



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

Certified Mail

8/6/2015

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

Mr. Robert Buchanan
 Vesuvius USA Corp. - Conneaut Plant
 1100 Maple Avenue
 Conneaut, OH 44030

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0204020036
 Permit Number: P0104376
 Permit Type: Renewal
 County: Ashtabula

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) 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. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTIO 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
 77 South High Street, 17th Floor
 Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)963-1200 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: Ohio EPA-NEDO



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
Vesuvius USA Corp. - Conneaut Plant**

Facility ID:	0204020036
Permit Number:	P0104376
Permit Type:	Renewal
Issued:	8/6/2015
Effective:	8/6/2015
Expiration:	8/6/2020



Division of Air Pollution Control
Permit-to-Install and Operate
for
Vesuvius USA Corp. - Conneaut Plant

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Final Permit-to-Install and Operate
Vesuvius USA Corp. - Conneaut Plant
Permit Number: P0104376
Facility ID: 0204020036
Effective Date: 8/6/2015

Authorization

Facility ID: 0204020036
Application Number(s): A0014727, A0036501
Permit Number: P0104376
Permit Description: FEPTIO Renewal permit for minerals production processes P022, P044, P049, P050, P053, P054, P055, P057 and P058.
Permit Type: Renewal
Permit Fee: \$0.00
Issue Date: 8/6/2015
Effective Date: 8/6/2015
Expiration Date: 8/6/2020
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Vesuvius USA Corp. - Conneaut Plant
1100 MAPLE AVE
Conneaut, OH 44030

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

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)963-1200

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


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0104376

Permit Description: FEPTIO Renewal permit for minerals production processes P022, P044, P049, P050, P053, P054, P055, P057 and P058.

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

Emissions Unit ID:	P022
Company Equipment ID:	South Tower Oven
Superseded Permit Number:	02-9892
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P044
Company Equipment ID:	'C' Mixer
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P049
Company Equipment ID:	Super sack bagger
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P050
Company Equipment ID:	Afax 6 Silos, 4 Hoppers, transfer system
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P053
Company Equipment ID:	Afax Bagger for Dry "GR" product (GR=Granular)
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P054
Company Equipment ID:	P054
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P055
Company Equipment ID:	PO55
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P057
Company Equipment ID:	PO57
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P058
Company Equipment ID:	mixer & kiln
Superseded Permit Number:	02-21680
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
Vesuvius USA Corp. - Conneaut Plant
Permit Number: P0104376
Facility ID: 0204020036
Effective Date: 8/6/2015

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. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. 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 of this permit 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 [DO/LAA] 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 submitting 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 emission 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.

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.



Final Permit-to-Install and Operate
Vesuvius USA Corp. - Conneaut Plant
Permit Number: P0104376
Facility ID: 0204020036
Effective Date: 8/6/2015

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) B.2. through B.4.
2. Federal Requirements for Major Sources of Hazardous Air Pollutant (HAP) Emissions
 - a) This facility is a refractory products manufacturing facility, as defined in 40 CFR §63.9782(a), which is a plant site that manufactures refractory products (refractory bricks, refractory shapes, monolithics, kiln furniture, crucibles, and other materials used for lining furnaces and other high temperature process units), as defined in 40 CFR§63.9824. Refractory products manufacturing facilities typically process raw material by crushing, grinding, and screening; mixing the processed raw materials with binders and other additives; forming the refractory mix into shapes; and drying and firing the shapes.

The facility is not a major source of hazardous air pollutant (HAP) emissions, which is a plant site that emits or has the potential to emit any individual HAP at a rate of 9.07 megagrams (10 tons) or more per year or total combined HAP at a rate of 22.68 megagrams (25 tons) or more per year. As an area source of HAP emissions the facility is not subject to 40 CFR Part 63, Subpart SSSSS National Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing.

Once this facility equals or exceeds the 10 tons per year or more of single HAP emissions threshold or the 25 tons or more of total combined HAP emissions per year threshold(s) of a major HAP source, it is always subject to the requirements of 40 CFR Part 63, Subpart SSSSS and any applicable requirements in 40 CFR Part 63, Subpart A.
3. Monitoring and/or Recordkeeping Requirements
 - a) Individual HAP emissions and total combined HAPs are emitted from the following emissions units:
 - (1) (P022) 6.5 mmBtu/hr. natural gas, indirectly fired south tower oven for mineral and resin drying and curing for refractory products;
 - (2) (P044) FOSCAST C mixer for mineral powder mixtures: materials loading via an elevated conveyor with DSC #1 baghouse to control particulate emissions (PE); and transfer to a bag filling station with DC #2 baghouse to control PE;
 - (3) (P049) AFAX Granular minerals (metallic and non-metallic) spray dryer and bulk bagging: product transfer (slurry) to hopper (cyclone discharge); hopper transfer to a

pressurized vibrating tube (spray tower product discharge); and granular products conveying for cooling to super sack bagging. Each process operation is vented to DSC-P049 baghouse to control particulate and manganese emissions;

- (4) (P050) 8 pneumatically filled AFAX raw material silos which discharge to either one of 2 weigh hoppers which feed 2 pneumatic transporters. Each silo uses a bin vent filter to control particulate emissions (PE). Each of the weigh hoppers (WH100 & WH700) use a filter to control PE during filling;
- (5) (P053) AFAX granular bag filling: Materials transfer to hopper/transporter; and hopper/transporter transfer to silo, each of which vent to the BVF - P053 silo bin vent filters to control particulate emissions (PE). Materials transfer from the silo to the bag filling station which vents to the DSC-P053 baghouse to control particulate emissions;
- (6) (P054) AFAX powder mixing, loading, and bagging: pneumatic materials transfer from bulk silo(s) to powder bin(s), pneumatic transfer from minor raw station to powder bin, and pneumatic materials transfer from the mixer to a silo hopper, each with a BVF - P054 bin vent filter to control particulate emissions (PE). Materials transfer from the powder bin to a mixer; and materials transfer from the silo hopper to the bagging station, each are vented to the DSCP054 baghouse to control PE;
- (7) (P055) AFAX Spray Tower System: Auto-batch system that dispenses raw materials with a DC Autobatch dust collector to control particulate emissions (PE); materials feed from silos to east & west (pulpers) mixers with a DSC-P055A baghouse to control PE; 11.7 mmBtu/hr. natural gas indirectly fired mineral slurry spray dryer with an inline cyclone and a CYCP055 wet scrubber to control PE; materials transfer via a scalping conveyor to the fluidized bed cooling table and discharge from the cooling table to a weigh conveyor with a DSC-P055B dust collector to control PE;
- (8) (P057) Ladle liner manufacturing: manual feed of mineral materials to the pre-weigh station with DSC-P057 baghouse to control particulate emissions (PE); transfer of dry batch materials from the pre-weigh station to the (pulpers) slurry mixers with DSCP057A baghouse to control PE; and a 6.5 mmBtu/hr. indirectly fired natural gas north tower oven for mineral and resin drying and curing for refractory products;
- (9) (P058) Ladle liner tile line: materials feed to a mixer with DSC-P058 baghouse to control particulate emissions;
- (10) (P059) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 1;
- (11) (P060) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 2;
- (12) (P061) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 3;
- (13) (P062) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 4;
- (14) (P063) 6.3 mmBtu/hr. natural gas fired refractory shapes dryer no. 5;
- (15) (P064) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 6;
- (16) (P065) 2.2 mmBtu/hr. natural gas fired refractory shapes dryer no. 7; and

(17) (P066) 3.0 mmBtu/hr. natural gas fired refractory shapes dryer no. 8.

- b) The permittee shall maintain annual records of the following information for each emissions unit listed in 3.a)(1) through 3.a)(8) and any new HAP emitting emissions unit as well as the facility-wide total of the following information:
- (1) the individual HAP emissions for each HAP, in tons per year, as determined in C.1.f)(1)d, C.3.f)(1)d, C.5.f)(1)d, C.6.f)(1)e, C.7.f)(1)g, and C.8.f)(1)f and
 - (2) the total combined HAP emissions, in tons per year.

4. Reporting Requirements

- a) The permittee shall submit annual HAP emissions reports for each emissions unit listed in B.3.a)(1) through B.3.a)(8) and any new HAP emitting emissions unit as well as the facility-wide total that identify the following:
- (1) the individual HAP emissions for each HAP, in tons per year; and
 - (2) the total combined HAP emissions, in tons per year.

The annual HAP emissions report shall be submitted electronically through the Ohio EPA's "e-Business Center: Air Services".



Final Permit-to-Install and Operate
Vesuvius USA Corp. - Conneaut Plant
Permit Number: P0104376
Facility ID: 0204020036
Effective Date: 8/6/2015

C. Emissions Unit Terms and Conditions



1. P022, South Tower Oven

Operations, Property and/or Equipment Description:

- a) 6.5 mmBtu/hr. natural gas, indirectly fired south tower oven for mineral and resin drying and curing for refractory products.

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), PTI 02-9892, issued on January 24, 1996 for the modification of emissions unit P022.	<p>Particulate emissions (PE) from all operations shall not exceed 0.33 lb/hr and 1.46 tons/yr.</p> <p>Volatile organic compound (VOC) emissions from all operations shall not exceed 8.3 tons/yr.</p> <p>Nitrogen oxides (NO_x) emissions from all operations shall not exceed 2.85 tons/yr.</p>
b.	OAC rule 3745-17-07(A)	Visible PE from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
c.	OAC rule 3745-17-10(B)	The emission limitation specified by this rule is applicable to the natural gas oven if materials are indirectly heated and is less stringent than the emission limitation



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		established pursuant to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily 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 minimize or 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 daily 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.

(2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions

checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1):
 - 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 minimize or eliminate the visible particulate emissions.

f) Testing Requirements

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

Visible PE from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE from all operations shall not exceed 0.33 lb/hr and 1.46 tons/yr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, uncontrolled hourly particulate emissions from the material curing and natural gas combustion:

$$PE(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF$$

where:

PE(HR) = the maximum, uncontrolled particulate emissions from the material curing and natural gas combustion operations that vent to the same stack egress and were estimated to be 0.12 lb PE/hr.

PWR = the maximum process weight rate of the operation, which is 1200 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF = the factor for uncontrolled pollutant emissions, which is 0.2 lb PE_{UNCTRL}/ton_{FEED} from U.S. EPA's WebFIRE database for a curing oven for castable refractory products (SCC 30500504).

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- ii. Determination of the maximum, uncontrolled annual emissions from the material curing and natural gas combustion:

$$PE(YR) = PE(HR) \times ton_{PE}/2000 \text{ lbs PE} \times 8760 \text{ hrs/yr}$$

where:

PE(YR) = the maximum, uncontrolled, annual particulate emissions from the material curing and natural gas combustion operations which were estimated to be 0.52 ton PE/yr.

c. Emission Limitation:

VOC emissions from all operations shall not exceed 8.3 tons/yr.



Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{VOC(YR)} = \text{VOC(HR)} \times \text{tonVOC}/2000 \text{ lbs VOC} \times 8760 \text{ hrs/yr}$$

where:

VOC(YR) = the maximum, uncontrolled, annual VOC emissions from the material curing and natural gas combustion operations which were estimated to be 0.52 ton VOC/yr.

