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

6/18/2014

Certified Mail

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

Mr. DAVID LAWRIE
Veitsch-Radex America - Saybrook Plant
4741 KISTER CT
Stanford Street, Clydebank, Scotland G81 1RR
Saybrook, OH 44004

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 0204000450
Permit Number: P0113461
Permit Type: Renewal
County: Ashtabula

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

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

How to appeal this permit

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

Environmental Review Appeals Commission
77 South High Street, 17th Floor
Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

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

How to give us feedback on your permitting experience

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

How to get an electronic copy of your permit

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

If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)425-9171or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,

Michael W. Ahern

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

Cc: Ohio EPA-NEDO

Response to Comments

Facility ID:	0204000450
Facility Name:	Veitsch-Radex America - Saybrook Plant
Facility Description:	refractory products mfg.
Facility Address:	4741 Kister Ct Ashtabula, OH 44004 Ashtabula County
Permit:	P0113461, Permit-To-Install and Operate - Renewal
A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the The Star Beacon on 05/16/2014. The comment period ended on 06/15/2014.	
Hearing date (if held)	
Hearing Public Notice Date (if different from draft public notice)	

The following comments were received during the comment period specified. Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. PDF copies of the original comments in the format submitted are available upon request.

1. Topic: None

a. Comment: None

b. Response: None

FINAL

Division of Air Pollution Control
Permit-to-Install and Operate
for
Veitsch-Radex America - Saybrook Plant

Facility ID:	0204000450
Permit Number:	P0113461
Permit Type:	Renewal
Issued:	6/18/2014
Effective:	6/18/2014
Expiration:	6/18/2019

Division of Air Pollution Control
Permit-to-Install and Operate
for
Veitsch-Radex America - Saybrook Plant

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 12

1. P001, Cure Oven 13
2. P002, Kiln no. 1 26
3. P003, Kiln no. 2 35
4. P004, Deltek Mixing Process 45

Authorization

Facility ID:	0204000450
Application Number(s):	A0047051, A0047071
Permit Number:	P0113461
Permit Description:	FEPTIO renewal for a curing oven, two kilns and Deltek mixing process.
Permit Type:	Renewal
Permit Fee:	$0.00
Issue Date:	6/18/2014
Effective Date:	6/18/2014
Expiration Date:	6/18/2019
Permit Evaluation Report (PER) Annual Date:	Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

Veitsch-Radex America - Saybrook Plant
4741 Kister Ct
Ashtabula, OH 44004

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)425-9171

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Craig W. Butler
Director

Authorization (continued)

Permit Number: P0113461
Permit Description: FEPTIO renewal for a curing oven, two kilns and Deltek mixing process.

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

Emissions Unit ID:	**P001**
Company Equipment ID:	P001
Superseded Permit Number:	02-22963
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P002**
Company Equipment ID:	P002
Superseded Permit Number:	02-22963
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P003**
Company Equipment ID:	P003
Superseded Permit Number:	P0103656
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P004**
Company Equipment ID:	Deltek Mixing Process
Superseded Permit Number:	P0108017
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

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

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

2. Who is responsible for complying with this permit?

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

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

3. What records must I keep under this permit?

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

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

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

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

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

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. 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 beingpermanently shut down without first applying for and obtaining a permit pursuantto 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.

B. Facility-Wide Terms and Conditions

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

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

      (1) None.

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

      (1) B.2.a), B.2.b) and B.2.c)

2. Permit to Install and Operate P0113461 for this air contaminant source takes into account the following voluntary restrictions, regarding the emissions units specified in B.3 and B.4, as proposed by the permittee for the purpose of avoiding New Emission Standards for the Refractory Products Manufacturing Industry requirements under 40 CFR Part 63, Subpart SSSSS, and as well as avoiding Title V requirements under OAC rules 3745-77-02 through 3745-77-10:

   a) The emissions of each single hazardous air pollutant (HAP) from the emissions units, specified in B.3 and B.4, shall not exceed 9.0 tpy, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1), C.1.c)(2), C.2.c)(1), C.2.c)(2), C.3.c)(1), and C.3.c)(2) within this permit for emissions units P001, P002 and P003, respectively.

