

**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: **042012-004**

Project Number: 2012-01-070  
Installation Number: 071-0151

Parent Company: Aerofil Technology, Inc.

Parent Company Address: 225 Industrial Drive, Sullivan, MO 63080

Installation Name: Aerofil Technology, Inc.

Installation Address: 225 Industrial Drive, Sullivan, MO 63080

Location Information: Franklin County, S5, T40N, R2W

Application for Authority to Construct was made for:

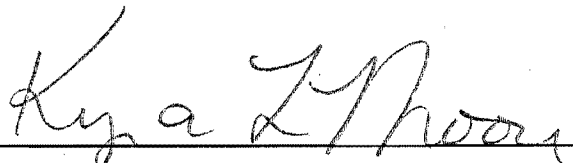
The installation of a new liquid formation line and the request to use existing storage tanks for the storage of volatile organic compound containing products. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

APR 09 2012

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 startup 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 startup 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.

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Project No.	2012-01-070

**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."*

Aerofil Technology, Inc.  
Franklin County, S5, T40N, R2W

1. Superseding Condition
  - A. The conditions of this permit supersede Special Condition 3 of the previously issued construction permit 052006-009 issued by the Air Pollution Control Program.
  
2. Emission Limitations
  - A. Aerofil Technology, Inc. shall emit less than 40.0 tons of Volatile Organic Compounds (VOCs) in any consecutive 12-month period from the emission points listed in the table below.

Table 1: Applicable Emissions Points for Special Condition 2.A.

EP-22A (1)	Liquid Line 6 – Material Loading into Mix Tanks
EP-22A (2)	Liquid Line 6 – Emissions from Mixing
EP-22B	Liquid Line 6 – Finished Product Loading into Containers
EP-22C	Liquid Line 6 – Fugitive Equipment Leaks
EP-23A (1)	Existing Mix Tanks (6) - Material Loading into Mix Tanks
EP-23A (2)	Existing Mix Tanks (6) - Emissions from Mixing
EP-23B	Existing Mix Tanks (6) - Fugitive Equipment Leaks
EP-24	Existing Storage Tanks (2)

- B. Aerofil Technology, Inc. shall emit less than the Screen Modeling Action Levels, found in Attachment D, or ten (10.0) tons individually of Hazardous Air Pollutants (HAPs), whichever is smaller, in any consecutive 12-month period from the entire installation.
    - C. Aerofil Technology, Inc. shall emit less than the twenty-five (25.0) tons of total HAPs in any consecutive 12-month period from the entire installation.
    - D. These limitations in Special Conditions 2.B. and 2.C. applies to the HAP emissions from all equipment /processes installed or permitted at Aerofil Technology, Inc. as of the issuance date of this permit.

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**SPECIAL CONDITIONS:**

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

- E. Attachment A, Attachment B, Attachment C, and Attachment D or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A., 2.B., and 2.C
3. Record Keeping and Reporting Requirements
- A. Aerofil Technology, Inc. shall maintain all records required by this permit for not less than five 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
  - B. Aerofil Technology, Inc. shall report to the Air Pollution Control Program's Compliance/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 (5) REVIEW

Project Number: 2012-01-070  
Installation ID Number: 071-0151  
Permit Number:

Aerofil Technology, Inc.  
225 Industrial Drive  
Sullivan, MO 63080

Complete: January 23, 2012

Parent Company:  
Aerofil Technology, Inc.  
225 Industrial Drive  
Sullivan, MO 63080

Franklin County, S5, T40N, R2W

REVIEW SUMMARY

- Aerofil Technology, Inc. has applied for authority to install a new liquid formation line and to request the use of existing mix and storage tanks to handle volatile organic compound containing products.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process were not listed in the application but all HAPs will be individually limited to 10.0 tons per year or their respective screen modeling action level and also limited to 25.0 tons per year of total HAPs per the special conditions found in this permit.
- 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.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of volatile organic compounds (VOC) are conditioned below de minimis levels.
- This installation is located in Franklin County, a nonattainment area for the 8-hour ozone standard and the PM<sub>2.5</sub> 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.
- An amendment to your Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Aerofil Technology, Inc, (Aerofil) operates a contract packaging facility in Franklin County. Materials are received by truck in bulk or in drums and then mixed and repackaged according to customer specifications. Most of the products are consumer commodities that can be found in retail stores. A variety VOCs and HAPs are used in the production process: including, but not limited to hexane, isopropyl alcohol, methanol, xylene, trimethylpentane, methylene chloride, naphthalene and perchloroethylene. Aerofil has two (2) production departments: aerosol and liquid. Aerofil produced dry products in the past but ceased this operation in 2010. Aerofil is currently considered a major source for construction permits and operates under a Part 70 operating permit.

The following New Source Review permits have been issued to Aerofil Technology, Inc. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0996-002	Construction permit for liquid and dry aerosol packaging plant.
0996-002A	Amendment to construction permit – additional HAP.
0996-002B	Amendment to construction permit – additional HAP.
1199-016	Construction permit for dry product filling line.
082000-002	Construction permit for two (2) aerosol production lines.
082000-002A	Amendment to Special Conditions.
122002-015	Construction permit for 20 organic liquid storage tanks and 4 dry product silos.
052006-009	Add production line.

### PROJECT DESCRIPTION

Aerofil is installing a new liquid production line (Liquid Line 6). The line will include six mix tanks and a conveyor for moving bottles through a liquid filling station. The six mix tanks have a capacity range from 1,000 gallons to 12,000 gallons and are all fixed vertical roof tanks with eight inch or less vent openings exhausting outside the building through a collective header.

The process flow of the Liquid Line 6 begins with raw materials being pumped from existing bulk storage tanks to the bottom of the new mix tanks (EP-22) where the materials will be blended with a mixer shaft. Dry additives can be added to the liquid solution through a 24 inch opening in the mix tank roof. The blended final product is then pumped to the filling equipment which dispenses the material into the “customer commodity” containers. The filling equipment is equipped with a separate ventilation point exhausting outside the building.

In addition to the new liquid production line, Aerofil would like to include pieces of existing equipment for the use in handling volatile organic compound (VOC) containing material associated with the facility operations. These pieces of equipment include: two exterior storage tanks (EP-24) with capacities of 15,200 and 20,000 gallons and six interior mix tanks (EP-23) with capacities ranging from 1,100 to 9,100 gallons.

The six existing mix tanks are all equipped with eight inch vent openings exhausting outside the building through a collective header. The six existing mix tanks are equipped with a diversion valve that directs the finished product to the new filling equipment associated with Liquid Line 6. The six existing lines can also be directed to other filling stations within the Aerofil facility. The existing filling stations were permitted under previous construction permits to handle VOC materials at their maximum capacity therefore the modification of the six mix tanks being able to handle VOC containing material will not cause an increase in VOC emissions at the existing filling station emission points. The existing storage tanks (EP-24) and mixing tanks (EP-24) previously only handled non-VOC containing material and was therefore not included in past permitting actions. Aerofil would like the flexibility to use these pieces of equipment for handling VOC-containing materials on either the aerosol or liquid production department line in the future.

#### EMISSIONS/CONTROLS EVALUATION

Aerofil requested to evaluate the potential VOC emissions as if all material that would be handled by the equipment related to this project to be 100 percent VOC containing material. The chemical characteristics of Hexane were used in each calculation where specific chemical properties were needed to estimate VOC emissions. This conservatively estimates the VOC emissions from this project and is considered to be worst case scenario. Potential HAP emissions were not calculated for this project but are projected to be over the major source thresholds of 10.0 tons per year of individual HAPs and 25.0 tons per year of combined HAPs. Aerofil agreed to supersede their current installation wide 10.0 ton per year individual and 25.0 ton per year combined HAP limits and to reinstate those same installation wide limits within this permit in order to encompass all the HAP emitting pieces of equipment at their facility.

The potential VOC emissions from the material loading into the new and existing mix tanks as well as the new final product packaging line were calculated using the loading loss equation 8.4-1 as presented in the Emission Inventory Improvement Program (EIIP), Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (February 2005).

The potential VOC emissions from the heating caused by mixing in both the new and existing mix tanks were calculated using the EIIP, Volume II, Chapter 16, Methods for Estimating Air Emissions from Chemical Manufacturing Facilities Section 3.6 (August 2007).

The potential VOC emissions from fugitive equipment leaks from the bulk tank to the mix tanks to the filling line were calculated using Synthetic Organic Chemicals Manufacturing Industry emission factor obtained from the Texas Commission on Environmental Quality document Addendum to RG-360A (January 2008) page nine, which further references EPA document EPA-453/R-95-017 (November 1995) pages two through twelve.

The emission factors and control efficiencies used to calculate the particulate matter emissions from the Dry Product Blending into the Mix Tanks were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 6.7 (May 1983). The particle size distribution for particulate matter less than 10 microns in aerodynamic diameter (PM<sub>10</sub>) and particulate matter less than 2.5 microns in aerodynamic diameter (PM<sub>2.5</sub>) was based on the particle size analysis in AP-42 Appendix B, Category 4.

The potential VOC emissions from the outdoor holding tanks were calculated using USEPA TANKS 4.0.9d software.

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) 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 (2010 EIQ)	Potential Emissions of the Application	Conditioned Potential of the Application
PM <sub>2.5</sub>	10.0	N/D	N/D	2.53	N/A
PM <sub>10</sub>	15.0	25.2	5.75	7.17	N/A
SO <sub>x</sub>	40.0	N/D	0.02	N/A	N/A
NO <sub>x</sub>	40.0	N/D	3.92	N/A	N/A
VOC	40.0	170.7	50.54	265.06	<40.0
CO	100.0	N/D	0.78	N/A	N/A
HAPs	10.0/25.0	<10.0/25.0	3.2/5.5	N/D	<10.0/25.0*

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

\*This HAP limit is an installation wide limit.

### 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 conditioned below de minimis levels.

### APPLICABLE REQUIREMENTS



Aerofil Technology, 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
- *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 10-6.165

#### 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 (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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Gerad Fox  
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 January 20, 2012, received January 23, 2012, designating Aerofil Technology, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Emission Inventory Improvement Program (EIIP), Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (February 2005).

- EIIIP, Volume II, Chapter 16, Methods for Estimating Air Emissions from Chemical Manufacturing Facilities Section 3.6 (August 2007).
- USEPA TANKS 4.0.9d software.







Mr. Greg Krueger  
EHS Manager  
Aerofil Technology, Inc.  
225 Industrial Drive  
Sullivan, MO 63080

RE: New Source Review Permit - Project Number: 2012-01-070

Dear Mr. Krueger:

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, your new source review permit application and with your amended operating permit 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 Gerad Fox, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:gfl

Enclosures

c: St. Louis Regional Office  
PAMS File: 2012-01-070

Permit Number: