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

2/13/2015

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Mr. Timothy Anglin
BASF Corporation
120 PINE STREET
Elyria, OH 44035

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0247040195
Permit Number: P0111903
Permit Type: Initial Installation
County: Lorain

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA)Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. 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 PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
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,

Erica R. Engel-Ishida, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA
Ohio EPA-NEDO; Canada

FINAL

Division of Air Pollution Control
Permit-to-Install
for
BASF Corporation

Facility ID:	0247040195
Permit Number:	P0111903
Permit Type:	Initial Installation
Issued:	2/13/2015
Effective:	2/13/2015

Division of Air Pollution Control
Permit-to-Install
for
BASF Corporation

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Authorization

Facility ID:	0247040195
Facility Description:	Manufacturer of Industrial Inorganic Catalysts
Application Number(s):	A0046063, A0046796, A0047014, A0047314
Permit Number:	P0111903
Permit Description:	(P129) Cathode materials manufacturing: metal carbonate process operations, metal hydroxide process operations, mixed materials process operations, and cleanup operations. Except for two kilns (cathode-8 & cathode-14), each process operation has a primary control device filter to control emissions of particulates and hazardous air pollutants (nickel, manganese and cobalt compounds). Cathodes 3, 4, 6, 7, 9 Â¿ 13 and 15 have a secondary control afterfilter to control emissions of particulates and hazardous air pollutants.
Permit Type:	Initial Installation
Permit Fee:	$1,000.00
Issue Date:	2/13/2015
Effective Date:	2/13/2015

This document constitutes issuance to:

BASF Corporation
120 PINE STREET
Elyria, OH 44035

of a Permit-to-Install 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 a Permit-to-Install for the 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 emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Craig W. Butler
Director

Authorization (continued)

Permit Number: P0111903
Permit Description: (P129) Cathode materials manufacturing: metal carbonate process operations, metal hydroxide process operations, mixed materials process operations, and cleanup operations. Except for two kilns (cathode-8 & cathode-14), each process operation has a primary control device filter to control emissions of particulates and hazardous air pollutants (nickel, manganese and cobalt compounds). Cathodes 3, 4, 6, 7, 9 Â¿ 13 and 15 have a secondary control afterfilter to control emissions of particulates and hazardous air pollutants.

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

Emissions Unit ID:	**P129**
Company Equipment ID:	Cathode Plant
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e)General Requirements

(3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d) This permit does not convey any property rights of any sort, or any exclusive privilege.

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emissionlimitations, operationalrestrictions, andcontroldeviceoperatingparameterlimitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, andreportingrequirements contained in this permit shall be submitted to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to theOhio EPA DAPC, Northeast District Officein accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

a) 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 appropriate Ohio EPA District Office or contracted

local air agency, 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 electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

c) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s)not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the

Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., 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) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., 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). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted,no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d)must be obtained beforeoperating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services"facility profile for each new emissions unit identified in this permit.

a) Completion of initial installation date shall be enteredupon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed.The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

   a) None.

2. Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

   [Authority for term: OAC rule 3745-77-07(C)(1)]

3. The following emissions unit is subject to 40 CFR Part 63, Subpart B, §§ 63.40 through 63.43, the 112(g) Case-by-Case MACT requirements of the Clean Air Act Amendments, as included in the Notice of MACT Approval, effective on February 13, 2015. The complete Maximum Achievable Control Technology (MACT) requirements, including the MACT General Provisions may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website http://ecfr.gpoaccess.gov or by contacting the Ohio EPA Northeast District Office.

EU ID	Operations, Property and/or Equipment Description
P129	Cathode materials manufacturing: metal carbonate process operations, metal hydroxide process operations, mixed materials process operations, and cleanup operations. Except for two kilns (cathode-8 & cathode-14), each process operation has a primary control device filter to control emissions of particulates and hazardous air pollutants (nickel, manganese and cobalt compounds). Cathodes 3, 4, 6, 7, 9 – 13 and 15 have a secondary control afterfilter to control emissions of particulates and hazardous air pollutants.

   The permittee shall comply with all applicable requirements of 40 CFR Part 63, Subpart B, §§ 63.40 through 63.43. The permittee shall also comply with all applicable requirements of 40 CFR Part 63, Subpart A (General Provisions) as identified in Table 6 of the Notice of MACT Approval. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 63, Subpart B, §§ 63.40 through 63.44, and Subpart A unless otherwise specified in the Notice of MACT Approval.

   [Authority for term: 40 CFR 63.40 through 63.43and Table 6 of the Notice of MACT Approval]

4. Case-by-Case MACT Rule Requirements

   a) Each process operation that processes HAP-containing materials (cathode nos. 3, 4 and 6-15) shall employ a closed system design as specified inTable 5 of the Notice of MACT Approvalto achieve an efficiency of 100 percent to capture particulate matter phase hazardous air pollutants (PM-HAPs) at all times the process is in operation.

MACT Capture Standards for P129 Cathode Materials Manufacturing.	
Process Operation	**PM-HAP Capture Design Requirements**
Cathodes 3, 4 and 6 - 15	There shall be no visible emissions of fugitive, HAP-containing dust emitted from the major source and/or the area in the vicinity of the capture systems serving this source.
Cathode 3 enclosed Supersack handling bin	Attached via hard pipe to Cathode 4.
Cathode 4 enclosed hopper with rotary discharge valve	Hard pipe/short screw conveyor to Cathode 6.
Cathode 6 enclosed mixer	Hard pipe to cathode 7 feed hopper/short screw conveyor.
Cathode 7 material handling equipment	3-story full enclosure for sagger (tray) conveyor (loading, unloading and cleaning) and kiln airlock; mtls. are dropped via hard pipe to Cathode 9.
Cathode 8 kiln	Enclosed indirect, electric heated dryer with an airlock and inlet and outlet air locks to accommodate the sagger conveyor.
Cathode 9 enclosed crusher	Hard pipe to feed bin with a short screw conveyor and rotary valve discharge to Cathode 10.
Cathode 10 enclosed mill	Exhaust air conveyed to product collector (cyclone) for hard pipe transfer to Cathode 11.
Cathode 11 enclosed hopper with screw discharge	Hard pipe to Cathode 12.
Cathode 12 enclosed packaging station	Material is completely packaged prior to transfer.
Cathode 13 conveyor	3-story full enclosure for sagger (tray) conveyor (loading, unloading and cleaning) and kiln airlock; materials are dropped via hard pipe to Cathode 9
Cathode 14 kiln	Enclosed indirect, electric heated dryer with an airlock and inlet and outlet air locks to accommodate the sagger conveyor.
Cathode 15 central vacuum unit	Dust is collected in a closed receiver bin.

b) There shall be no visible emissions of fugitive, HAP-containing dust emitted from the operations that process HAP-containing materials (cathode nos. 3, 4 and 6 - 15) and the area in the vicinity of the capture systems serving this emissions unit.

c) Except for the kiln exhaust gases (cathode nos. 8 and 14), the PM-HAPs from each process operation shall be vented to a control device(s) as specified in Table 5 in the Notice of MACTApproval at all times the process is in operation.

MACT Control & Emissions Standards for P129 Cathode Materials Manufacturing	
Process Operation	**M-HAP Control Design Requirements & Exhaust Gas Limits - gr PM-HAP/dscf**
Cathode 3 enclosed Supersack handling bin	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control, and 0.001 gr/dscf from cathodes 1 – 7 combined.
Cathode 4 enclosed hopper with rotary discharge valve	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control, and 0.001 gr/dscf from cathodes 1 – 7 combined.
Cathode 6 enclosed mixer	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control,and 0.001 gr/dscf from cathodes 1 – 7 combined.
Cathode 7 material handling equipment	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control,and 0.001 gr/dscf from cathodes 1 – 7 combined.
Cathode 8 kiln	0.001 gr/dscf
Cathode 9 enclosed crusher	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control,and 0.001 gr/dscf from cathodes 9 and 13, combined.
Cathode 10 enclosed mill	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control; and 0.005 gr/dscf.
Cathode 11 enclosed hopper with screw discharge	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control; and 0.001 gr/dscf from cathodes 11 & 12 combined.
Cathode 12 enclosed packaging station	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control; and 0.001 gr/dscf from cathodes 11 & 12 combined.
Cathode 13 conveyor	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control, and 0.001 gr/dscf from cathodes 9 and 13, combined.
Cathode 14 kiln	0.001 gr/dscf.
Cathode 15 central vacuum unit	Use of a primary pulse jet baghouse; use of a secondary control device installed in series with the primary baghouse control; and 0.001 gr/dscf.

d) The HAP-containing cathode operations shall have a PM phase HAP emissions standard of no more than the following as specified in Table 5 in the Notice of MACT Approval:

(1) 0.001 gr/dscf for each egress from Cathodes 1 – 7, combined; Cathode 8; Cathodes 9 and 13, combined; Cathodes 11 and 12, combined; Cathode 14; and Cathode 15; and

(2) 0.005 gr/dscf from Cathode 10.

