



Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

4/13/2012

SCOTTY RICHMOND
PCC AIRFOILS, LLC.
3860 UNION AVENUE SE
MINERVA, OH 44657

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1576000096
Permit Number: P0109647
Permit Type: Initial Installation
County: Stark

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, OH 43215

If you have any questions, please contact Canton City Health Department at (330)489-3385 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. This permit can be accessed electronically on the DAPCWeb page, www.epa.ohio.gov/dapc, by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: Canton



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
PCC AIRFOILS, LLC.**

Facility ID:	1576000096
Permit Number:	P0109647
Permit Type:	Initial Installation
Issued:	4/13/2012
Effective:	4/13/2012
Expiration:	1/24/2022



Division of Air Pollution Control
Permit-to-Install and Operate
for
PCC AIRFOILS, LLC.

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Authorization

Facility ID: 1576000096
Application Number(s): A0043990
Permit Number: P0109647
Permit Description: Initial installation of a new 3 mmBtu/hr natural gas-fired mold curing oven and wax incinerator with a 2 mmBtu/hr afterburner.
Permit Type: Initial Installation
Permit Fee: \$200.00
Issue Date: 4/13/2012
Effective Date: 4/13/2012
Expiration Date: 1/24/2022
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

PCC AIRFOILS, LLC.
3860 UNION AVE. S.E.
Minerva, OH 44657

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

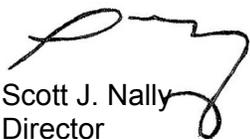
Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Canton City Health Department
420 Market Avenue
Canton, OH 44702-1544
(330)489-3385

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Scott J. Nally
Director



Authorization (continued)

Permit Number: P0109647

Permit Description: Initial installation of a new 3 mmBtu/hr natural gas-fired mold curing oven and wax incinerator with a 2 mmBtu/hr afterburner.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	N007
Company Equipment ID:	Pacific Kiln Mold Firing Furnace #2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is

very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.

10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Canton City Health Department in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting¹ a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

¹Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.

B. Facility-Wide Terms and Conditions

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.

C. Emissions Unit Terms and Conditions



1. N007, Pacific Kiln Mold Firing Furnace #2

Operations, Property and/or Equipment Description:

3.0 mmBtu/hr natural gas-fired Pacific Kiln mold firing furnace #2 equipped with a 2.0 mmBtu/hr afterburner to burn residual wax out of ceramic molds and to cure the molds.

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01 [Best Available Technology (BAT)]	Particulate Emissions less than 10 microns in diameter (PE/PM ₁₀)* shall not exceed 0.50 lbs/hr and 2.20 tons/yr. Visible particulate emissions (VE) from the stack shall not exceed 5 percent opacity as a six-minute average. Nitrogen Oxides (NOx) emissions shall not exceed 0.37 lbs/hr and 1.62 tons/yr. Carbon Monoxide (CO) emissions shall not exceed 0.31 lbs/hr and 1.36 tons/yr. See b)(2)a. and b)(2)b. below

b.	OAC rule 3745-31-05(A)(3), as effective 12/01/06 [Less than 10 ton/yr BAT exemption]	See b)(2)c. below
c.	OAC rule 3745-17-07(A)	See b)(2)e.
d.	OAC rule 3745-17-09(B)	Particulate Emissions (PE) shall not exceed 0.10 pound per 100 pounds of liquid, semi-solid, or solid refuse and salvageable material charged into the incinerator. See b)(2)f. below
e.	OAC rule 3745-17-09(C)	See b)(2)g. below

*All Particulate Emissions (PE) are assumed to be less than 10 microns in diameter.

(2) Additional Terms and Conditions

- a. Compliance with Best Available Technology (BAT), OAC rule 3745-31-05(A)(3), shall be the use of a thermal oxidizer and natural gas fuel firing only in the furnace and thermal oxidizer. Compliance with BAT shall also include compliance with the terms and conditions of this permit.
- b. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.
- c. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE/PM₁₀, NO_x, or CO emissions from this air contaminant source since the uncontrolled potential to emit for PE/PM₁₀, NO_x, or CO is each less than 10 tons/year.
- d. The potential to emit of Sulfur Dioxide (SO₂), Volatile Organic Compounds (VOCs), and Hazardous Air Pollutants (HAPs) emissions from this emissions unit are negligible (less than 0.3 tons per year) and therefore not addressed in this permit.