   b) The emissions of combined HAPs from the emissions units, specified in B.3 and B.4, shall not exceed 24.0 tpy, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1), C.1.c)(2), C.2.c)(1), C.2.c)(2), C.3.c)(1), and C.3.c)(2) within this permit for emissions units P001, P002 and P003, respectively.

   c) The emissions of volatile organic compounds (VOCs) from the emissions units, specified in B.3 and B.4, shall not exceed 99.0 tpy, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1), C.1.c)(2), C.2.c)(1), C.2.c)(2), C.3.c)(1), and C.3.c)(2) within this permit for emissions units P001, P002 and P003, respectively.

3. Voluntary restrictions to limit potential facility-wide emissions of individual HAP, total combined HAPs, and/or VOCs by the use of thermal oxidizers, concern the following emissions units:

   a) P001 - 4.904 mmBtu/hr natural gas-fired curing oven for intermediate refractory products, with a 3.961 mmBTU/hr natural gas-fired thermal oxidizer (AB1) to control organic compound (OC) emissions;

   b) P002 - 14.343 mmBtu/hr natural gas-fired kiln no. 1 for refractory products, with a 7.171 mmBTU/hr natural gas-fired thermal oxidizer (AB2) to control organic compound (OC) emissions; and

c) P003 - 4.918 mmBtu/hr natural gas-fired kiln no. 2 for refractory products, with a 2.049 mmBTU/hr afterburner natural gas-fired thermal oxidizer (AB3) to control organic compound (OC) emissions.

4. The following emissions unit(s) located at this facility, including any deminimis air contaminant sources, as defined in OAC rule 3745-15-05, and any permanent exemption air contaminant sources installed subsequent to the issuance of this permit are subject to the rolling, 12-month emission limitation(s) on individual HAP, total combined HAPs and/or VOCs specified in B.2 above, but do not have operational restrictions to use a thermal oxidizer: Curing of glaze and/or cement materials.

5. The permittee shall maintain monthly records of the following information for the emissions units identified in B.3.a) through B.3.c) and B.4:

   a) the rolling, 12-month individual HAP emissions for each HAP, in tons;

   b) the rolling, 12-month total combined HAP emissions, in tons; and

   c) the rolling, 12-month VOC emissions, in tons.

6. The permittee shall submit quarterly deviation (excursion) reports that include the following information:

   a) each month during which exceedances of the rolling, 12-month emission limitation(s) on single HAPs, combined HAPs and VOCs from the emissions units specified in B.3 and B.4 exceeded 9.0 tpy of each individual HAP, 24.0 tons total combined HAPs/yr and 99.0 tons VOC/yr; and

   b) for each deviation, the actual rolling, 12-month emissions of individual HAP, total combined HAPs and VOCs, in tons.

   These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

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

   9.0 tpy of each individual HAP, based on a rolling, 12-month summation of the emissions from the emissions units specified in B.3 and B.4

   24.0 tpy of total combined HAPs, based on a rolling, 12-month summation of the emissions from the emissions units specified in B.3 and B.4

   99.0 tpy of VOC, based on a rolling, 12-month summation of the emissions from the emissions units specified in B.3 and B.4

   <u>Applicable Compliance Method</u>:

   Compliance shall be based upon the following:

   For emissions units, specified in B3, that are subject to the voluntary operational restrictions, specified in B.2.a) through B.2.c), the record keeping requirements in B.5.a) through B.5.c), which are the maintenance of a rolling, 12-month summation of the specified emissions, for emissions units specified in B.3 and B.4.

For emissions units, specified in B.4, that are not subject to voluntary operational restrictions HAP and VOC emissions may be estimated by using the methods described in AP42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources or an alternative method(s) as approved by the Ohio EPA.

C. Emissions Unit Terms and Conditions

1. P001, Cure Oven

Operations, Property and/or Equipment Description:

4.904 mmBtu/hr natural gas-fired curing oven for intermediate refractory products manufacture with a 3.961 mmBtu/hr natural gas-fired thermal oxidizer (AB1) to control OC emissions.