[Authority for term: 40 CFR 63.40 through 63.43 and Table 5 of the Notice of MACT Approval]

5. Initial compliance with the requirements of this MACT standard shall include the following:
   a) Monitoring shall be conducted as specified in section 6.4 of this Notice and in accordance with 40 CFR §63.8 for a continuous monitoring system (CMS) and continuous parameter monitoring system (CPMS), unless otherwise specified in the Notice;
   b) Record keeping shall be conducted as specified in section 7.0 of the Notice and in accordance with 40 CFR §63.10(b) and (c);
   c) A written startup, shutdown, and malfunction (SSM) plan shall be developed as specified in section 5.1 of the Notice and in accordance with 40 CFR §63.6(e); and
   d) Notifications of failure to follow the SSM plan as specified in section 7.0. and in accordance with 40 CFR §63.10(d)(5), if applicable.

   A notification of compliance status, as specified in section 7.0 of the Notice and in accordance with 40 CFR §63.9(h), shall be submitted to certify whether the affected source has complied with these initial compliance requirements.

   [Authority for term: 40 CFR §63.9(h), 40 CFR 63.10(b)(c) and (d), 40 CFR 63.43, and sections 6.1, 6.4, 7.0 and 8.0 of the Notice of MACT Approval]

   <u>MACT Monitoring and Record Keeping Requirements</u>

6. The permittee shall conduct a daily visual check of equipment associated with each operation (cathode) that processes HAP-containing materials to observe if there are any fugitive visible particulate emissions to monitor the “enclosed design” of the capture equipment for each process operation (cathode).

7. The permitteeshall monitor the parameters specified in this section. All monitoring equipment shall be installed such that representative measurements of emissions or process air pollution control equipment parameters from the source are obtained in accordance with 40 CFR 63.8 for a continuous monitoring system (CMS) and continuous parameter monitoring system (CPMS), unless otherwise specified in the Notice of MACT Approval.

   a) The permittee shall continuously monitor the differential pressure of the primary control devices, the pulse jet fabric filters.

   b) The permittee shall continuously monitor the differential pressure of the secondary control devices, the afterfilters serving the following:

      (1) Cathode 3 Supersack handling bin and associated process equipment;

      (2) Cathode 4 enclosed hopper and associated process equipment;

      (3) Cathode 6 enclosed mixer and associated process equipment;

      (4) Cathode 7 material handling equipment and associate process equipment;

      (5) Cathode 9 enclosed crusher and associated process equipment;

      (6) Cathode 10 mill and associated process equipment;

(7) Cathode 11 enclosed hopper with screw discharge and associated process equipment;

(8) Cathode 12 enclosed packaging station and associated process equipment;

(9) Cathode 13 conveyor and associated process equipment; and

(10) Cathode 15 central vacuum unit and associated cleaning equipment.

[Authority for term: 40 CFR 63.8 and section 6.4 of the Notice of MACT Approval]

8. The permittee shall maintain records documenting the monitoring program requirements which include:

a) Records of a daily visual check of equipment associated with each operation (cathode) that processes HAP-containing materials to observe if there are any fugitive visible particulate emissions. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed from any process equipment or points of capture, the permitteeshall also record the following:

(1) the location of the emissions;

(2) the total duration of any visible emissions incident; and

(3) any corrective actions taken to eliminate the visible emissions.

b) Records for each continuous monitoring system as required by 40 CFR 63.10(c) unless otherwise specified shall be maintained for the following:

(1) the continuous differential pressure monitoring of the primary control devices, the pulse jet fabric filters serving cathode nos. 3, 4 , 6 , 7, 9, 10, 11, 12, 13 and 15; and

(2) the continuous differential pressure monitoring of the secondary control devices, the afterfilters serving cathode nos. 3, 4 , 6 , 7, 9, 10, 11, 12, 13 and 15.

[Authority for term: 40 CFR 63.10(b), 40 CFR 63.10(c) and section 7.0 of the Notice of MACT Approval]

<u>MACT Notification and Reporting Requirements</u>

9. The requirements of 40 CFR §63.9(b), initial notifications, apply to the owner or operator of an affected source when such source becomes subject to a relevant standard, per §63.9(b)(1)(i). The 4/09/2014 version of the Case by Case MACT Application serves as the initial notification and includes the information required by 40 CFR §63.9(b) per 40 CFR §63.9(b)(1)(iii).

10. A notification of compliance status shall be submitted before the close of business on the 60th day following the date installation of all process operations is complete and operation of the entire emission unit commences. Statements regarding the compliance status of visible emissions requirements, specified in section 4.5.2 of this Notice, shall be included in the general notification of compliance status, which is due before the close of business on the 60th day following the date installation of all process operations is complete and operation of the entire emission unit commences. The notification of compliance status will certify the compliance status with the requirements specified in 40 CFR 63.9(h) and the requirements in the following sections of the Notice of MACT Approval: section 6.1

initial compliance demonstration, section 6.4 monitoring, the record keeping requirements of 40 CFR 63.10(b) and (c) specified in section 7.0, and the reporting requirements of 40 CFR 63.10(d)(5) specified in section 7.0.

[Authority for term: 40 CFR §63.9(b), 40 CFR §63.9(h), and sections 6.1, 6.4, 7.0 and 8.0 of the Notice of MACT Approval]

11. The permittee shall submit semiannual reports in accordance with 40 CFR 63.10(d) of fugitive visible emissions deviations that identify:

    a) all days during which any visible emissions of fugitive dust were observed from any process equipment or points of capture associated with this emissions unit; and

    b) any corrective actions taken to eliminate the visible emissions.

12. As specified in paragraph (ii) of 40 CFR 63.10(d)(5) notifications of failure to follow startup, shutdown and malfunction plans shall be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

13. The permittee shall submit semiannual reports in accordance with 40 CFR 63.10(e) for deviations of the continuous monitoring systems that identify for each primary control device, the pulse jet fabric filters and the secondary control devices, the afterfilters, each serving cathode nos. 3, 4 , 6 , 7, 9, 10, 11, 12, 13 and 15 the following:

    a) each period of time (start time and date, and end time and date) when the pressure drop across any primary control filterdevice was outside of the range specified by the manufacturer until such time as any performance testing is conducted that demonstrates compliance and an alternative pressure drop range and/or limit is established;

    b) each period of time (start time and date, and end time and date) when the pressure drop across any secondary control afterfilter device was outside of the range specified by the manufacturer until such time as any performance testing is conducted that demonstrates compliance and an alternative pressure drop range and/or limit is established;

    c) any period of time (start time and date, and end time and date) when any of cathode nos. 3, 4, 6, 7, 9, 10, 11, 12, 13 and 15 was in operation and the process emissions were not vented to the primary control filter(s);

    d) any period of time (start time and date, and end time and date) when any of cathode nos. 3, 4, 6, 7, 9, 10, 11, 12, 13 and 15 was in operation and the process emissions were not vented to the secondary control afterfilter(s);

    e) each incident of deviation described in “a” through “d” (above) where a prompt investigation was not conducted;

    f) each incident of deviation described in “a” through “d” 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

g) each incident of deviation described in “a” through “d” 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.

[Authority for term: 40 CFR 63.10(d), 40 CFR 63.10(e) and section 7.0 of the Notice of MACT Approval]

C. Emissions Unit Terms and Conditions

1. P129, Cathode Plant

Operations, Property and/or Equipment Description:

Cathode materials manufacturing: metal carbonate process operations, metal hydroxide process operations, mixed materials process operations, and cleanup operations. Except for two kilns (cathode-8 & cathode-14), each process operation has a primary control device filter to control emissions of particulates and hazardous air pollutants (nickel, manganese and cobalt compounds). Cathodes 3, 4, 6, 7, 9 – 13 and 15 have a secondary control afterfilter to control emissions of particulates and hazardous air pollutants.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) 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)	Particulate emissions (PE) shall not exceed 0.34 lb/hr from all process operations, combined. PE shall not exceed 0.0019 gr/dscf of exhaust gas from cathodes 1 - 7, combined. PE shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10. PE shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12; combined, cathode 14; and cathode 15. Particulate matter less than or equal to 10 microns in diameter (PM_{10}) shall not exceed 0.17 lb/hr from all process operations, combined. PM_{10} emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10. PM_{10} emissions shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined, cathode 8; cathodes 9 and 13,

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		combined; cathodes 11 and 12; combined, cathode 14; and cathode 15. Individual hazardous air pollutant (HAP) emissions (e.g. nickel, manganese or cobalt) shall not exceed 0.17 lb/hr from all process operations, combined. Individual HAP emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10. Individual HAP emissions shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined; cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined; cathode 14; and cathode 15. Total combined HAP emissions shall not exceed 0.17 lb/hr from all process operations, combined. Total combined HAP emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10. Total combined HAP emissions shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined; cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined; cathode 14; and cathode 15. See b)(2)a, b)(2)b, b)(2)d, b)(2)e and b)(2)f.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	See b)(2)g.
c.	OAC rule 3745-31-05(D)	PE shall not exceed 0.96 ton/yrfrom all process operations, combined. PM_{10} emissions shall not exceed 0.75 ton/yrfrom all process operations, combined. Individual HAP emissions (e.g. nickel, manganese or cobalt) shall not exceed 0.73 ton/yrfrom all process operations, combined. Total combined HAP emissions shall not exceed 0.73 ton/yrfrom all process operations, combined. See b)(2)a, b)(2)b, b)(2)d and b)(2)e.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stacks serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
e.	OAC rule 3745-17-11(B)(1)	The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
f.	OAC rule 3745-31-28 Case-by-Case MACT rule requirements; 40 CFR Part 63, Subpart B and 40 CFR, Subpart B, §§ 63.40 through 63.43.	See B.3 through B.13. Each operation that processes HAP-containing materials shall employ a closed system design as specified in B.4 to achieve an efficiency of 100% to capture particulate phase HAP emissions at all times the process is in operation. Except for the kiln exhaust gases, the particulate matter phase HAP emissions from each operation that processes HAP-containing materials shall be vented to a control device(s) as specified in B.4. Each egress that serves HAP-containing processes shall emit no more than the mass concentration specified in B.4.
g.	Applicability of General Provisions, 40 CFR Part 63, Subpart A.	See Table 6 -General Provisions Applicability to the Case-by-Case MACT in the Notice of MACT Approval.

(2) Additional Terms and Conditions

a. Each operation that processes only non-HAP-containing materials shall employ a closed system design as specified to achieve an efficiency of 100 percent to capture PE and PM_{10} emissions at all times the process is in operation.

Non-HAP Process Operation	**PE and PM_{10} Capture Design Requirements**
Cathode 1 Metal carbonate unloading	Attached via hard pipe to Cathode 2 with induced draft, which acts as an inductor to assist in material transfer, generated by the fabric filter fan.
Cathode 2 Metal carbonate lump breaker	Enclosed unit attached via hard pipe to Cathode 5 with induced draft, which acts as an inductor to assist in material transfer, generated by the fabric filter fan.
Cathode 5 Metal carbonate mill	Air conveyed material transfer to product collector (cyclone) for hard pipe/short screw conveyor transfer to Cathode 6.

b. Each operation that processes only non-HAP-containing materials shall vent process exhaust gas to a primary control filter at all times the process is in operation.

Non-HAP Process Operation	Control Design Requirements
Cathode 1 Metal carbonate unloading	Use of a primarycontrol filter.
Cathode 2 Metal carbonate lump breaker	Use of a primary control filter.
Cathode 5 Metal carbonate mill	Use of a primary control filter.

c. The "Best Available Technology (BAT)" requirements under OAC rule 3745-31-05(A)(3) are not applicable to the particulate emissions (PE) emitted from this emissions unit (PE is emitted in the form of filterable PM_{10} emissions). BAT is only applicable to emissions of an air contaminant or precursor of an air contaminant for which a national ambient air quality standard (NAAQS) has been adopted under the Clean Air Act. Particulate emissions (also referred to as total suspended particulate or particulate matter) is an air contaminant without an established NAAQS.

d. Each kiln shall only be heat treated electrically at all times the kiln is in operation.

e. The requirements of this rule also include compliance with the emission limitation(s) established pursuant to 40 CFR 63, Subpart B, §§ 63.40 through 63.43.

f. This Best Available Technology (BAT) emission limit applies until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(b) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP). Once U.S. EPA approves the June 30, 2008 version of OAC rule 3745-31-05, then these emission limitations/control measures shall no longer apply: b)(1)a and f)(1)c.

[OAC rule 3745-31-05(A)(3)]

g. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP.

i. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the sulfur dioxide (SO_2) and carbon monoxide (CO) emissions from this air contaminant source since the uncontrolled potential to emit is 0.26 ton SO_2 per year and 0.0193 ton CO per year which are each less than 10 tons/year.

ii. The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the PE and PM_{10} emissions from this air contaminant source since the calculated annual emission rate for PE and PM_{10} is less than 10 tons/yr, taking into account the capture and control systems required to comply with the federally enforceable rule limits specified in B.4 in the Notice of

MACT Approval authorized under 40 CFR 63.40 through 63.43. Since the HAP emissions, as nickel, manganese and cobalt, are a subset of particulate, and the HAP emissions from Cathodes 3, 4 and 6 - 15 are required to be controlled under 40 CFR 63.40 through 63.43, particulate is also considered to be controlled by the rule.