VOC(HR) = an emissions rate of 0.12 lb VOC/hr as propane, derived from exhaust gas testing of a similar emissions unit, (P057) 6.5 mmBtu/hr natural gas, direct fired "north tower" oven for mineral and resin drying and curing for refractory products, via U.S. EPA Methods 1 through 4 and 25, conducted on December 14, 2006. During the sample runs a solid phenolic resin, Durite® RD-183D, which has no VOC content and no HAP content, was used at an average rate of 70.09 lbs/hr. However, a November 9, 2006 Hexion Specialty Chemicals materials safety data sheet for Durite® RD-183D states that decomposition products may include the following: carbon monoxide, carbon dioxide, aldehydes including formaldehyde, phenols, hydrogen cyanide, ammonia, particulate matter and other organic compounds including benzo[a]pyrene. The oven egress associated with P057 also includes VOC emissions, a product of natural gas fuel combustion, as does the oven egress associated with emissions unit P022.

If required, the permittee shall demonstrate compliance with the emissions limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 25. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Estimation Method:

The emissions of formaldehyde (HCHO), a hazardous air pollutant (HAP), from all processes shall be estimated.

Applicable Compliance Method:

The worst case emission estimates may be based on the following equation:

$$\text{HCHO(YR)} = \text{HCHO(HR)} \times \text{tonHCHO}/2000 \text{ lbs HCHO} \times 8760 \text{ hrs/yr}$$

where:

HCHO(YR) = the maximum, uncontrolled, annual HCHO emissions from the material curing and natural gas combustion operations which were estimated to be 0.017 ton HCHO/yr.

HCHO(HR) = An average emissions rate of 0.0038 lb/hr of formaldehyde was determined from exhaust gas testing of P057, via U.S. EPA Methods 1 through 4

and 316, conducted on December 14, 2006. During the sample runs a solid phenolic resin, Durite® RD-183D, which has no VOC content and no HAP content, was used at an average rate of 70.09 lbs/hr. A November 9, 2006 Hexion Specialty Chemicals materials safety data sheet for Durite® RD-183D states that decomposition products may include the following: carbon monoxide, carbon dioxide, aldehydes including formaldehyde, phenols, hydrogen cyanide, ammonia, particulate matter and other organic compounds including benzo[a]pyrene.

e. Emission Limitation:

NO_x emissions from all operations shall not exceed 2.85 tons/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{NO}_x(\text{YR}) = H \times \text{scf}/1020 \text{ Btu} \times \text{EF} \times 8760 \text{ hrs/yr} \times \text{ton NO}_x/2000 \text{ lbs NO}_x$$

where:

NO_x(YR) = the NO_x emissions rate from the combustion of natural gas fuel and is estimated to be 2.79 tons/yr.

H= maximum rated heat input, in million Btu/hr of the oven burner, which is 6.5 mmBtu/hr as stated in the application for PTIO P0104376.

EF = the factor for the NO_x emissions which 100 lbs NO_x per million standard cubic feet of natural gas combusted from Table 1.4-1, AP42 Chap 1.4 (7/1998).

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

g) Miscellaneous Requirements

(1) None.

2. P044, 'C' Mixer

Operations, Property and/or Equipment Description:

FOSCAST C mixer for mineral powder mixtures: materials loading via an elevated conveyor with DSC #1 baghouse to control particulate emissions (PE); and transfer to a bag filling station with DSC #2 baghouse to control PE.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	<p><u>Materials feed to mixer</u> Visible particulate emissions (PE) from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from these operations shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr/dscf), 0.77 lb/hr and 3.38 tons/yr. See c)(1).</p> <p><u>Materials transfer from mixer to bag filling station</u> Visible PE from the stack serving this</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		process operation shall not exceed 0% opacity as a 6-minute average. PE and PM ₁₀ emissions from these operations shall not exceed 0.03 gr/dscf, 0.77 lb/hr and 3.38 tons/yr. See c)(2).
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is applicable to all stacks and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is applicable to the materials feed process and the materials transfer process and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC #1 baghouse, which serves the materials feed to mixer process, is between 3.5 to 9.5 inches of water.
- (2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range established for the pressure drop across the DSC #2 baghouse, which serves the materials transfer process, is between 2.0 to 8.0 inches of water.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
 - b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and

- d. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
- (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSC #1 baghouse and the DSC #2 baghouse when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control device(s) identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;

- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the control device(s) is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) and d)(2):
 - a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;

- c. any corrective actions taken to eliminate the visible particulate emissions;
- d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
- e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
- f. each incident of deviation described in “e” (above) where a prompt investigation was not conducted;
- g. each incident of deviation described in “e” where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
- h. each incident of deviation described in “e” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

- a. Emission Limitation:

Visible PE shall not exceed 0% opacity as a 6-minute average from the stack(s) serving this emissions unit.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

- b. Emission Limitation:

PE and PM₁₀ emissions shall not exceed 0.03 gr/dscf and 0.77 lb/hr from the materials feed process.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions:

$$PE/PM_{10}(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$



where:

PE(HR) = the maximum, controlled PE rate from the materials feed process, which was estimated to be 2.15×10^{-2} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the materials feed process, which was estimated to be 5.9×10^{-3} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is

7500 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.572 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

EF_{PM₁₀} = the factor for uncontrolled pollutant emissions, which is 0.156 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM₁₀ emissions concentration from the materials feed process :

$$\text{PE/PM}_{10}(\text{gr/dscf}) = \text{PE/PM}_{10}(\text{HR}) \times 7000 \text{ gr PE/PM}_{10}/\text{lb PE/PM}_{10} \times 1/Q \\ \times \text{hr}/60 \text{ min}$$

where:

PE(gr/dscf) = the maximum, controlled PE concentration rate from the materials feed process, which was estimated to be 8.36×10^{-4} gr/dscf.

PM₁₀(gr/dscf) = the maximum, controlled PM₁₀ concentration rate from the materials feed process, which was estimated to be 2.29×10^{-4} gr/dscf.

PE/PM₁₀(HR) = the maximum, controlled hourly PE rate and PM₁₀ emissions rates as determined in f)(1)b.i.

Q = the maximum flow from the baghouse egress, which is 3000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the materials feed DSC #1 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A,

Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

PE and PM₁₀ emissions shall not exceed 0.03 gr/dscf and 0.77 lb/hr from the materials transfer process.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions:

$$PE/PM_{10}(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$

where:

PE(HR) = the maximum, controlled PE rate from the materials transfer process, which was estimated to be 2.59×10^{-4} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the materials transfer process, which was estimated to be 1.24×10^{-4} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 7500 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0069 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

EF_{PM10} = the factor for uncontrolled pollutant emissions, which is 0.0033 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM₁₀ emissions concentration from the materials transfer process:

$$PE/PM_{10}(gr/dscf) = PE/PM_{10}(HR) \times 7000 \text{ gr PE/PM}_{10}/\text{lb PE/PM}_{10} \times 1/Q$$

$$\times \text{hr}/60 \text{ min}$$

where:

PE(gr/dscf) = the maximum, controlled PE concentration rate from the materials transfer process, which was estimated to be 1.01×10^{-5} gr/dscf.



$PM_{10}(gr/dscf)$ = the maximum, controlled PM_{10} concentration rate from the materials transfer process, which was estimated to be 4.82×10^{-6} gr/dscf.

$PE/PM_{10}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)c.i.

Q = the maximum flow from the baghouse egress, which is 3000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the materials transfer DSC #2 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

PE/PM_{10} emissions shall not exceed 3.38 tons/yr from the materials feed process.

PE/PM_{10} emissions shall not exceed 3.38 tons/yr from the materials transfer process.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant(YR)} = \text{Pollutant(HR)} \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

Pollutant(YR) = the maximum, annual pollutant emissions which were estimated to be the following rates for the specified process operations.

9.4×10^{-2} ton/yr PE and 2.6×10^{-2} ton/yr PM_{10} emissions from the materials feed process.

1.1×10^{-3} ton/yr PE and 5.4×10^{-4} ton/yr PM_{10} emissions from the materials transfer process.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b. through f)(1)c.

g) Miscellaneous Requirements

(1) None.

3. P049, Super sack bagger

Operations, Property and/or Equipment Description:

AFAX Granular minerals (metallic and non-metallic) spray dryer and bulk bagging: product transfer (slurry) to hopper (cyclone discharge); hopper transfer to a pressurized vibrating tube (spray tower product discharge); and granular products conveying for cooling to super sack bagging. Each process operation is vented to DSC-P049 baghouse to control particulate and manganese emissions.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	<p>Visible particulate emissions (PE) from the stack serving this emissions unit shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from this emissions unit shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr./dscf), 1.29 lbs/hr and 5.63 tons/yr. See c)(1).</p> <p>Manganese emissions shall not exceed 0.08 lb/hr and 0.37 ton/yr. See c)(1).</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC-P049 baghouse, which serves the materials transfer to hopper process, the materials transfer to vibrating tube process and the materials transfer to super sack process is between 1.5 to 9.9 inches of water.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily checks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
- b. the color of the emissions;
- c. the total duration of any visible emissions incident; and
- d. any corrective actions taken to eliminate the visible emissions.

(2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

(3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSC-P049 baghouse when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop

across the control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control device(s) identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the control device is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained

during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) and d)(2):
 - a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;
 - d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
 - e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
 - f. each incident of deviation described in "e" (above) where a prompt investigation was not conducted;
 - g. each incident of deviation described in "e" where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and

- h. each incident of deviation described in “e” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack serving this emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and the PM₁₀ emissions from this emissions unit shall not exceed 0.03 gr/dscf and 1.29 lbs/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from all materials transfer processes combined:

$$PE_{TOTAL}/PM_{10\ TOTAL}(HR) = \sum(PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF)_i \times (1 - CE)$$

where:

PE_{TRANSFER}(HR)_i = the maximum, controlled PE rate from each materials transfer process, which was estimated to be 1.69 x 10⁻⁴ lb PE/hr.

PE_{TOTAL}(HR) = the maximum, controlled PE rate from all three materials transfer processes combined, which was estimated to be 5.07 x 10⁻⁴ lb PE/hr.

PM_{10 TRANSFER}(HR)_i = the maximum, controlled PM₁₀ emissions from each materials transfer process, which was estimated to be 8.08 x 10⁻⁵ lb PM₁₀/hr.



$PM_{10\text{ TOTAL}}(\text{HR})$ = the maximum, controlled PM_{10} emissions from all three materials transfer processes combined, which was estimated to be 2.42×10^{-4} lb PM_{10}/hr .

PWR = the maximum process weight rate of the operation, which is 4900 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0069 lb $PE_{UNCTRL}/\text{ton}_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0033 lb $PM_{10\text{ UNCTRL}}/\text{ton}_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from all materials transfer processes combined:

$$PE/PM_{10\text{ TOTAL}}(\text{gr/dscf}) = \sum (PE/PM_{10}(\text{HR}) \times 7000 \text{ gr } PE/PM_{10}/\text{lb } PE/PM_{10} \times 1/Q \times \text{hr}/60 \text{ min})_i$$

where:

$PE(\text{gr/dscf})_i$ = the maximum, controlled PE concentration rate from each materials transfer process, which was estimated to be 1.18×10^{-5} gr/dscf.

$PE(\text{gr/dscf})_{\text{TOTAL}}$ = the maximum, controlled PE concentration rate from all three materials transfer processes combined, which was estimated to be 7.27×10^{-4} gr/dscf.

$PM_{10}(\text{gr/dscf})_i$ = the maximum, controlled PM_{10} concentration rate from each materials transfer process, which was estimated to be

$$5.65 \times 10^{-6} \text{ gr/dscf.}$$

$PM_{10}(\text{gr/dscf})_{\text{TOTAL}}$ = the maximum, controlled PM_{10} concentration rate from all three materials transfer processes combined, which was estimated to be 1.69×10^{-5} gr/dscf.

$PE/PM_{10\text{ TOTAL}}(\text{HR})$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)b.i.

Q = the maximum flow from the baghouse egress, which is 5000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the DSC P049 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the

methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

Manganese emissions shall not exceed 0.08 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$Mn_{TOTAL}(HR) = PE_{TOTAL}(HR) \times W_{Mn}$$

where:

$Mn_{TOTAL}(HR)$ = the maximum, controlled manganese emissions rate from all three materials transfer processes combined, which was estimated to be 3.3×10^{-5} lb Mn/hr.

$PE_{TOTAL}(HR)$ = the maximum, controlled hourly PE rate as determined in f)(1)b.i.

W_{Mn} = the maximum manganese content of the materials, as a decimal fraction 0.065 lb Mn/lb. PE, assuming a 6.5% manganese content in the feed materials, as stated in the application for PTIO P0104376.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 29. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

PE and PM_{10} emissions from this emissions unit shall not exceed 5.63 tons/yr.

Manganese emissions shall not exceed 0.37 ton/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant}(YR) = \text{Pollutant}(HR) \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

$\text{Pollutant}(YR)$ = the maximum, annual pollutant emissions which were estimated to be the following rates:

2.2×10^{-3} ton/yr PE;

1.1×10^{-3} ton/yr PM_{10} emissions; and



1.4×10^{-4} ton/yr Mn emissions.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b and f)(1)c.

g) Miscellaneous Requirements

(1) None.

4. P050, Afax 8 Silos, 4 Hoppers, transfer system

Operations, Property and/or Equipment Description:

8 pneumatically filled AFAX raw material silos which discharge to either one of 2 weigh hoppers which feed 2 pneumatic transporters. Each silo uses a bin vent filter to control particulate emissions (PE). Each of the weigh hoppers (WH100 & WH700) use a filter to control PE during filling.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	Visible particulate emissions (PE) from the stack(s) serving this emissions unit shall not exceed 0% opacity as a 6-minute average. PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM ₁₀) from this emissions unit shall not exceed 0.23 lb/hr and 1.01 tons/yr. See b)(2)a and b(2)b. See c)(1).
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The permittee shall employ the following best available control measures for the aforementioned silos for the purpose of ensuring compliance with the above-mentioned applicable requirements:
 - i. Materials shall be transferred pneumatically to the silos. The pneumatic system shall be adequately enclosed so as to eliminate at all times visible emissions of fugitive dust. Any visible emissions of fugitive dust emanating from the delivery vehicle during transfer shall be cause for the immediate halt of the unloading process and the refusal of the materials load until the situation is corrected.
 - ii. Each silo vent shall be adequately enclosed and vented to a fabric filter. The enclosure shall be sufficient so as to eliminate at all times visible emissions of fugitive dust at the point of capture.
- b. The permittee shall employ the following best available control measures for the WH100 and WH700 weigh hoppers for the purpose of ensuring compliance with the above-mentioned applicable requirements:
 - i. The weigh hoppers shall be sufficiently enclosed so as to minimize or eliminate at all times visible emissions of fugitive dust.
 - ii. The transfer of materials to the weigh hoppers shall be enclosed and vented to a bin vent filter. The enclosure shall be sufficient so as to minimize or eliminate at all times visible emissions of fugitive dust at the point of capture.

c) Operational Restrictions

- (1) The permittee shall employ no manganese-containing materials in this emissions unit.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;

- b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and
 - d. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
- (3) For each day during which the permittee employs manganese-containing material the permittee shall maintain a record of the quantity of manganese-containing materials employed in this emissions unit.
- e) Reporting Requirements
- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) and d)(2):
- a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;

- d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
- e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
- f. each day when a manganese-containing material was employed in this emissions unit;
- g. each incident of deviation described in “e and f” (above) where a prompt investigation was not conducted;
- h. each incident of deviation described in “e” where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken;
- i. each incident of deviation described in “f” where prompt corrective action, that would minimize or eliminate manganese emissions, was determined to be necessary and was not taken; and
- j. each incident of deviation described in “e and f” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and PM₁₀ emissions from this emissions unit shall not exceed 0.23 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the silo load-in process:

$$PE/PM_{10}(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$

where:

PE(HR) = the maximum, controlled PE rate from the load-in process, which was estimated to be 6.86×10^{-2} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the load-in process, which was estimated to be 4.42×10^{-2} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 18,800 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.73 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for pneumatic loading of cement operation at a concrete batch plant.

EF_{PM10} = the factor for uncontrolled pollutant emissions, which is 0.47 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for pneumatic loading of cement at a concrete batch plant.

CE = control efficiency of the silo bin vent filter control device(s), which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the silo discharge to the weigh hoppers (WH100 and WH700):

$$PE/PM_{10}(HR) = \sum PWR_i/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF_i \times (1 - CE_i)$$

where:

PE(HR)_{WH100 + WH700} = the maximum, controlled PE rate from both processes combined, which was estimated to be 4.52×10^{-4} lb PE/hr.

PM₁₀(HR)_{WH100 + WH700} = the maximum, controlled PM₁₀ emissions from both processes combined, which was estimated to be 2.64×10^{-4} lb PM₁₀/hr.

PE(HR) = the maximum, controlled PE rate from each process, which was estimated to be 2.26×10^{-4} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from each process, which was estimated to be 1.32×10^{-4} lb PM₁₀/hr.

PWR = the maximum process weight rate of each operation, which is 9400 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.



EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0048 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for weigh hopper loading of cement operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0028 lb $PM_{10 UNCTRL}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for weigh hopper loading of cement at a concrete batch plant.

CE = control efficiency of the filter control device(s), which is 0.99 (99%) as specified in the application for PTIO P0104376.

- iii. Determination of the maximum, controlled hourly PE rate and PM_{10} emissions from all process operations:

$$PE/PM_{10 \text{ TOTAL}}(HR) = \sum PE/PM_{10}(HR)_i$$

where:

$PE_{TOTAL}(HR)$ = the maximum controlled PE rate from all operations, which was estimated to be 6.91×10^{-2} lb PE/hr.

$PM_{10 \text{ TOTAL}}(HR)$ = the maximum controlled PM_{10} rate from all operations, which was estimated to be 4.45×10^{-2} lb PM_{10}/hr .

c. Emission Limitation:

PE and PM_{10} emissions from this emissions unit shall not exceed 1.01 tons/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant}(YR) = \text{Pollutant}(HR) \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

$\text{Pollutant}(YR)$ = the maximum, annual pollutant emissions which were estimated to be the following rates:

3.0×10^{-1} ton/yr PE; and

1.9×10^{-1} ton/yr PM_{10} .

$\text{Pollutant}(HR)$ = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b and f)(1)c.



g) Miscellaneous Requirements

- (1) The bin vent filter device(s) used to control PE emissions are physically inherent to the silos and weigh hoppers so that the potential emissions are based on the use of the control equipment.

5. P053, AFAXBagger for Dry "GR" product (GR=Granular)

Operations, Property and/or Equipment Description:

AFAX granular bag filling: Materials transfer to hopper/transporter; andhopper/transporter transfer to silo, each of which vent to the BVF - P053 silo bin vent filter to control particulate emissions (PE). Materials transfer from the silo to the bag filling station which vents to the DSC-P053 baghouse to control particulate emissions.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	<p>Visible particulate emissions (PE) from the stack serving this emissions unit shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from this emissions unit shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr/dscf) from each egress. The PE and PM₁₀ emissions shall not exceed 0.46 lb/hr and 2.03 tons/yr. See c)(1).</p> <p>Manganese emissions shall not exceed 0.03 lb/hr and 0.13 ton/yr. See c)(1).</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The permittee shall employ the following best available control measures for the aforementioned weigh hoppers for the purpose of ensuring compliance with the above-mentioned applicable requirements:
 - i. The weigh hoppers shall be sufficiently enclosed so as to minimize or eliminate at all times visible emissions of fugitive dust.
 - ii. The transfer of materials to the weigh hoppers shall be enclosed and vented to a bin vent filter. The enclosure shall be sufficient so as to minimize or eliminate at all times visible emissions of fugitive dust at the point of capture.

c) Operational Restrictions

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC-P053 baghouse, which serves the bag filling process is between 0.5 to 9.5 inches of water.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
 - b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and
 - d. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions

checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

- (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSCP053 baghouse when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control equipment identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) through d)(3):
 - a. identification of the process operation(s) and control equipment identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;
 - d. identification of the process operation(s) and control equipment identification where the pressure drop deviation occurred;

- e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
- f. each incident of deviation described in “e” (above) where a prompt investigation was not conducted;
- g. each incident of deviation described in “e” where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
- h. each incident of deviation described in “e” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack serving this emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and PM₁₀ emissions from this emissions unit shall not exceed 0.03 gr/dscf from each egress.

PE and PM₁₀ emissions from this emissions unit shall not exceed 0.46 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from all materials transfer processes combined:

$$PE_{TOTAL}/PM_{10\ TOTAL}(HR) = \sum(PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF)_i \times (1 - CE)$$

where:

$PE_{TRANSFER}(HR)_i$ = the maximum, controlled PE rate from each materials transfer process, which was estimated to be 1.2075×10^{-4} lb PE/hr.

$PE_{TOTAL}(HR)$ = the maximum, controlled PE rate from all three materials transfer processes combined, which was estimated to be 3.62×10^{-4} lb PE/hr.

$PM_{10\ TRANSFER}(HR)_i$ = the maximum, controlled PM_{10} emissions from each materials transfer process, which was estimated to be 5.78×10^{-5} lb PM_{10} /hr.

$PM_{10\ TOTAL}(HR)$ = the maximum, controlled PM_{10} emissions from all three materials transfer processes combined, which was estimated to be 1.73×10^{-4} lb PM_{10} /hr.

PWR = the maximum process weight rate of the operation, which is 3500 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0069 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0033 lb $PM_{10\ UNCTRL}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

CE = control efficiency of the bin vent filter and the baghouse control device each, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from all materials transfer processes combined:

$$PE/PM_{10}(gr/dscf) = \sum [PE/PM_{10}(HR)_i \times (7000\ gr\ PE/PM_{10})/lb\ PE/PM_{10} \times 1/Q \times hr/60\ min]$$

where:

$PE(gr/dscf)_{TOTAL\ BVF-P053}$ = the maximum, controlled PE concentration rate from two materials transfer processes which are vented to BVF - P053 silo bin vent filter, which was estimated to be 1.56×10^{-5} gr/dscf.

$PE(gr/dscf)_{TRANSFER} = PE(gr/dscf)_{TOTAL\ DSC-P053}$ = the maximum, controlled PE concentration rate from each materials transfer process and from the DSC – P053 baghouse, which was estimated to be 7.826×10^{-6} gr/dscf.

$PE_{TRANSFER(HR)_i}$ = the maximum, controlled PE rate from each materials transfer process, which was estimated to be 1.2075×10^{-4} lb PE/hr as determined in f)(1)b.i.

$PM_{10}(gr/dscf)_{TOTAL\ BVF-P053}$ = the maximum, controlled PM_{10} concentration rate from two materials transfer processes which are vented to BVF - P053 silo bin vent filter, which was estimated to be 7.49×10^{-6} gr/dscf.

$PM_{10}(gr/dscf)_{TRANSFER} = E(gr/dscf)_{TOTAL\ DSC-P053}$ = the maximum, controlled PE concentration rate from each materials transfer process and from the DSC – P053 baghouse, which was estimated to be 3.746×10^{-6} gr/dscf.

$PM_{10\ TRANSFER(HR)_i}$ = the maximum, controlled PM_{10} emissions from each materials transfer process, which was estimated to be 5.78×10^{-5} lb PM_{10} /hr as determined in f)(1)b.i.

$Q_{SILO\ BIN\ VENT}$ = the maximum flow from the silo bin vent filter egress, which is 1800 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the BVF - P053 egress.

$Q_{BAGHOUSE}$ = the maximum flow from the baghouse egress, which is 1800 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the DSC P053 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

Manganese emissions shall not exceed 0.03 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$Mn_{TOTAL}(HR) = PE_{TOTAL}(HR) \times W_{Mn}$$

where:

$Mn_{TOTAL}(HR)$ = the maximum, controlled manganese emissions rate from all three materials transfer processes combined, which was estimated to be 2.35×10^{-5} lb Mn/hr.

$PE_{TOTAL}(HR)$ = the maximum, controlled hourly PE rate, which is 3.62×10^{-4} lb PE/hr, as determined in f)(1)b.i.



W_{Mn} = the maximum manganese content of the materials, as a decimal fraction 0.065 lb Mn/lb PE, assuming a 6.5% manganese content in the feed materials, as stated in the application for PTIO P0104376.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 29. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

PE and PM₁₀ emissions shall not exceed 2.03 tons/yr.

Manganese emissions shall not exceed 0.13 ton/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant(YR)} = \text{Pollutant(HR)} \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

Pollutant(YR) = the maximum, annual pollutant emissions which were estimated to be the following rates:

1.58×10^{-3} ton/yr PE;

7.58×10^{-4} ton/yr PM₁₀ emissions; and

1.03×10^{-4} ton/yr Mn emissions.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b and f)(1)c.

g) Miscellaneous Requirements

(1) None.

6. P054, AFAX Powder Mfg.

Operations, Property and/or Equipment Description:

AFAX powder mixing, loading, and bagging: pneumatic materials transfer from bulk silo(s) to powder bin(s), pneumatic transfer from minor raw station to powder bin, and pneumatic materials transfer from the mixer to a silo hopper, each are vented to the BVF - PO54 bin vent filter to control particulate emissions (PE). Materials transfer from the powder bin to a mixer; and materials transfer from the silo hopper to the bagging station, each are vented to the DSCP054 baghouse to control PE.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	<p><u>Materials feed to mixer</u> Visible particulate emissions (PE) from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from these operations shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr./dscf), 0.51 lb/hr and 2.25 tons/yr. See c)(1).</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Manganese emissions from these operations shall not exceed 0.03 lb/hr and 0.15 ton/yr. See c)(1).</p> <p><u>Materials transfer from mixer to bag filling station</u> Visible PE from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>The PE rate and PM₁₀ emissions from these operations shall not exceed 0.03 gr/dscf, 0.51 lb/hr and 2.25 tons/yr. See c)(2).</p> <p>Manganese emissions from these operations shall not exceed 0.03 lb/hr and 0.15 ton/yr. See c)(2).</p>
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) The permittee shall employ the following best available control measures for the above-identified pneumatic transfer operations for the purpose of ensuring compliance with the above-mentioned applicable requirements:

- a. Material shall be transferred pneumatically. The pneumatic system shall be adequately enclosed so as to eliminate at all times visible emissions of fugitive dust. Any visible emissions of fugitive dust emanating from the delivery vehicle during transfer shall be cause for the immediate halt of the materials transfer process until the situation is corrected.
- b. Each vent shall be adequately enclosed and vented to a bin vent filter. The enclosure shall be sufficient so as to eliminate at all times visible emissions of fugitive dust at the point of capture.

- (2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC - PO54 baghouse, which serves the materials transfer from the powder bin to a mixer and the materials transfer from the silo hopper to the bagging station, is between 1.5 to 9.9 inches of water.

d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall perform daily checks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
 - b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and
 - d. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
- (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSC-P054 baghouse when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control equipment identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;

- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the bin vent filter and the baghouse is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with

OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

(2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) through d)(3):

- a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
- b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
- c. any corrective actions taken to eliminate the visible particulate emissions;
- d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
- e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
- f. each incident of deviation described in "e" (above) where a prompt investigation was not conducted;
- g. each incident of deviation described in "e" where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
- h. each incident of deviation described in "e" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and PM₁₀ emissions from the materials feed to mixer processes associated with this emissions unit shall not exceed 0.03 gr/dscf and 0.51 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the materials feed to mixer processes combined (the materials transfer from bulk silo(s) to powder bin(s); the materials transfer from minor raw station to powder bin; and the materials transfer from the mixer to a silo hopper):

$$PE_{TOTAL}/PM_{10\ TOTAL}(HR) = \sum(PWR_i/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF_j) \times (1 - CE)$$

where:

PE_{TOTAL}(HR) = the maximum, controlled PE rate from all three materials transfer processes combined, which was estimated to be 2.19 x 10⁻² lb PE/hr.

PE_{TRANSFER SILO TO POWDER BIN}(HR) = the maximum, controlled PE rate from the materials transfer from the bulk silo(s) to the powder bin(s) process, which was estimated to be 8.21 x 10⁻³ lb PE/hr.

PWR_{TRANSFER SILO TO POWDER BIN} = the maximum process weight rate of the materials transfer from the bulk silo(s) to the powder bin(s) process, which is 2250 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

PE_{TRANSFER MINOR STATION TO POWDER BIN}(HR) = the maximum, controlled PE rate from the materials transfer from the minor station to the powder bin(s) process, which was estimated to be 2.74 x 10⁻³ lb PE/hr.

PWR_{TRANSFER MINOR STATION TO POWDER BIN} = the maximum process weight rate of the materials transfer from the minor station to the powder bin(s) process, which is 750 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

$PE_{\text{TRANSFER MIXER TO SILO}}(HR)_i$ = the maximum, controlled PE rate from the materials transfer from the mixer to the silo(s) process, which was estimated to be 1.095×10^{-2} lb PE/hr.

$PWR_{\text{TRANSFER MIXER TO SILO}}$ = the maximum process weight rate of the materials transfer from the mixer to the silo(s) process, which is 3000 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

$PM_{10 \text{ TOTAL}}(HR)$ = the maximum, controlled PM_{10} emissions from all three materials transfer processes combined, which was estimated to be 1.41×10^{-2} lb PM_{10} /hr.

$PM_{10 \text{ TRANSFER SILO TO POWDER BIN}}(HR)$ = the maximum, controlled PM_{10} emissions from rate from the materials transfer from the bulk silo(s) to the powder bin(s) process, which was estimated to be 5.29×10^{-3} lb PM_{10} /hr.

$PM_{10 \text{ TRANSFER MINOR STATION TO POWDER BIN}}(HR)$ = the maximum, controlled PM_{10} emissions from rate from the materials transfer from the minor station to the powder bin(s) process, which was estimated to be 1.76×10^{-3} lb PM_{10} /hr.

$PM_{10 \text{ TRANSFER MIXER STATION TO SILO}}(HR)$ = the maximum, controlled PM_{10} emissions from rate from the materials transfer from the mixer to the silo(s) process, which was estimated to be 7.05×10^{-3} lb PM_{10} /hr.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.73 lb $PE_{\text{UNCTRL}}/\text{ton}_{\text{FEED}}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a pneumatic cement unloading to an elevated storage silo transfer operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.47 lb $PM_{10 \text{ UNCTRL}}/\text{ton}_{\text{FEED}}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a pneumatic cement unloading to an elevated storage silo operation at a concrete batch plant.

CE = control efficiency of the bin vent filter, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the combined operations (the materials transfer from bulk silo(s) to powder bin(s); the materials transfer from minor raw station to powder bin; and the materials transfer from the mixer to a silo hopper):

$$PE/PM_{10}(\text{gr/dscf}) = \sum [PE/PM_{10}(HR)_i \times (7000 \text{ gr } PE/PM_{10})/\text{lb } PE/PM_{10} \times 1/Q \times \text{hr}/60 \text{ min}]$$

where:

$PE(\text{gr/dscf})_{\text{TOTAL BVF-P054}}$ = the maximum, controlled PE concentration rate from three materials transfer processes which are vented to BVF - P054 silo bin vent filter, which was estimated to be 1.28×10^{-2} gr/dscf.

$PE(\text{HR})$ = the maximum, controlled PE rate from all three materials transfer processes combined, which was estimated to be 2.19×10^{-2} lb PE/hr as determined in f)(1)b.i.

$PM_{10}(\text{gr/dscf})_{\text{TOTAL BVF-P054}}$ = the maximum, controlled PM_{10} concentration rate from two materials transfer processes which are vented to BVF - P054 silo bin vent filter, which was estimated to be 8.22×10^{-4} gr/dscf.

$PM_{10 \text{ TRANSFER}}(\text{HR})_i$ = the maximum, controlled PM_{10} emissions from all three materials transfer processes combined, which was estimated to be 1.41×10^{-2} lb PM_{10} /hr as determined in f)(1)b.i.

$Q_{\text{SILO BIN VENT}}$ = the maximum flow from the silo bin vent filter egress, which is 2000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the BVF - P054 egress.

Q_{BAGHOUSE} = the maximum flow from the baghouse egress, which is 2000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the DSC P054 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

PE and PM_{10} emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit shall not exceed 0.03 gr/dscf and 0.51 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM_{10} emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes:

$$PE_{\text{TOTAL}}/PM_{10 \text{ TOTAL}}(\text{HR}) = \sum(\text{PWR}_i/\text{hr} \times \text{ton}_{\text{FEED}}/2000 \text{ lbs PWR} \times \text{EF}_j) \times (1 - \text{CE})$$

where:

$PE_{TOTAL}(HR)$ = the maximum, controlled PE rate from both materials transfer processes combined, which was estimated to be 2.07×10^{-4} lb PE/hr.

PWR = the maximum process weight rate of the materials transfer from each process, which is 3000 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

$PE_{POWDER\ BIN\ TO\ MIXER}(HR) = PE_{TRANSFER\ TO\ BAG\ FILLING}(HR)$ = the maximum, controlled PE rate from the powder bin(s) to a mixer process materials transfer from the silo hopper(s) to the bag filling station process each, and was estimated to be 1.035×10^{-4} lb PE/hr.

$PM_{10\ TOTAL}(HR)$ = the maximum, controlled PM_{10} emissions from both materials transfer processes combined, which was estimated to be 9.90×10^{-5} lb PM_{10} /hr.

$PM_{10\ POWDER\ BIN\ TO\ MIXER}(HR) = PM_{10\ TRANSFER\ TO\ BAG\ FILLING}(HR)$ = the maximum, controlled PM_{10} emissions from rate from the materials transfer from the bulk silo(s) to the powder bin(s) process and the materials transfer from the minor station to the powder bin(s) process each, and was estimated to be 4.95×10^{-5} lb PM_{10} /hr.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0069 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0033 lb $PM_{10\ UNCTRL}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes :

$$PE/PM_{10}(gr/dscf) = \sum [PE/PM_{10}(HR)_i \times (7000\ gr\ PE/PM_{10})/lb\ PE/PM_{10} \\ \times 1/Q \times hr/60\ min]$$

where:

$PE(gr/dscf)_{DSC-P054}$ = the maximum, controlled PE concentration rate from three materials transfer processes which are vented to DSC-P054 baghouse, which was estimated to be 9.29×10^{-6} gr/dscf.

PE(HR) = the maximum, controlled PE rate from both materials transfer processes combined, which was estimated to be 2.07×10^{-4} lb PE/hr as determined in f)(1)b.i.

PM₁₀(gr/dscf)_{DSC-P054} = the maximum, controlled PM₁₀ concentration rate from both materials transfer processes which are vented to DSC-P054 baghouse, which was estimated to be 4.44×10^{-6} gr/dscf.

PM_{10 TOTAL}(HR)_i = the maximum, controlled PM₁₀ emissions from all three materials transfer processes combined, which was estimated to be 9.90×10^{-5} lb PM₁₀/hr as determined in f)(1)b.i.

Q_{BAGHOUSE} = the maximum flow from the baghouse egress, which is 2600 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the DSC-P054 baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

Manganese emissions from the materials feed to mixer processes associated with this emissions unit shall not exceed 0.03 lb/hr.

Manganese emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit shall not exceed 0.03 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation(s):

$$Mn_{TOTAL}(HR)_i = PE_{TOTAL}(HR)_i \times W_{Mn}$$

where:

Mn_{TOTAL FEED TRANSFER}(HR) = the maximum, controlled manganese emissions rate from all three materials transfer processes combined, which was estimated to be 1.42×10^{-3} lb Mn/hr.

PE_{TOTAL FEED TRANSFER TO MIXER}(HR) = the maximum, controlled hourly PE rate, which is 2.19×10^{-2} lb PE/hr, as determined in f)(1)b.i.

Mn_{TOTAL TRANSFER MIXER & BAG FILLING}(HR) = the maximum, controlled manganese emissions rate from all three materials transfer processes combined, which was estimated to be 1.34×10^{-5} lb Mn/hr.

$PE_{\text{TOTALTRANSFER MIXER \& BAG FILLING}}(\text{HR})$ = the maximum, controlled hourly PE rate, which is 2.07×10^{-4} lb PE/hr, as determined in f)(1)c.i.

W_{Mn} = the maximum manganese content of the materials, as a decimal fraction 0.065 lb Mn/lb PE, assuming a 6.5% manganese content in the feed materials, as stated in the application for PTIO P0104376.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 29. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

PE and PM_{10} emissions from the materials feed to mixer processes associated with this emissions unit shall not exceed 2.25 tons/yr.

PE and PM_{10} emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit shall not exceed 2.25 tons/yr.

Manganese emissions from the materials feed to mixer processes associated with this emissions unit shall not exceed 0.15 ton/yr.

Manganese emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit shall not exceed 0.15 ton/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant}(\text{YR}) = \text{Pollutant}(\text{HR}) \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

Pollutant(YR) = the maximum, annual pollutant emissions which were estimated to be the following rates:

9.59×10^{-2} ton/yr PE from the materials feed to mixer processes associated with this emissions unit;

6.18×10^{-2} ton/yr PM_{10} emissions materials feed to mixer processes associated with this emissions unit;

6.22×10^{-3} ton/yr Mn emissions materials feed to mixer processes associated with this emissions unit;



9.07×10^{-4} ton/yr PE from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit;

4.33×10^{-4} ton/yr PM_{10} emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit; and

5.87×10^{-5} ton/yr Mn emissions from the materials transfer from the powder bin to a mixer and the materials transfer to bag filling station processes associated with this emissions unit.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b through f)(1)d.

g) Miscellaneous Requirements

(1) None.

7. P055, AFAX Spray Tower System

Operations, Property and/or Equipment Description:

AFAX Spray Tower System: Auto-batch system that dispenses raw materials with a DC Autobatch dust collector to control particulate emissions (PE); materials feed from silos to east & west (pulpers) mixers with a DSC-P055A baghouse to control PE; 11.7 mmBtu/hr. natural gas indirectly fired mineral slurry spray dryer with an inline cyclone and a CYC-P055 wet scrubber to control PE; materials transfer via a scalping conveyor to the fluidized bed cooling table; and discharge from the cooling table to a weigh conveyor with a (DSC-P055B) dust collector to control PE.

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), PTI 02-21680, issued on April 6, 2006.	<u>Auto-batch materials dispensing and materials feed to mixers</u> Visible particulate emissions (PE) from the stack(s) serving these process operations shall not exceed 0% opacity as a 6-minute average. PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM ₁₀) from these operations shall not exceed 0.03 gr/dscf, 1.16 lbs/hr and 5.07 tons/yr. See c)(1) and c)(2).

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Manganese emissions from these operations shall not exceed 0.08 lb/hr and 0.33 ton/yr. See b)(2)a, c)(1) and c)(2).</p> <p><u>11.7 mmBtu/hr natural gas fired mineral slurry spray dryer</u> Visible PE from the stack(s) serving these process operations shall not exceed 0% opacity as a 6-minute average. The presence of water vapor in the scrubber plume does not constitute visible emissions.</p> <p>PE and PM₁₀ emissions from the spray drying process shall not exceed 0.03 gr/dscf, 6.30 lbs/hr and 27.59 tons/yr. See c)(3).</p> <p>Manganese emissions from the spray drying process shall not exceed 0.41 lb/hr and 1.79 tons/yr. See b)(2)a and c)(3).</p> <p><u>Materials transfer to and from the fluidized bed cooling table</u> Visible PE from the stack(s) serving these process operations shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and PM₁₀ emissions from these operations shall not exceed 0.03 gr/dscf, 1.16 lbs/hr and 5.07 tons/yr. See c)(4).</p> <p>Manganese emissions from the spray drying process shall not exceed 0.08 lb/hr and 0.33 ton/yr. See b)(2)a and c)(4).</p>
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-10(B)	The emission limitation specified by this rule is applicable to the natural gas fired spray dryer if materials are indirectly heated and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The manganese content of the product shall not exceed 6.5%, by weight.
- b. The emissions from the combustion of natural gas shall not exceed the following emission limits:
 - i. 0.07 lb/hr and 0.29 ton/yr of PE/PM₁₀ emissions;
 - ii. 0.007 lb/hr and 0.03 ton/yr of sulfur dioxide (SO₂) emissions;
 - iii. 0.98 lb/hr and 4.29 tons/yr of carbon monoxide (CO) emissions;
 - iv. 0.021 lb/hr and 0.09 ton/yr of hexane emissions;
 - v. 0.022 lb/hr and 0.10 ton/yr of combined hazardous air pollutant (HAP) emissions;
 - vi. 0.063 lb/hr and 0.28 ton/yr of VOC emissions; and
 - vii. 1.17 lbs/hr and 5.11 tons/yr of nitrogen oxides (NO_x) emissions.

c) Operational Restrictions

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DC-Autobatch baghouse, which serves the auto-batch materials dispensing process, is between 1.0 to 6.0 inches of water.
- (2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range established for the pressure drop across the DC-P055A baghouse, which serves the materials feed to mixers process, is between 1.5 to 9.9 inches of water.
- (3) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range of operating parameters established for the CYC - PO55 wet scrubber, which serves the mineral slurry spray drying and natural gas fuel combustion processes, are as follows:
 - a. a pressure drop that shall be maintained no less than 45 pounds per square inch gauge; and

- b. a scrubber liquid flow rate that shall be maintained no be less than 45 gallons per minute.
- (4) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range established for the pressure drop across the DC-P055B baghouse, which serves the materials transfer to and from the fluidized bed cooling table processes, is between 1.0 to 9.9 inches of water.
- d) **Monitoring and/or Recordkeeping Requirements**
- (1) The permittee shall perform daily checks when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
 - b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and
 - d. any corrective actions taken to eliminate the visible emissions.
 - (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
 - (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the control device and the scrubber liquid flow rate, in gallons per minute, when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each control device and the scrubber liquid flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop and the scrubber liquid flow rate deviate from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. Identification of the process operation(s), and control device(s) identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;

- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented;
- l. the scrubber liquid flow rate readings immediately after the corrective action was implemented; and
- m. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the control device(s) and the scrubber liquid flow rate is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the

document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) through d)(3):
- a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;
 - d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
 - e. identification of the process operation(s) and control device(s) where the scrubber liquid flow rate deviation occurred;
 - f. each period of time (start time and date, and end time and date) when the pressure drop across the control device and was outside of the acceptable range;
 - g. each period of time (start time and date, and end time and date) when the scrubber liquid flow rate of the control device and was outside of the acceptable range;
 - h. each incident of deviation described in "f" and "g" (above) where a prompt investigation was not conducted;
 - i. each incident of deviation described in "f" and "g" where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
 - j. each incident of deviation described in "f" and "g" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack(s) serving these process operations shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation(s):

PE and PM₁₀ emissions shall not exceed 0.03 gr/dscf and 1.16 lbs/hr from the auto-batch materials dispensing and materials feed to mixers processes, combined.

Applicable Compliance Method:

Compliance may be based on the following equations:

i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the auto-batch materials dispensing processes:

$$PE/PM_{10}(HR) = [PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)]_i$$

where:

PE_{AUTOBATCH}(HR) = the maximum, controlled PE rate from the portable hopper load-in and the batch hopper load-in, combined, was estimated to be 1.92×10^{-4} lb PE/hr.

PE_{PORTABLE HOPPER LOAD-IN}(HR) = PE_{BATCH HOPPER LOAD-IN}(HR) = the maximum, controlled PE rate from the portable hopper load-in and the batch hopper load-in, each, was estimated to be 9.60×10^{-5} lb PE/hr.

PM_{10 AUTOBATCH}(HR) = the maximum, controlled PM₁₀ emissions from the portable hopper load-in and the batch hopper load-in, combined, was estimated to be 1.12×10^{-4} lb PM₁₀/hr.

PM_{10 PORTABLE HOPPER LOAD-IN}(HR) = PM_{10 BATCH HOPPER LOAD-IN}(HR) = the maximum, controlled PM₁₀ emissions from the portable hopper load-in and the batch hopper load-in, each, was estimated to be 5.60×10^{-5} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is

4000 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0048 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a weigh hopper loading operation at a concrete batch plant.

EF_{PM10} = the factor for uncontrolled pollutant emissions, which is 0.0028 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a weigh hopper loading operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the mixer process(es):

$$PE/PM_{10}(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs } PWR \times EF \times (1 - CE)$$

where:

PE_{MIXERS LOAD-IN} (HR) = the maximum, controlled PE rate from the mixers load-in process was estimated to be 2.40 x 10⁻² lb PE/hr.

PM_{10 MIXERS LOAD-IN}(HR) = the maximum, controlled PM₁₀ emissions from the mixers load-in process was estimated to be 6.55 x 10⁻³ lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 8400 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.572 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

EF_{PM10} = the factor for uncontrolled pollutant emissions, which is 0.156 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- iii. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the auto-batch materials dispensing processes and the mixer process, combined:

$$PE_{TOTAL}/PM_{10 TOTAL}(HR) = PE_{AUTOBATCH}(HR)/PM_{10 AUTOBATCH}(HR)$$

$$+ PE_{MIXERS LOAD-IN}(HR)/PM_{10 MIXERS LOAD-IN}(HR)$$

where:

$PE_{TOTAL}(HR)$ = the maximum, controlled hourly PE rate from the auto-batch materials dispensing processes and the mixer process, combined, was estimated to be 2.42×10^{-2} lb PE/hr.

$PE_{AUTOBATCH}(HR)$ = the maximum, controlled PE rate from the portable hopper load-in and the batch hopper load-in, combined, was estimated to be 1.92×10^{-4} lb PE/hr as determined in f)(1)b.i.

$PE_{MIXERS\ LOAD-IN}(HR)$ = the maximum, controlled PE rate from the mixers load-in process was estimated to be 2.40×10^{-2} lb PE/hr as determined in f)(1)b.ii.

$PM_{10\ TOTAL}(HR)$ = the maximum, controlled hourly PM_{10} emissions from the auto-batch materials dispensing processes and the mixer process, combined was estimated to be 6.66×10^{-3} lb PM_{10} /hr.

$PM_{10\ AUTOBATCH}(HR)$ = the maximum, controlled PM_{10} emissions from the portable hopper load-in and the batch hopper load-in, combined, was estimated to be 1.12×10^{-4} lb PM_{10} /hr as determined in f)(1)b.i.

$PM_{10\ MIXERS\ LOAD-IN}(HR)$ = the maximum, controlled PM_{10} emissions from the mixers load-in process was estimated to be 6.55×10^{-3} lb PM_{10} /hr as determined in f)(1)b.ii.

- iv. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the auto-batch materials dispensing processes and the mixer process, each:

$$PE/PM_{10}(gr/dscf)_i = PE/PM_{10}(HR)_i \times 7000 \text{ gr PE}/PM_{10}/\text{lb PE}/PM_{10} \times 1/Q$$

$$\times \text{hr}/60 \text{ min}$$

where:

$PE_{AUTOBATCH}(gr/dscf)$ = the maximum, controlled PE concentration rate from the preweigh station and was estimated to be 5.60×10^{-6} gr/dscf.

$PM_{10\ AUTOBATCH}(gr/dscf)$ = the maximum, controlled PM_{10} concentration rate from the preweigh station and was estimated to be 3.27×10^{-6} gr/dscf.

$PE_{AUTOBATCH}/PM_{10\ AUTOBATCH}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)b.i.

$Q_{DC\ AUTOBATCH}$ = the maximum flow from the baghouse egress, which is 4000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the DC Autobatch baghouse egress.

$PE_{\text{MIXERS LOAD-IN}}(\text{gr/dscf})$ = the maximum, controlled PE concentration rate from the preweigh station and was estimated to be 6.22×10^{-4} gr/dscf.

$PM_{10 \text{ MIXERS LOAD-IN}}(\text{gr/dscf})$ = the maximum, controlled PM_{10} concentration rate from the preweigh station and was estimated to be 1.70×10^{-4} gr/dscf.

$PE_{\text{MIXERS LOAD-IN}}/PM_{10 \text{ MIXERS LOAD-IN}}(\text{HR})$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)b.ii.

$Q_{\text{DC-P055A}}$ = the maximum flow from the baghouse egress, which is 4500 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the DC P055A baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation(s):

The PE rate and the PM_{10} emissions shall not exceed 0.03 gr/dscf and 6.30 lbs/hr from the mineral slurry spray drying process.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM_{10} emissions from the mineral slurry spray dryer process:

$$PE/PM_{10}(\text{HR}) = [PWR/\text{hr} \times \text{ton}_{\text{FEED}}/2000 \text{ lbs PWR} \times \text{EF}]$$

where:

$PE_{\text{TOTAL}}(\text{HR}) \geq PM_{10 \text{ TOTAL}}(\text{HR})$ = the maximum, controlled PE rate and maximum, controlled PM_{10} emissions from the mineral slurry spray dryer process was estimated to be 7.98×10^{-3} lb PE/hr.

PWR = the maximum process weight rate of the operation, which is 8400 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for controlled pollutant emissions, which is 0.19 lb $PE_{\text{CTRL}}/\text{ton}_{\text{FEED}}$ from U.S. EPA's WebFIRE database for materials feed to a natural gas-fired spray dryer with a venturi scrubber for ceramic clay tile manufacturing (SCC 30500810).

$EF_{PM_{10}}$ = the factor for controlled pollutant emissions, which is at most 0.19 lb PE_{CTRL}/ton_{FEED} . U.S. EPA's WebFIRE database for materials feed to a natural gas-fired spray dryer with a venturi scrubber for ceramic clay tile manufacturing (SCC 30500810) did not have a factor for PM_{10} emissions.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the mineral slurry spray drying process:

$$PE/PM_{10}(gr/dscf) = PE/PM_{10}(HR) \times 7000 \text{ gr } PE/PM_{10}/lb \text{ } PE/PM_{10} \times 1/Q$$

$$\times \text{hr}/60 \text{ min}$$

where:

$PE(gr/dscf) = PM_{10}(gr/dscf)$ = the maximum, controlled PE concentration rate and the maximum, controlled PM_{10} emissions rate from the mineral slurry spray drying which can be estimated in gr/dscf.

$PE_{TOTAL}/PM_{10 \text{ TOTAL}}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)c.i.

Q = the flow rate from the exhaust stack in dry standard cubic feet per minute, dscfm, derived from the calculations in Method 2, 40 CFR Part 60, Appendix A.

$$Q = Q_A \times T_{STD}/T_A \times P_A/P_{STD} \times (1 - B_{ws})$$

Q_A = the actual flow rate through the exhaust stack, which was estimated to be 24,500 actual cubic feet per minute, acfm, as specified in the application for PTIO P0104376.

T_{STD} = standard temperature = 528.0°R.

T_A = actual stack temperature, in Rankine = $T_A = (T_A^{\circ}F + 459.67)^{\circ}R$, which is 671.67°R, based on an actual temperature of 212°F, as specified in the application for PTIO P0104376.

P_A = actual stack pressure, in inches of Hg = $P_B + P_G/13.6$;

P_B = barometric pressure, in inches of Hg;

P_G = flue gas static pressure, in inches of H_2O ;

P_{STD} = standard pressure = 29.92 inches of Hg; and

B_{ws} = moisture content as a decimal fraction of the exhaust gas.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation(s):

The PE rate and the PM₁₀ emissions shall not exceed 0.03 gr/dscf and 1.16 lbs/hr from the materials transfer to and from the fluidized bed cooling table processes.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions from the fluidized bed cooling table processes:

$$PE/PM_{10}(HR) = [PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)]_i$$

where:

PE_{TOTAL}(HR) = the maximum, controlled PE rate from the materials transfer to the cooling table process and the materials transfer from the cooling table process, combined, was estimated to be 5.80 x 10⁻⁴ lb PE/hr.

PE_{TRANSFER FROM SCALP CONVEYOR TO COOLER TABLE}(HR) = PE_{TRANSFER FROM COOLER TABLE TO WEIGH CONVEYOR}(HR) = the maximum, controlled PE rate from the materials transfer from the scalping conveyor to the fluidized bed cooler process and the materials transfer from the fluidized bed to the weigh hopper process, each, was estimated to be 2.90 x 10⁻⁴ lb PE/hr.

PM_{10 TOTAL}(HR) = the maximum, controlled PM₁₀ emissions from materials transfer to the cooling table process and the materials transfer from the cooling table process, combined, was estimated to be 2.77 x 10⁻⁴ lb PM₁₀/hr.

PM_{10 TRANSFER FROM SCALP CONVEYOR TO COOLER TABLE} (HR) = PM_{10 PTRANSFER FROM COOLER TABLE TO WEIGH CONVEYOR}(HR) = the maximum, controlled PM₁₀ emissions from the materials transfer to the cooling table process and the materials transfer from the cooling table process, each, was estimated to be 1.39 x 10⁻⁴ lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 8400 lbs_{MTL}/hr, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0069 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0033 lb $PM_{10 UNCTRL}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for an aggregate transfer operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the fluidized bed cooling table processes:

$$PE/PM_{10}(gr/dscf)_i = PE/PM_{10}(HR)_i \times 7000 \text{ gr } PE/PM_{10}/lb \text{ } PE/PM_{10} \times 1/Q$$

$$\times \text{hr}/60 \text{ min}$$

where:

$PE_{TOTAL}(gr/dscf)$ = the maximum, controlled PE concentration rate from the fluidized bed cooling table processes was estimated to be 1.50×10^{-5} gr/dscf.

$PM_{10 TOTAL}(gr/dscf)$ = the maximum, controlled PM_{10} concentration rate from the fluidized bed cooling table processes was estimated to be 7.18×10^{-6} gr/dscf.

$PE_{TOTAL}/PM_{10 TOTAL}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)c.i.

Q= the maximum flow from the baghouse egress, which is 4500 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the DC P055B baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- e. Emission Limitation(s):

Manganese emissions shall not exceed 0.08 lb/hr from the auto-batch materials dispensing and materials feed to mixers processes, combined, which are associated with this emissions unit.

Manganese emissions shall not exceed 0.41 lb/hr from the mineral slurry spray drying process associated with this emissions unit associated with this emissions unit.

Manganese emissions shall not exceed 0.08 lb/hr from the materials transfer to and from the fluidized bed cooling table processes, combined, which are associated with this emissions unit.

Applicable Compliance Method:

Compliance may be based on the following equation(s):

$$Mn_{TOTAL}(HR)_i = PE_{TOTAL}(HR)_i \times W_{Mn}$$

where:

$Mn_{TOTAL \text{ AUTOBATCH} + \text{ MIXERS LOAD-IN}}(HR)$ = the maximum, controlled manganese emissions rate from the feed processes combined, which was estimated to be 1.57×10^{-3} lb Mn/hr.

$PE_{TOTAL \text{ AUTOBATCH} + \text{ MIXERS LOAD-IN}}(HR)$ = the maximum, controlled hourly PE rate, which is 2.42×10^{-2} lb PE/hr., as determined in f)(1)b.iii.

$Mn_{MINERAL \text{ SLURRY SPRAY DRYER}}(HR)$ = the maximum, controlled manganese emissions rate from the mineral slurry spray dryer process, which was estimated to be 5.19×10^{-4} lb Mn/hr.

$PE_{MINERAL \text{ SLURRY SPRAY DRYER}}(HR)$ = the maximum, controlled hourly PE rate, which is 7.98×10^{-3} lb PE/hr, as determined in f)(1)c.i.

$Mn_{TOTAL \text{ FLUIDIZED BED COOLING TABLE}}(HR)$ = the maximum, controlled manganese emissions rate from the feed processes combined, which was estimated to be 3.77×10^{-5} lb Mn/hr.

$PE_{TOTAL \text{ FLUIDIZED BED COOLING TABLE}}(HR)$ = the maximum, controlled hourly PE rate, which is 5.80×10^{-4} lb PE/hr, as determined in f)(1)d.i.

W_{Mn} = the maximum manganese content of the materials, as a decimal fraction 0.065 lb Mn/lb PE, assuming a 6.5% manganese content in the feed materials, as stated in the application for PTIO P0104376.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 29. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation(s):

The emissions from the combustion of natural gas fuel shall not exceed the following emissions limits:

0.07 lb/hr of PE/PM₁₀ emissions;

0.007 lb/hr of SO₂ emissions;

0.98 lb/hr of CO emissions;

0.021 lb/hr of hexane emissions;

0.022 lb/hr of combined HAP emissions;

0.063 lb/hr of VOC emissions; and

1.17 lbs/hr NO_x emissions.

Applicable Compliance Method:

Compliance may be based on the following equations:

$$\text{Pollutant(HR)} = H \times \text{scf}/1020 \text{ Btu} \times \text{EF}$$

where:

Pollutant (HR) = the pollutant emissions rate from the combustion of natural gas fuel which is estimated to be: 0.0218 lb/hr PE/PM₁₀; 0.0069 lb/hr SO₂; 0.96 lb/hr CO; 0.0206 lb/hr hexane; 0.0218 lb/hr combined HAPs; 0.0631 lb/hr VOC; and 1.15 lb/hr NO_x.

H= maximum rated heat input, in million Btu/hr of the spray dryer burner, which is 11.7 mmBtu/hr as stated in the application for PTIO P0104376.

EF = the factor for the pollutant emissions which is as follows:

1.9 lbs filterable PE-PM₁₀ per million standard cubic feet (mmscf) found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

0.6 lb SO₂/mmscf found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

84 lbs CO/mmscf found in Table 1.4-1, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

1.8 lbs hexane/mmscf found in Table 1.4-3, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

1.8984 lbs combined HAPs/mmscf as developed from the summation of factors of individual HAPs found in Table 1.4-3, AP42 Chap 1.4 (7/1998) from uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

5.5 lbs VOC/mmscf found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

100 lbs NO_x/mmscf of natural gas combusted from Table 1.4-1, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the following:

- 40 CFR Part 60, Appendix A, Methods 1 through 5 for the PE/PM₁₀ rate;
- 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6 for SO₂ emissions;
- 40 CFR Part 60, Appendix A, Methods 1 through 4 and 10 for CO emissions;
- 40 CFR Part 60, Appendix A, Methods 1 through 4 and 18 for hexane emissions;
- 40 CFR Part 60, Appendix A, Methods 1 through 4 and 25 for combined HAP emissions; and
- 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7 for NO_x emissions.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

g. Emission Limitation:

PE and PM₁₀ emissions associated with this emissions unit shall not exceed 5.07 tons/yr from the auto-batch materials dispensing and materials feed to mixers processes, combined.

Manganese emissions associated with this emissions unit shall not exceed 0.33 ton/yr from the auto-batch materials dispensing and materials feed to mixers processes, combined.

PE and PM₁₀ emissions associated with this emissions unit shall not exceed 27.59 tons/yr from the mineral slurry spray dryer process.

Manganese emissions associated with this emissions unit shall not exceed 1.79 tons/yr from the mineral slurry spray dryer process.

PE and PM₁₀ emissions associated with this emissions unit shall not exceed 5.07 tons/yr from the materials transfer to and from the fluidized bed cooling table processes, combined.

Manganese emissions associated with this emissions unit shall not exceed 0.33 ton/yr from the materials transfer to and from the fluidized bed cooling table processes, combined.

The emissions from the combustion of natural gas fuel shall not exceed the following emissions limits:

- i. 0.29 ton/yr of PE/PM₁₀ emissions;
- ii. 0.03 ton/yr of SO₂ emissions;
- iii. 4.29 tons/yr of CO emissions;
- iv. 0.09 ton/yr of hexane emissions;

- v. 0.10 ton/yr of combined HAP emissions;
- vi. 0.28 ton/yr of VOC emissions; and
- vii. 5.11 tons/yr of NO_x emissions.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant(YR)} = \text{Pollutant(HR)} \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

Pollutant(YR) = the maximum, annual pollutant emissions which were estimated to be the following rates:

1.06×10^{-1} ton/yr PE from the auto-batch materials dispensing and materials feed to mixers processes, combined;

2.92×10^{-2} ton/yr PM₁₀ emissions from the auto-batch materials dispensing and materials feed to mixers processes, combined;

6.88×10^{-3} ton/yr Mn emissions from the auto-batch materials dispensing and materials feed to mixers processes, combined;

3.50×10^{-2} ton/yr PE from the materials transfer from the mineral slurry spray dryer process;

3.50×10^{-2} ton/yr PM₁₀ emissions from the mineral slurry spray dryer process;

2.27×10^{-3} ton/yr Mn emissions from the mineral slurry spray dryer process;

2.54×10^{-3} ton/yr PE from the materials transfer to and from the fluidized bed cooling table processes, combined;

1.21×10^{-3} ton/yr PM₁₀ emissions from the materials transfer to and from the fluidized bed cooling table processes, combined;

1.65×10^{-4} ton/yr Mn emissions from the materials transfer to and from the fluidized bed cooling table processes, combined.

The following emissions from the combustion of natural gas fuel: 0.386 ton/yr of PE/PM₁₀ emissions; 0.030 ton/yr of SO₂ emissions; 4.20 ton/yr of CO emissions; 0.090 ton/yr of hexane emissions; 0.096 ton/yr of combined HAP emissions; 0.28 ton/yr of VOC emissions; and 5.04 ton/yr of NO_x emissions.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b through f)(1)f.



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Vesuvius USA Corp. - Conneaut Plant
Permit Number: P0104376
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Effective Date: 8/6/2015

g) Miscellaneous Requirements

- (1) None.

8. P057, Ladle Liner Line

Operations, Property and/or Equipment Description:

Ladle liner manufacturing: manual feed of mineral materials to the pre-weigh station with DSC-P057 baghouse to control particulate emissions (PE); transfer of dry batch materials from the pre-weigh station to the (pulpers) slurry mixers with DSCP057 baghouse to control PE; and a 6.5 mmBtu/hr. indirectly fired natural gas north tower oven for mineral and resin drying and curing for refractory products.

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), PTI 02-08951, issued on March 1, 1995 and modified as PTI 02-21680, issued on April 6, 2006.	<p><u>Prewriteigh station</u> Visible particulate emissions (PE) from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from these operations shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr/dscf), 0.77 lb/hr and 3.38 tons/yr. See c)(1).</p> <p><u>Conveying, transfer and mixing equipment</u></p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Visible PE from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and PM₁₀ emissions from this operation shall not exceed 0.03 gr/dscf, 0.77 lb/hr and 3.38 tons/yr. See c)(1).</p> <p><u>6.5 mmBtu/hr. natural gas, direct fired "north tower" oven</u></p> <p>Visible PE from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>Formaldehyde emissions from resin curing in the oven shall not exceed 1.5 lbs/hr and 6.57 tons/yr.</p> <p>Volatile organic compound (VOC) emissions from resin curing in the oven shall not exceed 2.40 lbs/hr and 10.51 tons/yr.</p> <p>See b)(2)a.</p>
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is applicable to all stacks and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
c.	OAC rule 3745-17-10(B)(1)	The emission limitation specified by this rule is applicable to the natural gas oven if materials are indirectly heated and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is applicable to the preweigh station and conveying equipment and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-21-07(M)(4)	The emission limitation specified by this rule is applicable to the natural gas oven and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- a. The emissions from the combustion of natural gas shall not exceed the following emission limits:
- i. 0.03 lb/hr and 0.15 ton/yr of PE/PM₁₀ emissions;
 - ii. 0.004 lb/hr and 0.02 ton/yr of sulfur dioxide (SO₂) emissions;
 - iii. 0.54 lb/hr and 2.36 tons/yr of carbon monoxide (CO) emissions;
 - iv. 0.115 lb/hr and 0.050 ton/yr of hexane emissions;
 - v. 0.0121 lb/hr and 0.053 ton/yr of combined hazardous air pollutant (HAP) emissions;
 - vi. 0.035 lb/hr and 0.15 ton/yr of VOC emissions; and
 - vii. 0.64 lb/hr and 2.80 tons/yr of nitrogen oxides (NO_x) emissions.

c) Operational Restrictions

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC-P057 baghouse, which serves the preweigh station, is between 2.0 to 9.0 inches of water.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
 - b. the color of the emissions;
 - c. the total duration of any visible emissions incident; and
 - d. any corrective actions taken to eliminate the visible emissions.
- (2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.
- (3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSC-P057 baghouse when the controlled process operations associated with this emissions unit are in operation,

including periods of startup and shutdown. The permittee shall record the pressure drop across the control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control device(s) identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the control device is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA Northeast District Office. The permittee may

request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) through d)(3):
 - a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;
 - d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
 - e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
 - f. each incident of deviation described in "e" (above) where a prompt investigation was not conducted;

- g. each incident of deviation described in “e” where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
- h. each incident of deviation described in “e” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack(s) serving this emissions unit shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible PE limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and PM₁₀ emissions from the preweigh station shall not exceed 0.03 gr/dscf and 0.77 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions:

$$PE/PM_{10}(HR) = PWR/hr \times \text{ton}_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$

where:

PE(HR) = the maximum, controlled PE rate from the preweigh station and was estimated to be 5.79×10^{-5} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the preweigh station and were estimated to be 3.36×10^{-5} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 2400 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.0048 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a weigh hopper loading operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.0028 lb $PM_{10 UNCTRL}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a weigh hopper loading operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the preweigh station:

$$PE/PM_{10}(gr/dscf) = PE/PM_{10}(HR) \times 7000 \text{ gr } PE/PM_{10}/lb \text{ } PE/PM_{10} \times 1/Q \times \text{hr}/60 \text{ min}$$

where:

$PE(gr/dscf)$ = the maximum, controlled PE concentration rate from the preweigh station and was estimated to be 2.24×10^{-6} gr/dscf.

$PM_{10}(gr/dscf)$ = the maximum, controlled PM_{10} concentration rate from the preweigh station and was estimated to be 1.31×10^{-6} gr/dscf.

$PE/PM_{10}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)b.i.

Q = the maximum flow from the baghouse egress, which is 3000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the preweigh station baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- c. Emission Limitation:

PE and PM_{10} emissions from the conveying, transfer and mixing equipment shall not exceed 0.03 gr/dscf and 0.77 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM_{10} emissions:



$$PE/PM_{10}(HR) = PWR/hr \times ton_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$

where:

PE(HR) = the maximum, controlled PE rate from the conveying, transfer and mixing equipment and was estimated to be 6.86×10^{-3} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the conveying, transfer and mixing equipment and were estimated to be 1.87×10^{-3} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is 2400 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.572 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for mixer loading operations at a concrete batch plant.

EF_{PM10} = the factor for uncontrolled pollutant emissions, which is 0.156 lb PM_{10 UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for mixer loading operations at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM₁₀ emissions concentration from the conveying, transfer and mixing equipment:

$$PE/PM_{10}(gr/dscf) = PE/PM_{10}(HR) \times 7000 \text{ gr PE/PM}_{10}/\text{lb PE/PM}_{10} \times 1/Q \\ \times \text{hr}/60 \text{ min}$$

where:

PE(gr/dscf) = the maximum, controlled PE concentration rate from the conveying, transfer and mixing equipment and was estimated to be 2.24×10^{-6} gr/dscf.

PM₁₀(gr/dscf) = the maximum, controlled PM₁₀ concentration rate from the conveying, transfer and mixing equipment and was estimated to be 1.31×10^{-6} gr/dscf.

PE/PM₁₀(HR) = the maximum, controlled hourly PE rate and PM₁₀ emissions rates as determined in f)(1)c.i.

Q = the maximum flow from the baghouse egress, which is 3000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. A dry exhaust gas flow is assumed for the conveying, transfer and mixing equipment baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

Formaldehyde emissions from resin curing in the oven shall not exceed 1.5 lbs/hr.

VOC emissions from resin curing in the oven shall not exceed 2.40 lbs/hr.

Applicable Compliance Method:

Compliance may be based on the following calculation(s):

$$\text{Pollutant(HR)} = \sum R/\text{Hr} \times EF_i$$

where:

Pollutant(HR) = emissions of formaldehyde, in pounds per hour, as a daily average, or VOC emissions, in pounds per hour, as a daily average;

R = the weight of resin material employed, in pounds, as recorded in d)(4);

Hr. = the hours of actual operation, as recorded in d)(4); and

EF = the factor for uncontrolled pollutant emissions, which is 5.4×10^{-5} lb formaldehyde per lb phenolic resin and 1.7×10^{-3} lb VOC per lb phenolic resin.

Average emissions rates of 0.0038 lb/hr of formaldehyde and 0.12 lb VOC/hr as propane were determined from exhaust gas testing of P057, via U.S. EPA Methods 1 through 4 and 316, and Methods 1 through 4 and 25, respectively, conducted on December 14, 2006. During the sample runs a solid phenolic resin, Durite® RD-183D, which has no VOC content and no HAP content, was used at an average rate of 70.09 lbs./hr. A November 9, 2006 Hexion Specialty Chemicals materials safety data sheet for Durite® RD-183D states that decomposition products may include the following: carbon monoxide, carbon dioxide, aldehydes including formaldehyde, phenols, hydrogen cyanide, ammonia, particulate matter and other organic compound including benzo[a]pyrene. The oven egress associated with P057 also includes VOC emissions as a product of natural gas fuel combustion.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the following:

40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 25 for VOC emissions; and

40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 316 for formaldehyde emissions.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

The emissions from the combustion of natural gas fuel shall not exceed the following emission limits:

0.03 lb/hr of PE/PM₁₀ emissions;

0.004 lb/hr of SO₂ emissions;

0.54 lb/hr of CO emissions;

0.115 lb/hr of hexane emissions;

0.0121 lb/hr of combined HAP emissions;

0.035 lb/hr of VOC emissions; and

0.64 lb/hr of NO_x emissions.