- e. The VE limitation specified by this rule is less stringent than the VE limitation pursuant to OAC rule 3745-31-05-(A)(3). However, once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan, the VE from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by OAC rule 3745-17-07(A).
 - f. The particulate emissions limitation specified by this rule is equivalent to the particulate emissions limitation pursuant to OAC rule 3745-31-05(A)(3).
 - g. Incinerators, including all associated equipment and grounds, shall be designed, operated, and maintained so as to prevent the emission of objectionable odors.
- c) **Operational Restrictions**
- (1) The permittee shall burn only natural gas as fuel for the furnace and thermal oxidizer.
 - (2) This emissions unit shall be installed, operated, and maintained in accordance with the manufacturer's specifications. The permittee shall make no changes to the manufacturer's factory preset parameters for the emissions unit or physically modify the emissions unit in any way without prior verification from the manufacturer that the change(s) will not adversely affect air contaminant emissions from this unit.
 - (3) The furnace gases shall exhaust to a thermal oxidizer equipped with a temperature sensor and alarm system. The thermal oxidizer shall be operated for the first hour of each cycle whenever molds are being processed in the furnace. When operating, the temperature of the exhaust gases within the thermal oxidizer shall be maintained at a minimum temperature of 1500 degrees Fahrenheit for at least 0.5 seconds residence time.
- After the first hour of each cycle, unless there is a low temperature alarm, the thermal oxidizer does not have to be operated. If a low temperature occurs, the thermal oxidizer shall be kept in continuous operation for a minimum of 1 hour beyond the time of the alarm.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall operate and maintain a continuous temperature sensor and alarm which measures the temperature of the exhaust gases within the thermal oxidizer when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring device shall be capable of accurately measuring the desired parameter. The temperature monitor shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The device shall activate an alarm which alerts the operator to a low temperature condition (<1500 degrees F) in the thermal oxidizer.

- (2) The permittee shall collect and record the following information each day:
- a. the occurrence of a low-temperature episode within the thermal oxidizer during the first hour of each operating cycle and what remedial action was taken to correct the problem;
 - b. a log or record of operating time for the thermal oxidizer, monitoring equipment, and the associated emissions unit; and
 - c. a log or record which shows the number of mold batches charged into the emissions unit each day.
- (3) The permittee shall perform an annual inspection of the thermal oxidizer which shall include, but is not limited to, the following check points:
- a. refractory condition;
 - b. burner condition;
 - c. pressure seals condition;
 - d. shell condition;
 - e. auxiliary fuel piping train; and
 - f. interlocks, electrically operated valves, shutoff dampers, gauges, continuous recorders, and thermocouples.

The permittee shall record notes of the condition(s) for each of the above items and note any corrective actions which were taken to maintain the thermal oxidizer in peak operating condition. The recorded entry shall include the name of the person performing the inspection, date and time, identification of the thermal oxidizer, and signature of the inspector. It is recommended that the forms contained in Ohio EPA's Operation and Maintenance (O&M) Guidelines for Air Pollution Control equipment be used as an aid to compiling the information required for this Condition.

- (4) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (5) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

e) Reporting Requirements

- (1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.
- (2) The permittee shall identify in the PER:
 - a. the date and duration of any period during which a fuel other than natural gas was fired in the furnace and thermal oxidizer;
 - b. the date and duration of any occurrence where the afterburner exhaust gas temperature was below 1500 F during the first hour of any operating cycle; and
 - c. the results of the annual inspection of the thermal oxidizer conducted in accordance with d)(3)above.
- (3) The permittee shall identify the following information in the PER in accordance with the monitoring requirements for visible emissions in section d)above:
 - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. any corrective actions taken to eliminate the visible particulate emissions.
- (4) The information in (2) and (3) above shall be provided within the "Additional Information and Corrections" section of the PER.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b)(1) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation:

Particulate Emissions less than 10 microns in diameter (PE/PM₁₀) shall not exceed 0.50 lbs/hr and 2.20 tons/yr.

Applicable Compliance Method:

The hourly emissions rate was established by multiplying the emissions limitation pursuant to OAC rule 3745-17-09(B) of 0.10 pound PE/100 pounds of material charged by the maximum charging rate of 1428 pounds of material/batch and dividing by the processing time of 3 hrs/batch, as shown below. All PE is assumed to be to be less than 10 microns in diameter.

$$[(0.10 \text{ lbs PE}) \div (100 \text{ lbs})] \times (1428 \text{ lbs/batch}) \div 3 \text{ hrs/batch} = 0.48 \approx 0.50 \text{ lbs PE/hr}$$

If required, compliance shall be demonstrated by stack emissions testing performed in accordance with the test methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5, for total filterable PE, and 40 CFR Part 51, Appendix M, Method 202 for condensable PE. Alternative U.S. EPA approved test methods may be used with prior approval from the appropriate Ohio EPA District Office or local air agency.

