



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

12/18/2015

Lincoln Braden
 Materion Brush Inc.
 7375 Industrial Parkway
 Lorain, OH 44053

Certified Mail

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

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0247080929
 Permit Number: P0119409
 Permit Type: Administrative Modification
 County: Lorain

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
Materion Brush Inc.**

Facility ID:	0247080929
Permit Number:	P0119409
Permit Type:	Administrative Modification
Issued:	12/18/2015
Effective:	12/18/2015
Expiration:	12/31/2018



**Division of Air Pollution Control
Permit-to-Install and Operate**

for
Materion Brush Inc.

Table of Contents

Authorization	1
A. Standard Terms and Conditions	3
1. What does this permit-to-install and operate ("PTIO") allow me to do?.....	4
2. Who is responsible for complying with this permit?	4
3. What records must I keep under this permit?	4
4. What are my permit fees and when do I pay them?.....	4
5. When does my PTIO expire, and when do I need to submit my renewal application?	4
6. What happens to this permit if my project is delayed or I do not install or modify my source?	5
7. What reports must I submit under this permit?	5
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?	5
9. What are my obligations when I perform scheduled maintenance on air pollution control equipment? ...	5
10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?	6
11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?	6
12. What happens if one or more emissions units operated under this permit is/are shut down permanently?	6
13. Can I transfer this permit to a new owner or operator?.....	7
14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?	7
15. What happens if a portion of this permit is determined to be invalid?	7
B. Facility-Wide Terms and Conditions.....	8
C. Emissions Unit Terms and Conditions	10
1. P002, Furnace for vertical continuous caster	11
2. P003, Furnace for vertical semi-continuous caster.....	16
3. P005, Vertical Continuous Caster #2	21



Final Permit-to-Install and Operate
Materion Brush Inc.
Permit Number: P0119409
Facility ID: 0247080929
Effective Date: 12/18/2015

Authorization

Facility ID: 0247080929
Application Number(s): M0003551, M0003552, M0003553
Permit Number: P0119409
Permit Description: This is an administrative permit modification to change the differential pressure range for the baghouse associated with emissions units P002, P003, and P005.
Permit Type: Administrative Modification
Permit Fee: \$0.00
Issue Date: 12/18/2015
Effective Date: 12/18/2015
Expiration Date: 12/31/2018
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Materion Brush Inc.
7375 INDUSTRIAL PKWY
Lorain, OH 44053

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



Final Permit-to-Install and Operate
Materion Brush Inc.
Permit Number: P0119409
Facility ID: 0247080929
Effective Date: 12/18/2015

Authorization (continued)

Permit Number: P0119409

Permit Description: This is an administrative permit modification to change the differential pressure range for the baghouse associated with emissions units P002, P003, and P005.

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

Emissions Unit ID:	P002
Company Equipment ID:	Furnace for vertical continuous caster
Superseded Permit Number:	P0085445
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P003
Company Equipment ID:	Furnace for vertical semi-continuous caster
Superseded Permit Number:	P0085446
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P005
Company Equipment ID:	Vertical Continuous Caster #2
Superseded Permit Number:	P0112053
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
Materion Brush Inc.
Permit Number: P0119409
Facility ID: 0247080929
Effective Date: 12/18/2015

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
Materion Brush Inc.
Permit Number: P0119409
Facility ID: 0247080929
Effective Date: 12/18/2015

B. Facility-Wide Terms and Conditions



Final Permit-to-Install and Operate

Materion Brush Inc.

Permit Number: P0119409

Facility ID: 0247080929

Effective Date: 12/18/2015

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.
2. The permittee has evaluated the applicability of 40 CFR Part 63, Subpart ZZZZZZ, to emissions units P002, P003, and P005. This emissions unit is a secondary metal producer that casts simple shapes (billets) and, therefore, in accordance with 40 CFR 63.11556 and the definitions of subject foundries therein, is not subject to this subpart.



Final Permit-to-Install and Operate
Materion Brush Inc.
Permit Number: P0119409
Facility ID: 0247080929
Effective Date: 12/18/2015

C. Emissions Unit Terms and Conditions

1. P002, Furnace for vertical continuous caster

Operations, Property and/or Equipment Description:

Electric induction furnace, controlled by a baghouse

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 3745-17-07(A)(1)	The limit based upon this rule is less stringent than the limit based upon OAC 3745-31-05.
b.	OAC rule 3745-17-11(B)(1)	The limit based upon this rule is less stringent than the limit based upon OAC rule 3745-31-05.
c.	OAC rule 3745-17-08(B)	See sections c)(1) to c)(3).
d.	OAC rule 3745-17-07(B)	The limit based upon this rule is less stringent than the limit based upon OAC rule 3745-31-05.
e.	OAC rule 3745-31-05(A)(3)	Fabric filter's exhaust stack: particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour. See sections b)(2)(a) to b)(2)(c).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	40 CFR Part 60, Subpart M	The emissions limitations established in this rule are less stringent than the emissions limitations based upon OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- (a) The fugitive particulate emissions into the ambient air from this emissions unit shall not exceed 2.7 tons per year.
- (b) Except for a period of time not to exceed 12 minutes during the start-up of this emissions unit, the opacity of particulate matter from the fabric filter's exhaust stack shall not exceed five percent (5%) on a six-minute average. During the start-up period, visible emissions shall not exceed twenty percent (20%) opacity as a six-minute average.
- (c) The opacity of fugitive particulate matter from any building opening shall not exceed five percent (5%) on a six-minute average.

c) Operational Restrictions

- (1) Scrap charged to the furnaces shall be clean of oil and dirt in order to minimize air contaminant emissions.
- (2) The collection efficiency of the air pollution capture hoods shall be sufficient to minimize or eliminate visible particulate emissions of fugitive dust at all points of capture. This shall include: furnace charging, melting and casting operations, and metal holding. The permittee shall maintain all hoods and enclosures in good operating condition. Additional capture hooding or enclosures shall be installed if required by the Ohio EPA.
- (3) The air pollution control system shall be operated with sufficient volumetric flow rate to minimize or eliminate visible particulate emissions at the point(s) of capture to the extent possible with good engineering design.
- (4) The pressure drop across the baghouse shall be maintained within the range of 1 to 6 inches of water while the emissions unit is in operation.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse once per eight (8) hour period.

- (2) The fabric filter baghouse shall be equipped with a broken bag detector.
- (3) The permittee shall keep a log of total metal produced from this emissions unit.
- (4) The permittee shall also keep a log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.

e) Reporting Requirements

- (1) The permittee shall report pressure drop deviations (excursions) in the Permit Evaluation Report (PER) that identify all periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified in section c)(4) of these terms and conditions.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

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:

Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour.

Applicable Compliance Method:

The emission limitation of 2.19 pounds per hour for emissions units P002, P003, and P005 was, in part, established based upon particulate emissions testing of a similar source at the facility performed on March 20, 2008. Emissions from that source were measured at 0.019 pounds per hour. The production rate during testing of that source was 1709 pounds per hour.

(b) Emission Limitation:

2.7 tons/yr of fugitive particulate emissions

Applicable Compliance Method:

Compliance shall be determined by the following equation:

Fugitive Emissions = (EF)(APM)(1 - CE)/(2000 lbs/ton)

Where,

EF = emission factor, 7.26 pounds of PM per ton of metal produced in this emissions unit, derived as follows:

Electric induction furnace copper melting emissions: 7.0 lbs/ton (AP-42, Table 12.9-2)

Electric induction furnace fugitive emissions: 0.04 lb/ton (AP-42, Table 12.9-2)

Casting emissions: 0.015 lb/ton (WebFIRE factor for SCC 30400239)

Cut-off emissions: 0.20lb/ton (engineering estimate)

$7.0 \text{ lbs/ton} + 0.04 \text{ lb/ton} + 0.015 \text{ lb/ton} + 0.2 \text{ lb/ton} = 7.26 \text{ lbs/ton};$

APM = Actual raw material processed in this emissions unit, in tons per year; and

CE = 0.95, capture efficiency, in decimal form.