[OAC rule 3745-31-05(A)(3)(a)(ii)]

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily checks of each associated capture system when any process is in operation. 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 and capture system identification; and

b. any corrective actions taken to eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident. 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 specify the minor corrective actions that were taken to eliminate abnormal visible emissions.

[OAC rule 3745-31-05, 40 CFR 63.8, and section 6.4 of the Notice of MACT Approval]

(2) The permittee shall perform weeklychecks, when any process associated with this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from each of the stacks 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 stack identification;

b. the color of the emissions;

c. whether the emissions are representative of normal operations;

d. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

e. the total duration of any visible emissions incident; and

f. 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.

[OAC rule 3745-17-07(A)(1)]

Primary Control Device Monitoring and Record Keeping

(3) The acceptable range for the pressure drop across each primary control device filter shall be based upon the manufacturer's specifications, until such time as any performance testing is conducted that demonstrates complianceand an alternative pressure drop range and/or limit is established.

[OAC rule 3745-31-05(A)(3), 40 CFR 63.8 and section 6.4 of the Notice of MACT approval]

(4) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in millibars, across each primary control device filter when the controlled process operation(s) is/are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each baghouse 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. The acceptable pressure drop shall be based upon the manufacturer's specifications until such time as any performance testing is conducted that demonstrates compliance and an appropriate range is established to demonstrate compliance.

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. the process operation(s) and the primary control device filter identification;

b. any period of time (start time and date, and end time and date) when the process(es) was/were in operation and the process emissions were not vented to primary control filter;

c. any period of time (start time and date, and end time and date) when the process(es) was/were in operation and the primary control filter exhaust gases were not vented to the secondary control afterfilter;

d. the date and time the deviation began;

e. the magnitude of the deviation at that time;

f. the date the investigation was conducted;

g. the name(s) of the personnel who conducted the investigation; and

h. 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:

i. a description of the corrective action;

j. the date corrective action was completed;

k. the date and time the deviation ended;

l. the total period of time (in minutes) during which there was a deviation;

m. the pressure drop readings immediately after the corrective action was implemented; and

n. 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 each primary control device filter 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 any testing that demonstrates compliance with the allowable particulate emission, PM_{10} emissions rate and/or HAP emissions 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 a minor permit modification.

[OAC rule 3745-31-05(A)(3), OAC rule 3745-31-05(D),40 CFR 63.8, and section 6.4 of the Notice of MACT approval]

<u>Secondary Control Device Monitoring and Record Keeping</u>

(5) The acceptable range for the pressure drop across each secondary control device afterfilter, shall be based upon the manufacturer's specifications, until such time as any performance testing is conducted that demonstrates complianceand an alternative pressure drop range and/or limit is established.

[40 CFR 63.8, and section 6.4 of the Notice of MACT approval]

(6) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop, in millibars, across each secondary contolafterfilter when the controlled process operation(s) is/are in operation, including periods of startup and shutdown. The permittee shall record the pressure drop across each afterfilter 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. The acceptable pressure drop shall be based upon the manufacturer's specifications until such time as any performance testing is conducted that demonstrates complianceand the appropriate range is established to demonstrate compliance.

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. the process operation(s) and the secondary control afterfilteridentification;

b. any period of time (start time and date, and end time and date) when the pressure drop deviates from the limit or range established in accordance with this permit;

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 each afterfilter 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, PM_{10} emissions rate and/or HAP emissions for the controlled emissions unit. 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 a minor permit modification.

[40 CFR 63.8, and section 6.4 of the Notice of MACT approval]

(7) Modeling to demonstrate compliance with, the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, are also hazardous air pollutant emissions and are subject to the emission limitation(s) established pursuant to 40 CFR 63, Subpart B, §§ 63.40 through 63.43.

[ORC 3704.03(F)(3)(c) and F(4)]

e) Reporting Requirements

(1) The permittee shall submit semiannual written reports that identify:

a. all days during which any visible particulate emissions were observed from any point of capture and anystack serving this emissions unit;

b. the point of capture and/or stack egress identification;

c. any corrective actions taken to eliminate the visible particulate emissions from a point of capture; and

d. any corrective actions taken to minimize or eliminate the visible particulate emissions from a stack egress.

Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center (Air Services online web portal) by January 31 and July 31 of each year and shall cover the previous 6-month period.

[OAC rule 3745-17-07(A) and OAC rule 3745-31-05(A)(3)]

(2) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. identification of the process operation(s), primary control filter identification or secondary control afterfilter identification where the deviation occurred;

b. any period of time (start time and date, and end time and date) when the process(es) was/were in operation and the process emissions were not vented to primary control filter;

c. any period of time (start time and date, and end time and date) when the process(es) was/were in operation and the primary control filter exhaust gases were not vented to the secondary control afterfilter;

d. each period of time (start time and date, and end time and date) when the pressure drop across the primary control filter was outside of the range specified by the manufacturer and outside of the acceptable range following any compliance demonstration;

e. each period of time (start time and date, and end time and date) when the pressure drop across the secondary control afterfilter was outside of the range specified by the manufacturer and outside of the acceptable range following any compliance demonstration;

f. each incident of deviation described in “b” through “e” (above) where a prompt investigation was not conducted;

g. each incident of deviation described in “b” through “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 “b” through “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.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

[OAC rule 3745-15-03(B)(1)(a) and OAC rule 3745-15-03(C)]

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. <u>Emission Limitation</u>:

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

<u>Applicable Compliance Method</u>:

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

b. Emission Limitation/Requirement:

The emissions from each process operation associated with this emissions unit shall be vented to capture devices with an efficiency of 100% to capture PE and emissions of PM_{10} and HAP at all times the process is in operation.

Applicable Compliance Method:

Compliance may be demonstrated by the monitoring and record keeping requirements specified in d)(1).

c. Emission Limitations:

i. PE shall not exceed 0.34 lb/hr from all process operations, combined.

ii. PE shall not exceed 0.0019 gr/dscf of exhaust gas from cathodes 1 - 7, combined.

iii. PE shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10.

iv. PE shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined, cathode 14; and cathode 15.

v. PM_{10} emissions shall not exceed 0.17 lb/hr from all process operations, combined.

vi. PM_{10} emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10.

vii. PM_{10} emissions shall not exceed 0.001gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined; cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined; cathode 14; and cathode 15.

viii. Individual HAP emissions (e.g. nickel, manganese or cobalt) shall not exceed 0.17 lb/hr from all process operations, combined.

ix. Individual HAP emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10.

x. Individual HAP emissions shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined; cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined; cathode 14; and cathode 15.

xi. Total combined HAP emissions shall not exceed 0.17 lb/hr from all process operations, combined.

xii. Total combined HAP emissions shall not exceed 0.005 gr/dscf of exhaust gas from cathode 10.

xiii. Total combined HAP emissions shall not exceed 0.001 gr/dscf of exhaust gas from the following: cathodes 1 - 7, combined; cathode 8; cathodes 9 and 13, combined; cathodes 11 and 12, combined; cathode 14; and cathode 15.

Applicable Compliance Method:

Compliance may be based on the following estimation method(s):

The maximum, controlled hourly emissions may be estimated by the following equation:

$$\text{Pollutant(lb/hr)}_i = \sum \{PWR_i \times EF_i \times \text{kg Pollutant } i_{UNCTRL}/2.2046 \text{ lbs Pollutant } i_{UNCTRL} \times (1 - CE_i) \times (1 - CE_{ii})\}$$

where:

$\text{Pollutant(lb/hr)}_i$ = the maximum hourly emissions from process operation i, in pound of pollutant, as PE, PM_{10}, individual HAP or total combined HAPs, considering the use of capture equipment and control equipment;

PWR_i = the maximum process weight rate of process i, in metric tonne per hour (t_{MTL}/hr) as stated in the application(s) for PTI P0111903;

EF_i = the factor for uncontrolled pollutant emissions from process i, in kg/t, as specified for the following process operation types:

cathode no.	kg PE/t	kg HAP/t	kg PM_{10}/t	U.S. EPA AP42 Chap. 11.24 (1/95), Table 11.24-1
1	0.06	0	0.03	Material handling high moisture minerals except bauxite
2	0.2	0	0.02	Primary crushing high moisture minerals
3	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
4	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
5	14.4	0	13	Dry grinding high moisture minerals with air conveying
6	0.06	0.06	0.03	Material handling high moisture minerals except bauxite

cathode no.	kg PE/t	kg HAP/t	kg PM_{10}/t	U.S. EPA AP42 Chap. 11.24 (1/95), Table 11.24-1
7	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
8	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
9	0.2	0.2	0.02	Primary crushing high moisture minerals
10	14.4	14.4	13	Dry grinding high moisture minerals with air conveying
11	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
12	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
13	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
14	0.06	0.06	0.03	Material handling high moisture minerals except bauxite
15	0.0018	0.0018	0.0009	Pneumatic conveyor venting with fabric filter, AP42 Chap. 11.26 (11/1995),Table 11.26-1

CE_i = efficiency of primary control device i (e.g. pulse jet baghouse) which is 99% or 0.99, for cathode nos. 1 – 7, 9 – 13 and 15 as stated in the application(s) for PTI P0111903; and

CE_{ii} = efficiency of secondary control device ii (e.g. afterfilter) which is 95% or 0.95, for cathode nos. 10, 11, 12 and 15 [or 1 – 7, 9 – 13 and 15, as stated in the application(s) for PTI P0111903.

The maximum, controlled mass emission concentrations may be estimated by the following equations:

$$\text{Pollutant(gr/dscf)}_{i\text{-}n} = \sum_{1}^{n} \text{Pollutant(lb/hr)}_{i\text{-}n}/Q_j \times \text{hr/60 min} \times \text{7000 gr/lb Pollutant}$$

where:

Pollutant(gr/dscf)$_{i-n}$ = the mass concentration of a pollutant (e.g PE, PM_{10}, an individual HAP or total combined HAPs) in grains per dry standard cubic foot of exhaust gas;

PE(lb/hr) = the PE rate as determined in f)(1)c.i; and

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

$Q_j = Q_{A\,j} \times T_{STD}/T_A \times P_A/P_{STD} \times (1- B_{ws})$

$Q_{A\,j}$ = the actual flow rate through exhaust stack j, in actual cubic feet per minute, acfm, as stated in the application(s) for PTI P0111903;

T_{STD} = standard temperature = 528.0^{o}R;

T_A = actual stack temperature, in Rankine = $T_A = (T_A{}^oF + 459.67)^oR$;

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.

If required, compliance with the limitation(s) for PE and emissions of PM_{10} and HAP shall be determined in accordance with the following methods:

Methods 1 – 4, 40 CFR Part 60, Appendix A;

Method 5 for PE, 40 CFR Part 60, Appendix A;

Method 201 or 201A for PM_{10}, 40 CFR Part 60, Appendix A; and

Method 5 or 5D for HAP, 40 CFR Part 60, Appendix A, to determine the concentration of PM, or Method 29 in 40 CFR Part 60, Appendix A-8 to determine the concentration of HAP metals.

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

d. <u>Emission Limitations</u>:

i. PE shall not exceed 0.96 ton/yr from all process operations, combined.

ii. PM_{10} emissions shall not exceed 0.75 ton/yr from all process operations, combined.

iii. Individual HAP emissions (e.g. nickel, manganese or cobalt) shall not exceed 0.73 ton/yr from all process operations, combined.

iv. Total combined HAP emissions shall not exceed 0.73 ton/yr from all process operations, combined.

Applicable Compliance Method:

Compliance may be demonstrated based on the following equation:

$Pollutant(ton/yr)_i = \sum \{Pollutant(lb/hr)_I$ x ton Pollutant/2000 lbs Pollutant

x 8760 hrs/yr}

where:

$Pollutant(ton/yr)_i$ = the maximum, annual pollutant emissions (as PE, PM_{10}, individual HAP or total combined HAPs, considering the use of capture equipment and control equipment; and

$Pollutant(lb/hr)_i$ = the maximum, hourly pollutant emissions as determined in f)(1)c.i.

g) Miscellaneous Requirements

(1) Greenhouse gases shall not be deemed to be an air contaminant source subject to regulation or regulated New Source Review pollutants under OAC rule 3745-31-34, unless the greenhouse gas emissions from the source exceeds the permitting thresholds of a potential to emit seventy-five thousand (75,000) tons or more per year of carbon dioxide (CO_2e) equivalent emissions of greenhouse gases set forth in paragraph (A) of OAC rule 3745-31-34. The potential emissions of 949 tons of CO_2 emissions per year from this emissions unit do not exceed the threshold level of 75,000 CO_2e tons/year, therefore no requirements to minimize CO_2e emissions will be established.

(2) This emissions unit does not include a mining process and does not concentrate the input materials so that the requirements of 40 CFR Part 60, Subpart LL - Standards of Performance for Metallic Mineral Processing Plants are not applicable.

(3) The requirements of 40 CFR Part 60, Subpart UUU – Standards of Performance for Calciners and Dryers in Mineral Industries are not applicable to this emissions unit because no materials specified in 40 CFR 60.731 are processed at this emissions unit.