The annual limitation was established by multiplying the hourly emission limitation by the maximum operating schedule of 8760 hrs/yr and dividing by 2000 lbs/ton, as shown below.

$$(0.50 \text{ lbs PE/hr}) \times (8760 \text{ hrs/yr}) \div (2000 \text{ lbs/ton}) = 2.20 \text{ tons PE/yr}$$

Therefore compliance with the hourly PE/PM₁₀ emissions limitation demonstrates compliance with the annual PE/PM₁₀ emissions limitation.

b. Emissions Limitation:

Visible particulate emissions from any stack shall not exceed 5 percent opacity as a six-minute average (per b)(1)a. above).

Visible particulate emissions from any stack shall not exceed 20 percent opacity as a six-minute average, except as specified by OAC rule 3745-17-07(A) (per b)(1)c. above).

Applicable Compliance Method:

If required, compliance with the applicable stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

c. Emissions Limitation:

Nitrogen Oxides (NO_x) emissions shall not exceed 0.37 lbs/hr and 1.62 tons/yr.

Applicable Compliance Method:

The hourly emission limitation was established by setting the limit equal to the maximum potential to emit. The maximum potential to emit for this emission unit was calculated using the method below.

Per the application, each batch is a minimum of 3 hours long, which represents the maximum production rate. Natural gas combustion is the only source of NO_x emissions. For the 3-hr batch process, the maximum average natural gas heat input to the oven is 3 mmBtu/hr x 3 hrs = 9 mmBtu/batch. The afterburner fires only during the first hour of the batch, therefore the heat input to the afterburner is 2 mmBtu/hr x 1 hr = 2 mmBtu/batch. The total heat input to the emissions unit is:

$$[(9 \text{ mmBtu/batch}) + (2 \text{ mmBtu/batch})] \div (3 \text{ hr/batch}) = 3.67 \text{ mmBtu/hr}$$

The hourly NO_x emissions were calculated using the following formula:

$$\text{hourlyNO}_x = (\text{total heat input} \div \text{natural gas heating value}) \times \text{EF}$$

where,

$$\text{total heat input} = 3.67 \text{ mmBtu/hr,}$$

$$\text{natural gas heating value} = 1000 \text{ Btu/scf, and}$$

EF = Emissions Factor of 100 lbNO_x/mmscf from AP-42, "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98).

$$(3.67 \text{ mmBtu/hr}) \div (1000 \text{ Btu/scf}) \times (100 \text{ lbNO}_x/\text{mmscf}) = 0.37 \text{ lbsNO}_x/\text{hr}$$

If required, the permittee shall demonstrate compliance with the hourly emission limitation through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1- 4, and 7.

The annual limitation was established by multiplying the hourly emission limitation by the maximum operating schedule of 8760 hrs/yr and dividing by 2000 lbs/ton, as shown below.

$$(0.37 \text{ lbsNO}_x/\text{hr}) \times (8760 \text{ hrs/yr}) \div (2000 \text{ lbs/ton}) = 1.62 \text{ tons NO}_x/\text{yr}$$

Therefore compliance with the hourly NO_x emissions limitation demonstrates compliance with the annual NO_x emissions limitation.

d. Emissions Limitation:

Carbon Monoxide (CO) emissions shall not exceed 0.31 lbs/hr and 1.36 tons/yr.

Applicable Compliance Method:

The hourly emission limitation was established by setting the limit equal to the maximum potential to emit. The maximum potential to emit for this emission unit was calculated using the method below.

Per the application, each batch is a minimum of 3 hours long, which represents the maximum production rate. Natural gas combustion is the only source of non-negligible CO emissions. For the 3-hr batch process the maximum average natural gas heat input to the oven is 3 mmBtu/hr x 3 hrs = 9 mmBtu/batch. The afterburner fires only during the first hour of the batch, therefore the heat input to the afterburner is 2 mmBtu/hr x 1 hr = 2 mmBtu/batch. The total heat input to the emissions unit is:

$$[(9 \text{ mmBtu/batch}) + (2 \text{ mmBtu/batch})] \div (3 \text{ hr/batch}) = 3.67 \text{ mmBtu/hr}$$