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

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

a. d)(5), d)(6), d)(7) and e)(3)

(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 operations(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. 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)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)	Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average. Particulate emissions (PE) shall not exceed 0.5 lb/hr and 2.2 tpy. Nitrogen oxides (NO_X) emissions shall not exceed 1.0 lb/hr and 4.4 tpy. The requirements of this rule also include compliance with OAC rule 3745-31-05(E). See b)(2)b and b)(2)c.
c.	OAC rule 3745-17-07(A)	The visible particulate emission limitation

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		required by this applicable rule is less stringent than the visible particulate emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)	The PE limitation required by this applicable rule is less stringent than the PE limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-21-07(M)(5)(d)	This emissions unit is not subject to the emission limitation requirements nor the control requirements of OAC rule 3745-21-07(M)(4) since the volatile content of the substance containing liquid organic material does not exceed 20%, by volume of said substance.
f.	OAC rule 3745-31-05(E) - voluntary restriction to avoid BAT requirements	Organic compound (OC) emissions shall not exceed 9.9 tpy. See b)(2)d.
g.	OAC rule 3745-31-05(D) - voluntary restriction to avoid MACT requirements and Title V requirements	See B.2.a), B.2.b)andB.2.c).

(2) Additional Terms and Conditions

a. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the carbon monoxide (CO) emissions from this air contaminant source since the uncontrolled potential to emit for CO is less than 10 tpy. Maximum uncontrolled CO emissions may be estimated by the following methods:

i. Determination of the maximum, uncontrolled, hourly CO emissions:

Pollutant(HR) = ($H_{CURE\ OVEN}$ + $H_{AFTERBURNER}$)/Heat Content x EF

where:

Pollutant(HR) = maximum, hourly rate, which is 0.74 lb/hr of CO emissions;

$H_{CURE\ OVEN}$ = maximum heat input of the cure oven, which is 4.904 mmBtu/hr;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB1), which is 3.961 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 84 lbs uncontrolled CO/mmcf, from Table 1.4-1 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the maximum, uncontrolled, annual CO emissions may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x (Summation of Hrs/YR) / (2000 lbs/ton)

where:

Pollutant(YR) = maximum, annual pollutant emissions, which is 3.26 tpy of CO emissions;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in b)(2)a.i; and

Hrs/YR = the maximum annual operating hours, which is 8,760 hrs/yr.

b. The potential to emit NO_x, as defined in OAC rule 3745-31-01, for this emissions unit is 0.89 lb/hr and 3.88 tpy from natural gas fuel combustion. The potential NO_x emission rates are less than the emission limitations of 1.0 lb/hr and 4.4 tpy, established pursuant to OAC rule 3745-31-05(A)(3). Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with the short-term emission limitations.

c. The potential to emit PE, as defined in OAC rule 3745-31-01, for this emissions unit is 0.07 lb/hr and 0.30 ton per year from natural gas fuel combustion. The potential PE rates are less than the emission limitations of 0.5 lb/hr and 2.2 tpy, established pursuant to OAC rule 3745-31-05(A)(3). Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these short-term emission limitations.

d. Permit to Install and Operate P0113461 for this air contaminant source takes into account the following voluntary restriction(s) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3): operation of a thermal oxidizer, also known as afterburner no. 1 (AB1), with a minimum control efficiency of 98%, by weight, for OC/VOC.

c) Operational Restrictions

(1) All of the OC/VOC emissions from this emissions unit shall be vented to the thermal oxidizer, also known as afterburner no. 1 (AB1), when the emissions unit is in operation.

(2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable average combustion temperature within the thermal oxidizer,

for any 3-hour block of time when the emissions unit controlled by the thermal oxidizer is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emissions unit was in compliance.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain monthly records of the following information for this emissions unit:

a. the weight of all materials processed in each batch, in pounds;

b. the individual HAP content for each HAP in each batch, in percent by weight;

c. the total combined HAP content in each batch, in percent by weight;

d. the VOC content of each batch, in percent by weight;

e. the OC content of each batch, in percent by weight;

f. the natural gas usage, in million cubic feet; and

g. an identification of each time period when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer.

