

## 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: **092010-110** Project Number: 2010-05-021  
Parent Company: Quaker Manufacturing, LLC  
Parent Company Address: 555 W. Monroe Suite 13-03, Chicago, IL 60661-4714  
Installation Name: Quaker Manufacturing, LLC  
Installation Number: 019-0069  
Installation Address: 4501 N Route B (Paris Road), Columbia, MO 65202  
Location Information: Boone County, S29, T49N, R12W

Application for Authority to Construct was made for:

The installation of a new exhaust hood EPN-6D and relocate existing emissions from mixing heads through different exhaust hoods to increase production and report the stack test data results on the Potential To Emit on 14 emission points. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*

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

SEP 27 2010

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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 this (these) air contaminant source(s). 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 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.	2010-05-021

**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."*

Quaker Manufacturing, LLC  
Boone County, S29, T49N, R12W

1. Emission Limitation
  - A. Quaker Manufacturing, LLC shall emit less than 250.0 tons of Volatile Organic Compounds (VOCs) in any consecutive 12-month period from the emission points from the entire installation as of the date of this permit.
  - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
  - C. Quaker Manufacturing, LLC shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2010-05-021  
Installation ID Number: 019-0069  
Permit Number:

Quaker Manufacturing, LLC  
4501 N Route B (Paris Road)  
Columbia, MO 65202

Complete: May 17, 2010

Parent Company:  
Quaker Manufacturing, LLC  
555 W. Monroe Suite 13-03  
Chicago, IL 60661-4714

Boone County, S29, T49N, R12W

REVIEW SUMMARY

- Quaker Manufacturing, LLC has applied for authority to install a new exhaust hood EPN-6D and relocate existing emissions from mixing heads through different exhaust hoods to increase production and report the stack test data results on the Potential To Emit on 14 emission points
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment: hexane (CAS#110-54-3).
- 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.
- Filters are in use on EPN6A-6H to minimize the PM<sub>10</sub> emissions.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of PM<sub>10</sub> are below de minimis levels. Potential emissions of VOC are above de minimis levels but limited to less than major levels.
- This installation is located in Boone County, an attainment area for all 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 for this review. No model is currently available which can accurately predict ambient ozone concentrations caused by this installation's VOC emissions.
- Emissions testing are not required for the equipment.
- An Intermediate Operating Permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

This is a minor source PM<sub>10</sub> and VOC under construction permits. The installation is a minor source under operating permits but has a voluntary limit of less than 250 tons on the VOC in this construction permit. It has an Intermediate Operating permit with project number 2010-01-040. This Intermediate Operating permit limits the installation to less than 100 tons of VOC per year.

The installation processes raw corn and rice cereal grain into cakes. Bulk bags of grain are unloaded and screened to remove foreign material. The grains are sent through a tempering screw to increase the moisture content. After tempering (time at moisture level, and temperature), the grains are conveyed to storage bins. From the storage bins, grain is sent by a flexible screw conveyor to a rice cake machine where they are processed into shape. The rice cakes are then sent by a belt conveyor to a coating room where flavoring syrup is added. Next, the cakes are baked in ovens to reduce the moisture. Finally the cakes are cooled, packaged and shipped offsite.

The following permits have been issued to Quaker Manufacturing, LLC from the Air Pollution Control Program.

**Table 1: Permit History**

Permit Number	Description
0596-005A	Plant modifications
0596-005	Rice cake production increase and oven
1294-002	Rice Cake Production

### PROJECT DESCRIPTION

The installation recently completed stack testing for PM<sub>10</sub> from the rice cake forming process exhaust hoods, the rice cake forming process area exhaust vents, and the rice cake drying ovens. This is an increase of PM<sub>10</sub> emissions which are not part of this project but a correction to the previous permits 0596-005 and 1294-002. The emissions are from EPN2A-2D, EPN6A-6H and EPN10A-C. The Potential To Emit of the installation should have been calculated to be 18.77 tons per year. Permit 0596-005 has under reported the installation PM<sub>10</sub> PTE total as 16.87 tons per year of PM<sub>10</sub>. This application provides a detailed accounting of the installation Potential to Emit. This listing had the potential at 21.65 tons of PM<sub>10</sub> and not at the 16.87 listed in permit 0596-

005. Upon review of the permit file, the stack testing information, and the application, it is believed that the more accurate number is the Potential To Emit of the installation found in the application. Projects with a Potential to Emit greater than 15 tons per year are required to have refined modeling to show compliance with increment. However, this stack test data submitted is correcting PM<sub>10</sub> permit data from a 1996 permit. The permit was amended in 2009 by submitting similar facility data not impacting PM<sub>10</sub> data, but was asked to stack test the facility.

The stack testing was completed on one of the room exhaust fans running with all 428 heads running. A head is a machine which converts raw grain into a rice cake and therefore controls capacity. It was assumed that the results represented one third of the emissions from the room and the total heads running. This project increases the total heads to 488 and the emission rate and factor were calculated based on one third of the emissions passing through each of 10A, 10B and 10C.

This project is rearranging the exhausts to accommodate an increase in head count. The changes include a new emission unit the RCM Room Exhaust Hood will be added to EPN-6D. This installation will result in an increase of potential emissions for PM<sub>10</sub> for EPN-6D, EPN-2A and 2C of 2.88 tons per year. Also, VOC emissions will increase at EPN 2A and 2B (Aeroglide 3 zone ovens). Because of the increase in VOC potential emissions, the installation will exceed the 250 tons per year major source threshold. The company will take a less than 250 ton per year limit to avoid this classification.

This project does include the installation of a new emission unit at EPN-6D, the emission unit and Emission Point Number changes and relocations. The actions listed below will occur and will result in changes to each emission point number:

- EPN 6A will not be relocated but the description of the emission point will change to RCM Room Exhaust Hood Mini 1 East.
- EPN 6B will not be relocated but the description of the emission point will change to RCM Room Exhaust Hood Mini 1 West.
- EPN-6C is currently connected to emission unit RCM Room Exhaust Hood Large 3 East. This emission unit will be relocated and connected to an unused EPN-6G. EPN-6G and emission unit description will change to RCM Room Exhaust Hood Large 4 East.
- EPN-6D is currently connected to emission unit RCM Room Exhaust Hood Large 3 West. This emission unit will be relocated and connected to EPN-6H. EPN-6H and emission unit description will be RCM Room Exhaust Hood Large 4 West.
- EPN-6E is currently connected to emission unit RCM Exhaust Hood Large 4 East. EPN-6E and emission unit will not be relocated but the description will change to RCM Room Exhaust Hood 3 East.
- EPN-6F is currently connected to emission unit RCM Room Exhaust Hood Large 4 West. This will not be relocated but will be renamed to RCM Room Exhaust Hood Large 3 West
- EPN-6H is currently connected to emission unit RCM Room Exhaust Hood Mini 5. This emission unit will be relocated and connected to existing EPN-6C. EPN-6C and emission unit description will change to RCM Room Exhaust Hood Mini 2 East.

- EPN-6D will be a new emission unit called RCM Room Exhaust Hood Mini 2 West.

Potential emissions increases from the addition of the new line were calculated using the results from the recent stack tests. This project will increase potential PM<sub>10</sub> emissions by 2.88 tons per year. Potential VOC emissions will increase as a result of the increased production. This project will have increase of 44.19 tons per year on facility wide Potential To Emit VOC emissions. The facility will maintain the less than 100 ton per year VOC limit in the operating permit, but be limited to less than 250 tons per year in the construction permit.

There are five different flavorings used and each has a different percentage of VOCs. The flavorings contain propylene glycol and either benzyl or ethyl alcohol, which when dried convert to VOCs. These VOC emit through the same stacks used for the combustion products. The Apple Cinnamon flavoring based on formulation and application rates will create the highest Potential To Emit of the flavoring when assumed to run 8760 hours per year.

#### EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from stack testing performed at the Columbia facility on March 17-18, 2010. Compilation of Air Pollutant Emission Factors, Section 1.4, Natural Gas Combustion from U.S. Environmental Protection Agency (EPA) Document AP-42 provided the emission factors that were not from the stack testing. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). A 20 percent control efficiency was determined for the simple filters used as control device and a 75 percent capture of fugitives emissions. This control and capture only applies for EPN6A-H. The following table provides an emissions summary for this project.

**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	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	18.77	14.71	2.88	N/A
SO <sub>x</sub>	40.0	0.14	0.12	0.08	N/A
NO <sub>x</sub>	40.0	22.80	20.55	13.58	N/A
VOC	40.0	282.34	39.18	44.19	<250
CO	100.0	19.16	17.26	11.41	N/A
HAPs	10.0/25.0	0.41	0.37	0.24	N/A
Hexane	0.24	10.0	N/D	0.24	N/A

N/A = Not Applicable; N/D = Not Determined

Existing potential emissions are taken from data submitted in application.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM<sub>10</sub> are below de minimis levels.

## APPLICABLE REQUIREMENTS

Quaker Manufacturing, LLC 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.

### 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

### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400



## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Timothy Paul Hines  
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 10, 2010, received May 15, 2010, designating Quaker Manufacturing, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated May 19, 2010.