Applicable Compliance Method:

Compliance may be based on the following equations:

$$\text{Pollutant(HR)} = H \times \text{scf}/1020 \text{ Btu} \times \text{EF}$$

where:

Pollutant (HR) = the pollutant emission rate from the combustion of natural gas fuel which is estimated to be: 0.012 lb/hr PE/PM₁₀; 0.0038 lb/hr SO₂; 0.54 lb/hr CO; 0.0115 lb/hr hexane; 0.0121 lb/hr combined HAPs; 0.035 lb/hr VOC; and 0.64 lb/hr NO_x.

H= maximum rated heat input, in million Btu/hr of the oven burner, which is 6.5 mmBtu/hr as stated in the application for PTIO P0104376.

EF = the factor for the pollutant emissions which is as follows:

1.9 lbs filterable PE-PM₁₀ per million standard cubic feet (mmscf) found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

0.6 lb SO₂/mmscf found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

84 lbs CO/mmscf found in Table 1.4-1, AP42 Chap 1.4 (7/1998) from small, uncontrolled natural gas fired boilers, assuming a heat content of 1020 Btu/scf.



1.8 lbs hexane/mmscf found in Table 1.4-3, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

1.8984 lbs combined HAPs/mmscf as developed from the summation of factors of individual HAPs found in Table 1.4-3, AP42 Chap 1.4 (7/1998) from uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

5.5 lbs VOC/mmscf found in Table 1.4-2, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

100 lbs NO_x/mmscf of natural gas combusted from Table 1.4-1, AP42 Chap 1.4 (7/1998) from small, uncontrolled, natural gas fired boilers, assuming a heat content of 1020 Btu/scf.

An emission rate of 0.12 lb VOC/hr, as propane, was derived from exhaust gas testing P057, via U.S. EPA Methods 1 through 4 and Method 25, conducted on December 14, 2006. During the sample runs a solid phenolic resin, Durite® RD-183D, which has no VOC content and no HAP content, was used at an average rate of 70.09 lbs/hr. The oven egress associated with P057 also includes VOC emissions as a product of natural gas fuel combustion. No differentiation of the VOC emissions origin, resin curing or natural gas combustion, within the oven egress can be made.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the following:

40 CFR Part 60, Appendix A, Methods 1 through 5 for the PE/PM₁₀ rate;

40 CFR Part 60, Appendix A, Methods 1 through 4 and 6 for SO₂ emissions;

40 CFR Part 60, Appendix A, Methods 1 through 4 and 10 for CO emissions;

40 CFR Part 60, Appendix A, Methods 1 through 4 and 18 for hexane emissions;

40 CFR Part 60, Appendix A, Methods 1 through 4 and 25 for combined HAP emissions; and

40 CFR Part 60, Appendix A, Methods 1 through 4 and 7 for NO_x emissions.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

PE/PM₁₀ emissions from the preweigh station shall not exceed 3.38 tons/yr.

PE/PM₁₀ emissions from the conveying, transfer and mixing equipment shall not exceed 3.38 tons/yr.

Formaldehyde emissions from resin curing in the oven shall not exceed 6.57 tons/yr.



VOC emissions from resin curing in the oven shall not exceed 10.51 tons/yr.

The emissions from the combustion of natural gas shall not exceed the following emission limits:

0.15 ton/yr of PE/PM₁₀ emissions;

0.02 ton/yr of SO₂ emissions;

2.36 tons/yr of CO emissions;

0.050 ton/yr of hexane emissions;

0.053 ton/yr of combined HAP emissions;

0.15 ton/yr of VOC emissions; and

2.80 tons/yr of NO_x emissions.

Applicable Compliance Method:

Compliance may be based on the following equations:

$$\text{Pollutant(YR)} = \text{Pollutant(HR)} \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

Pollutant(YR) = the maximum, annual pollutant emissions which were estimated to be the following rates for the specified process operations:

2.5×10^{-4} ton/yr PE and 1.5×10^{-4} ton/yr PM₁₀ emissions from the preweigh station;

0.03 ton/yr PE and 0.0082 ton/yr PM₁₀ emissions from the conveying, transfer and mixing equipment;

0.017 ton/yr formaldehyde emissions from resin curing in the oven;

0.52 ton/yr VOC emissions from resin curing in the oven; and

The natural gas combustion process emissions estimates are:

0.15 ton/yr of PE/PM₁₀ emissions;

0.017 ton/yr of SO₂ emissions;

2.36 tons/yr of CO emissions;

0.050 ton/yr of hexane emissions;

0.053 ton/yr of combined HAP emissions;



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0.15 ton/yr of VOC emissions; and

2.80 tons/yr of NO_x emissions.

Pollutant(HR) = the maximum, pollutant emissions, in lb/hr as estimated in f)(1)b through f)(1)e.

g) Miscellaneous Requirements

(1) None.

9. P058, mixer

Operations, Property and/or Equipment Description:

Ladle liner tile line: materials feed to a mixer with DSC-P058 baghouse to control particulate emissions.

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), PTI 02-21680, issued on April 6, 2006.	<p><u>Materials feed to a mixer</u></p> <p>Visible particulate emissions (PE) from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.</p> <p>PE and emissions of particulate matter with a maximum diameter of 10 micrometers (PM₁₀) from these operations shall not exceed 0.03 grain per dry standard cubic foot of exhaust gas (gr/dscf), 0.77 lb/hr and 3.38 tons/yr. See c)(1).</p>
b.	OAC rule 3745-17-07(A)	The emission limitation specified by this rule is applicable to all stacks and is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-11(B)(1)	The emission limitation(s) specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range for the pressure drop across the DSC-P058 baghouse, which serves the mixer, is between 2.0 to 8.0 inches of water.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily checks when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack(s) 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 process operation(s) and the stack identification;
- b. the color of the emissions;
- c. the total duration of any visible emissions incident; and
- d. any corrective actions taken to eliminate the visible emissions.

(2) The permittee may, upon receipt of written approval from the Ohio EPA Northeast District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

(3) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in inches of water, across the DSC-P058 baghouse when the controlled process operations associated with this emissions unit are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across the control device on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

Whenever the monitored value for the pressure drop deviates from the limit or range established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. identification of the process operation(s), and control device(s) identification where the deviation occurred;
- b. the date and time the deviation began;
- c. the magnitude of the deviation at that time;
- d. the date the investigation was conducted;
- e. the name(s) of the personnel who conducted the investigation; and
- f. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment within the acceptable range specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- g. a description of the corrective action;
- h. the date corrective action was completed;
- i. the date and time the deviation ended;
- j. the total period of time (in minutes) during which there was a deviation;
- k. the pressure drop readings immediately after the corrective action was implemented; and
- l. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

This range or limit on the pressure drop across the control device is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA Northeast District Office. The permittee may request revisions to the permitted limit or range for the pressure drop based upon information obtained during future testing that demonstrate compliance with the allowable particulate emission rate for the controlled emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

e) Reporting Requirements

- (1) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the Northeast District Office, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.
- (2) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA Northeast District Office by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements in d)(1) through d)(3):
 - a. identification of the process operation(s) and control device identification where the visible emissions deviation occurred;
 - b. all days during which any visible particulate emissions were observed from any stack serving this emissions unit;
 - c. any corrective actions taken to eliminate the visible particulate emissions;
 - d. identification of the process operation(s) and control device(s) where the pressure drop deviation occurred;
 - e. each period of time (start time and date, and end time and date) when the pressure drop across the control device was outside of the acceptable range;
 - f. each incident of deviation described in "e" (above) where a prompt investigation was not conducted;
 - g. each incident of deviation described in "e" where prompt corrective action, that would bring the pressure drop into compliance with the acceptable range, was determined to be necessary and was not taken; and
 - h. each incident of deviation described in "e" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

f) Testing Requirements

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

a. Emission Limitation:

Visible PE from the stack serving this process operation shall not exceed 0% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

b. Emission Limitation:

PE and PM₁₀ emissions from the mixer shall not exceed 0.03 gr/dscf and 0.77 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equations:

- i. Determination of the maximum, controlled hourly PE rate and PM₁₀ emissions:

$$PE/PM_{10}(HR) = PWR/hr \times \text{ton}_{FEED}/2000 \text{ lbs PWR} \times EF \times (1 - CE)$$

where:

PE(HR) = the maximum, controlled PE rate from the mixer were estimated to be 5.15×10^{-3} lb PE/hr.

PM₁₀(HR) = the maximum, controlled PM₁₀ emissions from the mixer were estimated to be 1.40×10^{-3} lb PM₁₀/hr.

PWR = the maximum process weight rate of the operation, which is

1800 lbs_{MTL}/hr, excluding the mass of natural gas, as stated in the application for PTIO P0104376.

EF_{PE} = the factor for uncontrolled pollutant emissions, which is 0.572 lb PE_{UNCTRL}/ton_{FEED} from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

$EF_{PM_{10}}$ = the factor for uncontrolled pollutant emissions, which is 0.156 lb $PM_{10 \text{ UNCTRL}}/ton_{FEED}$ from Table 11.12-2, AP42 Chap 11.12 (6/2006) for a mixer loading operation at a concrete batch plant.

CE = control efficiency of the baghouse control device, which is 0.99 (99%) as specified in the application for PTIO P0104376.

- ii. Determination of the maximum, controlled PE and PM_{10} emissions concentration from the preweigh station:

$$PE/PM_{10}(gr/dscf) = PE/PM_{10}(HR) \times 7000 \text{ gr } PE/PM_{10}/lb \text{ PE}/PM_{10} \times 1/Q$$

$$\times \text{hr}/60 \text{ min}$$

where:

$PE(gr/dscf)$ = the maximum, controlled PE concentration rate from the mixer and was estimated to be 2.00×10^{-4} gr/dscf.

$PM_{10}(gr/dscf)$ = the maximum, controlled PM_{10} concentration rate from the mixer and was estimated to be 5.46×10^{-5} gr/dscf.

$PE/PM_{10}(HR)$ = the maximum, controlled hourly PE rate and PM_{10} emissions rates as determined in f)(1)b.i.

Q = the maximum flow from the baghouse egress, which is 3000 cubic feet per minute (cfm) as specified in the application for PTIO P0104376. The dry exhaust gas flow is assumed for the mixer baghouse egress.

If required, the permittee shall demonstrate compliance with the emission limitation(s) through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- c. Emission Limitation:

PE and PM_{10} emissions from the mixer shall not exceed 3.38 tons/yr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$\text{Pollutant}(YR) = \text{Pollutant}(HR) \times \text{tonPollutant}/2000 \text{ lbs Pollutant} \times 8760 \text{ hrs/yr}$$

where:

$\text{Pollutant}(YR)$ = the maximum, annual pollutant emissions which were estimated to be the following rates:

2.26×10^{-2} ton/yr PE; and



6.13×10^{-3} ton/yr.

Pollutant(HR) = the maximum pollutant emissions, in lb/hr, as estimated in f)(1)b.

g) Miscellaneous Requirements

(1) None.