(c) Emissions Limitation:

Except for a period of time not to exceed 12 minutes during the start-up of this emissions unit, the opacity of particulate matter from the fabric filter's exhaust stack shall not exceed five percent (5%) on a six-minute average. During the start-up period, visible emissions shall not exceed twenty percent (20%) opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be determined in accordance with the test method and procedures in OAC rule 3745-17-03 (B)(5).

(d) Emission Limitation:

The opacity of fugitive particulate matter from any building opening shall not exceed five percent (5%) on a six-minute average.

Applicable Compliance Method:

Compliance shall be determined in accordance with the test method and procedures in OAC rule 3745-17-03 (B)(5).

- (2) The permittee shall conduct, or have conducted, emission testing for emissions units P002, P003, and P005, combined, in accordance with the following requirements:
- (a) The emission testing shall be conducted within 6 months prior to permit expiration.
 - (b) The emission testing shall be conducted to demonstrate compliance with the allowable stack mass emission rate for particulate matter from emissions units P002, P003, and P005.



- (c) The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): for particulate, Method 5 of 40 CFR Part 60, Appendix A.

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

- (d) The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

- g) Miscellaneous Requirements

- (1) None.

2. P003, Furnace for vertical semi-continuous caster

Operations, Property and/or Equipment Description:

Electric induction furnace, controlled by a baghouse

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 3745-17-07(A)(1)	The limit based upon this rule is less stringent than the limit based upon OAC 3745-31-05.
b.	OAC rule 3745-17-11(B)(1)	The limit based upon this rule is less stringent than the limit based upon OAC rule 3745-31-05.
c.	OAC rule 3745-17-08(B)	See sections c)(1) to c)(3).
d.	OAC rule 3745-17-07(B)	The limit based upon this rule is less stringent than the limit based upon OAC rule 3745-31-05.
e.	OAC rule 3745-31-05(A)(3)	Fabric filter's exhaust stack: particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour. See sections b)(2)(a) to b)(2)(c).

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	40 CFR Part 60, Subpart M	The emissions limitations established in this rule are less stringent than the emissions limitations based upon OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

- (a) The fugitive particulate emissions into the ambient air from this emissions unit shall not exceed 5.5 tons per year.
- (b) Except for a period of time not to exceed 12 minutes during the start-up of this emissions unit, the opacity of particulate matter from the fabric filter's exhaust stack shall not exceed five percent (5%) on a six-minute average. During the start-up period, visible emissions shall not exceed twenty percent (20%) opacity as a six-minute average.
- (c) The opacity of fugitive particulate matter from any building opening shall not exceed five percent (5%) on a six-minute average.

c) Operational Restrictions

- (1) Scrap charged to the furnaces shall be clean of oil and dirt in order to minimize air contaminant emissions.
- (2) Except for a period of time not to exceed 12 minutes during the start-up of this emissions unit, the opacity of particulate matter from the fabric filter's exhaust stack shall not exceed five percent (5%) on a six-minute average. During the start-up period, visible emissions shall not exceed twenty percent (20%) opacity as a six-minute average.
- (3) The opacity of fugitive particulate matter from any building opening shall not exceed five percent (5%) on a six-minute average.
- (4) The pressure drop across the baghouse shall be maintained within the range of 1 to 6 inches of water while the emissions unit is in operation.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse once per eight (8) hour period.
- (2) The fabric filter baghouse shall be equipped with a broken bag detector.
- (3) The permittee shall keep a log of total metal produced from this emissions unit.

- (4) The permittee shall also keep a log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.

e) Reporting Requirements

- (1) The permittee shall report pressure drop deviations (excursions) in the Permit Evaluation Report (PER) that identify all periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified in section c)(4) of these terms and conditions.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.

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:

Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour.

Applicable Compliance Method:

The emission limitation of 2.19 pounds per hour for emissions units P002, P003, and P005 was, in part, established based upon particulate emissions testing of a similar source at the facility performed on March 20, 2008. Emissions from that source were measured at 0.019 pounds per hour. The production rate during testing of that source was 1709 pounds per hour.

(b) Emission Limitation:

5.5 tons/yr of fugitive particulate emissions

Applicable Compliance Method:

Compliance shall be determined by the following equation:

Fugitive Emissions = (EF)(APM)(1 - CE)/(2000 lbs/ton)

Where,



EF = emission factor, 7.26 pounds of PM per ton of metal produced in this emissions unit, derived as follows:

Electric induction furnace copper melting emissions: 7.0 lbs/ton (AP-42, Table 12.9-2)

Electric induction furnace fugitive emissions: 0.04 lb/ton (AP-42, Table 12.9-2)

Casting emissions: 0.015 lb/ton (WebFIRE factor for SCC 30400239)

Cut-off emissions: 0.20lb/ton (engineering estimate)

7.0 lbs/ton + 0.04 lb/ton + 0.015 lb/ton + 0.2 lb/ton = 7.26 lbs/ton;

APM = Actual raw material processed in this emissions unit, in tons per year; and

CE = 0.95, capture efficiency, in decimal form.

(c) Emissions Limitation:

Except for a period of time not to exceed 12 minutes during the start-up of this emissions unit, the opacity of particulate matter from the fabric filter's exhaust stack shall not exceed five percent (5%) on a six-minute average. During the start-up period, visible emissions shall not exceed twenty percent (20%) opacity as a six-minute average.

Applicable Compliance Method:

Compliance shall be determined in accordance with the test method and procedures in OAC rule 3745-17-03 (B)(5).

(d) Emission Limitation:

The opacity of fugitive particulate matter from any building opening shall not exceed five percent (5%) on a six-minute average.

Applicable Compliance Method:

Compliance shall be determined in accordance with the test method and procedures in OAC rule 3745-17-03 (B)(5).

(2) The permittee shall conduct, or have conducted, emission testing for emissions units P002, P003, and P005, combined, in accordance with the following requirements:

(a) The emission testing shall be conducted within 6 months prior to permit expiration.

(b) The emission testing shall be conducted to demonstrate compliance with the allowable stack mass emission rate for particulate matter from emissions units P002, P003, and P005.

(c) The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): for particulate, Method 5 of 40 CFR Part 60, Appendix A.



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

- (d) The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

- g) Miscellaneous Requirements

- (1) None.



3. P005, Vertical Continuous Caster #2

Operations, Property and/or Equipment Description:

Melting furnace, holding tundish, vertical continuous casting machine; controlled by a baghouse

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

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

(a) None.

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

(a) None.

b) **Applicable Emissions Limitations and/or Control Requirements**

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	<p>Fabric filter's exhaust stack: particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour.</p> <p>Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 9.6 tons per year.</p> <p>See sections b)(2)(a) below.</p>
b.	OAC rule 3745-31-05(F), as effective 12/01/06	See section b)(2)(b) below.
c.	OAC rule 3745-17-07(A)(1)	The limit based upon this rule is less stringent than the limit based upon 40 CFR Part 60, Subpart M.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-11(B)(1)	The particulate emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-05(A)(3).
e.	40 CFR Part 60, Subpart M	Visible particulate emissions from the stack associated with this emissions unit shall not exceed 10 percent opacity, as a 6-minute average.

(2) Additional Terms and Conditions

(a) The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006, version of 3745-31-05, then these emission limits/control measures no longer apply.

(b) This rule paragraph applies once U.S. EPA approves the December 1, 2006, version of OAC rule 3745-31-05 as part of the State Implementation Plan.

PTIO P0112053 for this air contaminant source takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purpose of avoiding BAT requirements under OAC rule 3745-31-05(A)(3):

- i. The emissions from this emissions unit shall be vented to a baghouse with capture and control efficiencies sufficient to ensure compliance with the emission limitations contained in this permit at all times when this emissions unit is in operation.
- ii. Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 9.6 tons per year.

c) Operational Restrictions

- (1) Scrap charged to the furnaces shall be clean of oil and dirt in order to minimize air contaminant emissions.
- (2) The collection efficiency of the air pollution capture hoods shall be sufficient to eliminate visible particulate emissions of fugitive dust at all points of capture. This shall include:

furnace charging, melting and casting operations, and metal holding. The permittee shall maintain all hoods and enclosures in good operating condition. Additional capture hooding or enclosures shall be installed if required by the Ohio EPA.

- (3) The air pollution control system shall be operated with sufficient volumetric flow rate to minimize or eliminate visible particulate emissions at the point(s) of capture to the extent possible with good engineering design.
- (4) The pressure drop across the baghouse shall be maintained within the range of 1 to 6 inches of water while the emissions unit is in operation.

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

- (1) The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse once per eight (8) hour period.
- (2) The fabric filter baghouse shall be equipped with a broken bag detector.
- (3) The permittee shall keep a log of total metal produced from this emissions unit.
- (4) The permittee shall also keep a log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation.
- (5) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - (a) The color of the emissions;
 - (b) Whether the emissions are representative of normal operations;
 - (c) If the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - (d) The total duration of any visible emissions incident; and
 - (e) Any corrective actions taken to 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)(5)iv. above or continue the weekly 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 the abnormal visible emissions.

e) Reporting Requirements

- (1) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.
- (2) The permittee shall identify the following information in the annual PER:
 - (a) All periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified in section c)(4) of these terms and conditions; and
 - (b) All days during which any visible particulate emissions were observed from the stack serving this emissions unit and any corrective actions taken.

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:

Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 0.017 grain per dry standard cubic foot of exhaust gases and 2.19 pounds per hour.

Applicable Compliance Method:

The emission limitation of 2.19 pounds per hour for emissions units P002, P003, and P005 was, in part, established based upon particulate emissions testing of a similar source at the facility performed on March 20, 2008. Emissions from that source were measured at 0.019 pounds per hour. The production rate during testing of that source was 1709 pounds per hour.
 - (b) Emission Limitation:

Fabric filter's exhaust stack particulate emissions generated from P002, P003, and P005 shall not exceed 9.6 tons per year.

Applicable Compliance Method:

The annual emission limitation is based upon the hourly emission limitation of 2.19 pounds per hour. Therefore, compliance shall be assumed provided compliance is maintained with the hourly emission limitation.

(c) Emission Limitation:

Visible particulate emissions from the stack associated with this emissions unit shall not exceed 10 percent opacity, as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the visible particulate emission limitation shall be determined in accordance with Method 9 in 40 CFR Part 60, Appendix A.

(2) The permittee shall conduct, or have conducted, emission testing for emissions units P002, P003, and P005, combined, in accordance with the following requirements:

- (a) The emission testing shall be conducted within 6 months prior to permit expiration.
- (b) The emission testing shall be conducted to demonstrate compliance with the allowable stack mass emission rate for particulate matter from emissions units P002, P003, and P005.
- (c) The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): for particulate, Method 5 of 40 CFR Part 60, Appendix A.

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

- (d) The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.



Final Permit-to-Install and Operate

Materion Brush Inc.

Permit Number: P0119409

Facility ID: 0247080929

Effective Date: 12/18/2015

A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

g) Miscellaneous Requirements

(1) None.