any EIQ. The following table provides an emissions summary for this project.

Table 1. Emissions Summary (tons per year).

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	N/A	0.06	2.11	N/A
SO <sub>x</sub>	40.0	N/A	0.00	0.00	N/A
NO <sub>x</sub>	40.0	N/A	0.00	0.00	N/A
VOC	40.0	N/A	1.23	26.52	N/A
CO	100.0	N/A	0.08	0.08	N/A
HAPs	10.0/25.0	N/A	1.1	24.71	<10/25
Styrene	10.0	N/A	0.64	15.58	<10

N/A = Not Applicable

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of HAPs are conditioned to below minor source levels.

## APPLICABLE REQUIREMENTS

Show Me Marble shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110*  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.170*
- *Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220*
- *Restriction of Emission of Odors, 10 CSR 10-3.090*

### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

## AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of styrene. Show Me Marble has the potential to emit styrene in amounts greater than the screening model action level (SMAL) of 1.0 ton/year for styrene.

Table 2 and 3 below show the input parameters that were used to model styrene emissions. Styrene emission from the gel coating process was modeled as a point source and that from the casting process as a volume source. The combined styrene emission rate was taken as 10 tons per year (4.8 tons per year from gel coat process and 5.2 tons per

year from the casting process).

Table 2. Screen3 input parameters for Point Source modeling.

Source Type	Point
Emission Rate (g/s)	0.138
Stack Height (m)	8.382
Stack Inside Diameter (m)	0.914
Stack Exit Velocity (m/s)	11.032
Stack Gas Exit Temperature (K)	293.000
Ambient Air Temperature (K)	293.000
Receptor Height (m)	0.000
Urban/Rural Option	Rural

Table 3. Screen3 input parameters for Volume Source modeling.

Source Type	Volume
Emission Rate (g/s)	0.149
Source Height (m)	0.910
Initial Lateral Dimension (m)	4.252
Initial Vertical Dimension (m)	2.835
Receptor Height (m)	0.000
Urban/Rural Option	Rural

The individual and combined impacts of the point and volume source emissions of styrene are below the Risk Assessment Levels (RAL) as shown in Table 4. The maximum concentration of the point source and the volume source occur outside and inside Show Me Marble property line respectively.

Table 4. Maximum modeled concentration ( $\mu\text{g}/\text{m}^3$ )

Source Type	Modeled Impact	RAL	Time Period
Point	11.30	2,240	24 hours
Volume	1128.80		
Combined	1140.10		
Point	2.26	333	Annual
Volume	225.76		
Combined	228.02		

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Maurice Chemweno  
Environmental Engineer

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Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 21, 2006, received August 14, 2006, designating Show Me Marble as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Unified Emission Factors for Open Molding of Composites, July 23, 2001
- Northeast Regional Office Site Survey, dated September 05, 2006.





**total of less than ten (10.0) tons for the installation indicates compliance.**

Mr. Kirk Olsen  
Owner  
Show Me Marble  
2993 State Road TT  
New Bloomfield, MO 65063

RE: New Source Review Permit - Project Number: 2006-08-048

Dear Mr. Olsen:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions and your new source review permit application is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:mcl

Enclosures

c: Northeast Regional Office  
PAMS File 2006-08-048

Permit Number: