

PERMIT BOOK

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: 032010 - 005

Project Number: 2010-02-003

Parent Company: Pella Corporation

Parent Company Address: 102 Main Street, Pella, IA 50219

Installation Name: EFCO - A Pella Company

Installation Number: 009-0003

Installation Address: Bridle W & County Road, P.O. Box 609, Monett, MO 65708

Location Information: Barry County, S32, T26, R27

Application for Authority to Construct was made for:

Addition of a sulfuric acid/water anodizing tank and increased production of anodized windows. 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.

MAR 11 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 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.

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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."

EFCO - A Pella Company
Barry County, S32, T26, R27

1. EFCO - A Pella Company shall control the sulfuric acid anodizing tank #4 (EU32-4) with a packed bed wet scrubber.
 - A. The scrubber and any related instrumentation or equipment shall be operated and maintained in accordance with the manufacturer's specifications. The scrubber shall be equipped with a gauge or meter that indicates the pressure drop across the scrubber and with a flow meter that indicates the flow through the scrubber. These gauges and meters shall be located in such a way they may be easily observed by Department of Natural Resources' personnel.
 - B. EFCO - A Pella Company shall monitor and record the operating pressure drop across each scrubber at least once every twenty-four (24) hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - C. EFCO - A Pella Company shall monitor and record the flow rate through the scrubber at least once every twenty-four (24) hours. The flow rate shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - D. EFCO - A Pella Company shall maintain an operating and maintenance log for the scrubber, which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions;
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.; and
 - 3) A record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that result from the inspection. Either paper copy or electronic formats are acceptable.

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

Project Number: 2010-02-003
Installation ID Number: 009-0003
Permit Number:

EFCO - A Pella Company
Bridle W & County Road
Monett, MO 65708

Complete: February 1, 2010

Parent Company:
Pella Corporation
102 Main Street
Pella, IA 50219

Barry County, S32, T26, R27

REVIEW SUMMARY

- EFCO - A Pella Company has applied for authority to add a sulfuric acid/water anodizing tank and increased production of anodized windows.
- 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.
- A packed bed scrubber is being used to control the sulfuric acid mist and particulate 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 all pollutants are below their respective de minimis levels.
- This installation is located in Barry County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2.
- 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 in this permit.
- An amendment to your Part 70 Operating Permit is required for this installation within 180 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

EFCO is a manufacturer of custom architectural windows in Monett, Missouri. Aluminum is extruded, cut, shaped, welded, finished and painted to make window frames, and then glass is installed into the window frames to complete the window. This installation was considered a major source of VOCs and HAPs with regards to both construction and operating permits. However, with the installation of the Regenerative Thermal Oxidizer (RTO) in Permit No. 022010-001, EFCO is no longer a major source with regards to VOCs for construction permitting. EFCO was granted a renewal of their Part 70 Operating Permit (OP2007-039) on August 8, 2007.

The following construction permits have been issued to EFCO - A Pella Company from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0491-003	Construction of a new paint spray facility which replaced an existing painting facility.
1197-023	Construction of architectural window production equipment.
1199-004	Temporary permit to operate a portable grizzly.
052000-018	Construction of a new adhesive spray booth to accommodate the application of adhesive to Styrofoam panels and aluminum sheet metal.
012004-004	Reconstruction of two paint booths (EP 15 and 16) that were destroyed by fire in 1998.
022010-001	Prevention of Significant Deterioration (PSD) review. Modification of the installation in conformance with the BACT analysis is as follows: installation of a regenerative thermal oxidizer (RTO) on all existing paint line spray booths and ovens and enclosure of each flash-off area between spray booths and the curing oven in order to capture all VOC emissions from the painting operation. In addition, EFCO installed a manual, off-line spray booth and cure oven for rework and small parts painting which is also controlled by the RTO.

PROJECT DESCRIPTION

This project consists of the conversion of an existing clean water rinse tank into an additional sulfuric acid/water anodizing tank. In addition, an anodizing rectifier, electrical bus bars and a solution circulation system will be added. The new anodizing tank (EU32-4) will be the fourth anodizing tank at the EFCO facility and will expand their anodizing capability. The new tank has a surface area of 38 feet by 4 feet. The emissions associated with the new tank are sulfur acid mist and particulate emissions and will be controlled by a packed wet scrubber.

EFCO makes both painted and anodized aluminum framed windows. The anodizing and painting operations are competing processes. Neither process alone can meet the output of the extrusion presses and neither process alone can supply enough materials to keep the assembly lines fully loaded. The purpose of the additional 4th tank is to expand the flexibility of the product mix. The window frame production process at EFCO in simplified terms is described as the following: aluminum is extruded into window frame pieces, the pieces are either painted or anodized, and then the pieces are assembled to make the final window product. Although the addition of the fourth tank will increase EFCO's capability to make more anodized windows, it will not increase EFCO's overall capability to make more windows. The final assembly areas remain the bottleneck and would have to be changed in order to increase overall production. Therefore, emissions for this project are based solely on emission increases to the anodizing line that may result from the addition of the 4th anodizer.

The anodizing line consists of a series of soap, rinse, etch, anodize, tin and seal tanks. The emission sources associated with the anodizing line are from combustion of natural gas in the boilers which provide hot water to the anodizing line and the sulfuric acid/water anodizing tanks themselves. Another source, the caustic scrubbers (EP30), treat air containing sodium hydroxide (NaOH) off the etching tanks. However, NaOH is not considered a VOC or HAP and therefore, its emissions do not have an impact on this project. There will be some water that will be evaporated and therefore can result in some particulate emissions from total dissolved solids contained in the water. This amount is estimated to be less than 0.001 tons per year. Because of the very small amount, emissions with the caustic scrubbers will not be further evaluated. Since this project involves a modification which results in a potential increase in throughput of the anodizing line, the potential emission of the project include the total potential emissions of all emissions units affected by the modification as well as the new equipment. In this case, the only emission units affected besides the new anodizer are the boilers (EU33 and EU34). The other anodizers work in parallel with the new anodizer and therefore their individual emissions will not be affected by the addition of the 4th anodizer.

Typically, in the event of a modification, a potential minus actuals calculation is used to determine the project's potential emission increase. However, a potential minus actuals test was not needed in this case since potential emissions of the project for all pollutants and HAPs were well below their respective de minimis levels and Screening Model Action Levels (SMALs). Thus, the potential minus actuals tests does not change the type of review needed for this permit and therefore was not conducted.

Please note that although the project's emissions are small, a permit is required due to an emissions increase in sulfuric acid mist. There is no exemption emission level stated in 10 CSR 10-6.061 for sulfuric acid mist, and as such, a permit is required.

EMISSIONS/CONTROLS EVALUATION

Emissions from the sulfuric acid anodizing lines were calculated using a method described in a paper presented at the 2000 AESF/SPA Conference for Environmental Excellence, *Characterizing Site Specific Source Emissions for EPA's Risk Assessment Tool for the Metal Finishing Industry* by S. Schwartz and M. Lorber. This paper used a formula to estimate sulfuric acid emissions based on a ratio of the hexavalent chromium emissions and an assumed scrubber efficiency of 90%. The following parameters were used to estimate sulfuric emissions in accordance with the aforementioned formula: concentration of sulfuric acid of 20 ounces per gallon, current density of 0.125 amps per square inch and an assumed cathode efficiency of 95%. Particulate matter emissions from anodizing with sulfuric acid were derived from Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 12.20, *Electroplating* (July 1996). According to Section 12.20, most of the particulate matter emitted during the chromic acid anodizing process is assumed to consist entirely of chromic acid mist. Since there are no emission factors for sulfuric acid anodizing, the same ratio of particulate emissions to chromium compound emissions was used here for particulate to sulfuric acid. The emissions from the sulfuric acid /water tanks are controlled by one of two wet scrubbers which have a minimum control efficiency of 90%. The controlled sulfuric and PM₁₀ emissions of the 4th anodizer alone is equal to 0.002 and 0.004 tons per year, respectively.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit No. 022010-001. Please note that the New Installation Potential Emissions column reported in Table 3 of Permit No. 022010-001 was not based on the most updated, final calculations. The Existing Potential Emissions column below represents the updated numbers including the existing anodizing line emissions that were not previously taken into account in the previous permit. The new installation potential emissions numbers below includes the additional of the 4th anodizing tank. Since the anodizing boilers were accounted for in the existing potential emissions, the only difference between the existing and new installation potential emissions are emissions associated with the 4th anodizer. Existing actual emissions were taken from the 2008 Emission Inventory Questionnaire (EIQ) submittal. Potential emissions of the application represent the potential of the 4th anodizer and the anodizing line boilers, assuming continuous operation (8,760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2008 EIQ)	Potential Emissions of the Application	New Installation Potential Emissions
PM ₁₀	15.0	4.72	5.63	0.27	4.72
SO _x	40.0	0.17	0.03	0.021	0.17
NO _x	40.0	27.89	5.17	3.50	27.89
VOC	40.0	186.44	407.39	2.94	186.44
CO	100.0	23.43	4.34	0.19	23.43
SAM ¹	7.0	0.022	N/D	0.002	0.024
HAPs	10.0/25.0	14.35	N/D	0.13	14.35

N/A = Not Applicable; N/D = Not Determined ¹SAM = sulfuric acid mist

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 all pollutants are below their respective de minimis levels.

APPLICABLE REQUIREMENTS

EFCO - A Pella Company 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*

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

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/without special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated January 25, 2010, received February 1, 2010, designating Pella Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated February 19, 2009.

Mr. Terry Noteboom
Corporate Environmental Leader
EFCO - A Pella Company
102 Main Street
Pella, IA 50219

RE: New Source Review Permit - Project Number: 2010-02-003

Dear Mr. Noteboom:

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 Susan Heckenkamp, at the Departments' 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

Kendall B. Hale
New Source Review Unit Chief

KBH:shl

Enclosures

c: Southwest Regional Office
PAMS File: 2010-02-003

Permit Number: