

STATE OF MISSOURI

PERMIT BOOK



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: 092010-010 Project Number: 2010-05-033  
Installation Number: 071-0068

Parent Company: Meramec Group, Inc.

Parent Company Address: 338 Ramsey Street, Sullivan, MO 63080

Installation Name: Meramec Industries, Inc.

Installation Address: 338 Ramsey Street, Sullivan, MO 63080

Location Information: Franklin County, S17, T40N, R2W

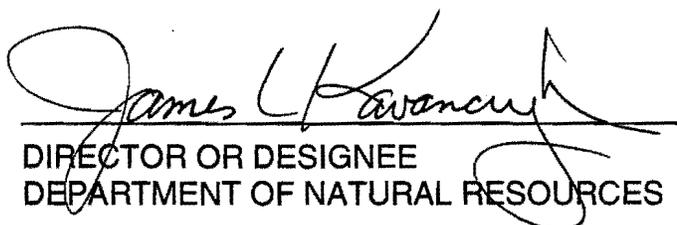
Application for Authority to Construct was made for:  
Construction of a new molding operation. This review was conducted in accordance with  
Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

SEP 27 2010

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 Departments' Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

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 sources(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.

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

Project Number: 2010-05-033  
Installation ID Number: 071-0068  
Permit Number:

Meramec Industries, Inc.  
338 Ramsey Street  
Sullivan, MO 63080

Complete: May 14, 2010

Parent Company:  
Meramec Group, Inc.  
338 Ramsey Street  
Sullivan, MO 63080

Franklin County, S17, T40N, R2W

REVIEW SUMMARY

- Meramec Industries, Inc. has applied for authority to construct a new molding operation.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- High efficiency filters are being used to control the particulate matter 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 VOC are below de minimis levels.
- This installation is located in Franklin County, a nonattainment area for the 8-hour ozone standard and the PM-2.5 standard and an attainment area for all other criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment.
- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended without special conditions.

### INSTALLATION DESCRIPTION

Meramec Group owns and operates a polyurethane shoe sole manufacturing company, Meramec Industries Incorporated, in Sullivan, Missouri. There are ten molding lines currently operating at the plant identified as Line 10, 11, 12, 14, 15, 17, 19, 21, 22, and 25. The electrically heated molds are sprayed with a mold release compound to facilitate removing the finished product from the molds. Mixhead machines meter two components (A and B) and pours them into the molds. Component A is an isocyanate prepolymer and component B is a polyurethane polyol mixture. Currently, both VOC and non-VOC blowing agent are also injected into the molds. After the mold is opened, the part or shoe sole is removed and trimmed and packed for shipment to the customer. Some of the shoe soles may be sent to the spray finishing area before shipment.

Meramec Group Incorporated holds a Part 70 Operating Permit (Permit Number OP2006-042). The following construction permits have been issued to Meramec Group, Incorporated from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0195-025	Installation of a shoe sole production line
0499-008	Installation of polyurethane shoe sole mold Line 12
052002-018	Installation of two (2) paint lines and equipment for a molding process line. This permit was a combination of two projects (Project Numbers 2002-02-019 and 2002-02-020)
072002-010	Modification to existing molding lines to include the usage of n-pentane as a blowing agent
042005-002	Modification to an existing painting operation
072002-010A	Correction of maximum hourly design rate of the sandblaster and abrasive cleaner.
062005-003	Installation of a new automated finishing operation
062005-003A	Amended recordkeeping requirements
032006-009	New molding operation
032006-009A	Amended MACT applicability

### PROJECT DESCRIPTION

Meramec Group, Inc. is proposing to install a new molding operation in the Industrial Products Department at its facility in Sullivan, Missouri. The molding process starts with the line operator cleaning and preparing the mold. A robot will then spray the mold with

a mold release compound followed by another robot which sprays the mold with in-mold paint. The in-mold paint robot will have three spray guns with only one gun able to spray at any one time. Initially, black paint will be used; however, additional colors may be used in the future. The additional colors will have a composition similar to the black paint. The next step in the process is the injection of a urethane mixture containing an n-pentane blowing agent. From here, the part will be allowed to cure in the mold. The part is then removed from the mold by a line operator, the flash is trimmed, and the part is packaged.

The maximum hourly design rate (MHDR) for the mold release compound application robot (30a) and in-mold paint robot (30b) were determined using the flow rate of the gun (1.0 and 2.0 grams per second, respectively), the maximum density of the material (6.00 and 8.78 pounds per gallon, respectively), and the amount of time the robots are spraying per hour. The amount of time the robots are spraying per hour is the same for both robots and was calculated by taking the maximum amount of parts processed per hour (12 parts per hour) and multiplying it by the amount of spraying time required per part (30 seconds per part). The MHDR for the mold release is 0.79 pounds per hour and the MHDR for the in-mold paint is 1.59 pounds per hour.

The MHDR for the n-pentane usage (30c) was calculated using amount of n-pentane used per part and number of parts per hour (12 parts per hour). The amount of n-pentane used per part is based on the amount of foam used per part (15 pounds of foam used per part) multiplied by a ratio of 0.039 pounds of n-pentane used per pound of foam. The MHDR for n-pentane usage is 0.0035 tons per hour.

### EMISSIONS/CONTROLS EVALUATION

The pollutant of concern from the equipment of this project is VOC. A mass balance approach was used to determine the emissions from the mold release, in-mold paint, and the blowing agent used in the molding line. Material density solids content and VOC content were determined from the Material Safety Data Sheets (MSDS). For the purpose of calculating potential emissions from this application, it is assumed that 100% of the VOCs contained in the material are emitted. PM<sub>10</sub> emissions were calculated assuming 50 percent transfer efficiency and 95 percent control efficiency for the filters.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2009 EIQ)	Potential Emissions of the Application
PM <sub>10</sub>	15.0	15.1	0.81	0.06
SO <sub>x</sub>	40.0	N/A	0.00	N/A
NO <sub>x</sub>	40.0	N/A	0.23	N/A
VOC	40.0	279.0	32.32	35.51
CO	100.0	N/A	0.05	N/A
Total HAPs	10.0/25.0	14.1	0.20	N/A

N/A = Not Applicable

Existing Potential Emissions were taken from permit 032006-009

## 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 VOC are below de minimis levels.

## APPLICABLE REQUIREMENTS

Meramec Industries, Inc. 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 June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *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

## 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 without special conditions.

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Michael Mittermeyer  
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 May 11, 2010, received May 14, 2010, designating Meramec Group, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- St. Louis Regional Office Site Survey, dated May 21, 2010.