The hourly CO emissions were calculated using the following formula:

$$\text{hourly CO} = (\text{total heat input} \div \text{natural gas heating value}) \times \text{EF}$$

where,

$$\text{total heat input} = 3.67 \text{ mmBtu/hr,}$$

$$\text{natural gas heating value} = 1000 \text{ Btu/scf, and}$$

EF = Emissions Factor of 84 lb CO/mmscf from AP-42, "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98).

$$(3.67 \text{ mmBtu/hr}) \div (1000 \text{ Btu/ scf}) \times (84 \text{ lb CO/mmscf}) = 0.31 \text{ lbs CO/hr}$$

If required, the permittee shall demonstrate compliance with the hourly emission limitation through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1- 4, and 10.

The annual limitation was established by multiplying the hourly emission limitation by the maximum operating schedule of 8760 hrs/yr and dividing by 2000 lbs/ton, as shown below.

$$(0.31 \text{ lbs CO/hr}) \times (8760 \text{ hrs/yr}) \div (2000 \text{ lbs/ton}) = 1.36 \text{ tons CO/yr}$$

Therefore compliance with the hourly CO emissions limitation demonstrates compliance with the annual CO emissions limitation.

e. Emissions Limitation:

Particulate Emissions (PE) shall not exceed 0.10 pound per 100 pounds of liquid, semi-solid, or solid refuse and salvageable material charged into the incinerator.

Applicable Compliance Method:

Compliance is demonstrated with this rule based emission limit by comparing the limit to the maximum potential to emit for this emission unit. The maximum potential to emit for this emission unit was calculated using the method below.

The PE emissions were calculated using the following formula:

$$PE = W_{wax} \times EF$$

Where,

W_{wax} = the weight of the wax burned, which is a maximum of 9.33 lb/hr as shown below.

EF = the Emissions Factor of 0.010 lb PE/ lb wax incinerated taking into account the use of the afterburner control equipment. This emission factor is a site-specific, production-based emission factor calculated using the results of stack testing performed on similar emissions units, N004 and N005 on the dates of 1/24/1991 and 8/12/1999 respectively. Since the EF is based on stack testing results, the portion of PE from the natural gas combustion is already included in the EF value.

$$PE = (9.333 \text{ lbs wax/hr}) \times (0.010 \text{ lb PE/ lb wax}) = 0.093 \text{ lb PE/hr}$$

Per the application: the maximum amount of residual wax per mold is 1 lb; the maximum amount of molds per batch are 28 (based on the mold type having the capability of containing 1 lb of residual wax); and the minimum batch time is 3 hours long, which represents the maximum production rate. Therefore, the maximum residual wax is:

$$(28 \text{ molds/batch}) \times (1 \text{ lb wax/mold}) \div (3 \text{ hrs/batch}) = 9.333 \text{ lbs wax/hr}$$

To calculate the maximum amount of material charged into the incinerator, the sum of the weight of the molds and the weight of wax was used. Per the application, the maximum weight per mold is 50 lbs, based on the mold type having the capability of containing 1 lb of residual wax. Using that information and the information above, the maximum material is equal to:

$$(28 \text{ molds/batch}) \times [(50 \text{ lbs/mold}) + (1 \text{ lb wax/mold})] = 1428 \text{ lbs/batch}$$

This is equivalent to:

$$1428 \text{ lbs/batch} \div 3 \text{ hrs/batch} = 476 \text{ lbs material/hr.}$$

The ratio of total PE to material charged based on potential to emit is:

$$0.093 \text{ lb PE/hr} \div 476 \text{ lbs material/hr} = 0.02 \text{ lb PE/100 lbs material.}$$

Because 0.02 lb PE/100 lbs material potential to emit is less than the 0.10 lb PE/100 lb material emission limitation, compliance with this limit is demonstrated.

If required, compliance shall be demonstrated by stack emissions testing performed in accordance with the test methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5, for total filterable PE, and 40 CFR Part 51, Appendix M, Method 202 for condensable PE. Alternative U.S. EPA approved test methods may be used with prior approval from the appropriate Ohio EPA District Office or local air agency.

f. Emissions Limitation:

Incinerators, including all associated equipment and grounds, shall be designed, operated, and maintained so as to prevent the emission of objectionable odors.

Applicable Compliance Method:

Compliance shall be demonstrated by operating the thermal oxidizer in accordance with the manufacturer's operating instructions and by the monitoring and record keeping requirements in Section d).

g) Miscellaneous Requirements

(1) None.