(2) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal oxidizer when the emissions unit(s) is/are in operation. Units shall be in degrees Fahrenheit or Celsius. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within ± 1 percent of the temperature being measured or ± 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals. The permittee shall collect and record the following information each day the emissions unit is in operation:

a. all 3-hour blocks of time, when the emissions unit(s) controlled by the thermal oxidizer was/were in operation, during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emission unit was in compliance; and

b. a log of the downtime for the capture (collection) system, thermal oxidizer, and monitoring equipment when the associated emissions unit was in operation.

These records shall be maintained at the facility for a period of five years.

(3) Whenever the monitored average combustion temperature within the thermal oxidizer deviates from the range specified in 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 date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

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

e. 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/limit 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:

f. a description of the corrective action;

g. the date corrective action was completed;

h. the date and time the deviation ended;

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

j. the temperature readings immediately after the corrective action was implemented; and

k. 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.

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

(4) The permittee shall perform an inspection of the thermal oxidizer on at least an annual basis. Each inspection shall consist of internal and visual inspections in accordance with the manufacturer's recommendations and shall include a physical inspection of the unit and checks of associated equipment, including but not limited to burners, controls, dampers, valves, and monitoring and recording equipment. Repair and replacement of equipment shall be performed as determined by the inspection. The permittee shall maintain a record of the results of each annual inspection of the thermal oxidizer.

(5) The permit to install for this emissions unit(s) [P001] was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee in the permit application. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN 3.0, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):

i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists' (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "X" hours per day and "Y" days per week, from that of 8 hours per day and 5 days per week from resin curing. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

TLV/10 x 8/X x 5/Y = MAGLC

TLV/10 x 8/24 x 5/7 = TLV/42 = MAGLC

d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tpy) or "worst case" toxic contaminant(s):

Toxic Contaminant: anhydrous ammonia, NH_3

TLV (ug/m^3): 17,413

Maximum Hourly Emission Rate (lbs/hr): 49.50

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m^3): 271.5

MAGLC (ug/m^3): 415

Toxic Contaminant: ethylene glycol

TLV (ug/m^3): 73,700

Maximum Hourly Emission Rate (lbs/hr): 5.18

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m^3): 28.4

MAGLC (ug/m^3): 1,755

The permittee, has demonstrated that emissions of ammonia and ethylene glycol, from emissions unit(s) [P001], is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

(6) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration", the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and

c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a

"modification" or if a new toxic is emitted, or the modeled toxic(s) is/are expected to exceed the previous modeled level(s), then the permittee shall apply for and obtain a final PTI,PTIO, or FEPTIO (as applicable)prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and may require the permittee to submit a permit application for the increased emissions.

(7) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):

a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);

b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);

c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

e) Reporting Requirements

(1) The permittee shall submit deviation (excursion) reports that identify any time periods when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer (AB1). Each report shall be submitted within 30 days after the deviation occurs.

(2) The permittee shall submit quarterly reports that identify the following information concerning the operation of the thermal oxidizer during the operation of the emissions unit:

a. each period of time when the average combustion temperature within the thermal oxidizer was outside of the acceptable range;

b. an identification of each incident of deviation described in "a" (above) where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in "a" where prompt corrective action, that would bring the temperature into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s).

These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

(3) The permittee shall submit annual reports to the Ohio EPA Northeast District Office, documenting any changes made to a parameter or value used in the dispersion model, that was used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. If no changes to the emissions unit(s) or the exhaust stack have been made, then the report shall include a statement to this effect. This report shall be postmarked or delivered no later than January 31 following the end of each calendar year.

(4) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.

(5) 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 District Office or 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 required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

(1) Compliance with the allowable emission limitations and control measures requirements in b) of these terms and conditions shall be determined in accordance with the following methods:

a. <u>Emission Limitation</u>:

Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance 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:

The PE rate shall not exceed 0.5 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$PE(HR) = (H_{CURE\ OVEN} + H_{AFTERBURNER})/\text{Heat Content} \times EF$

where:

PE(HR) = maximum, hourly PE rate, which is 0.07 lb/hr;

$H_{CURE\ OVEN}$ = maximum heat input of the cure oven, which is 4.904 mmBtu/hr;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB1), which is 3.961 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 7.6 lbs uncontrolled PE/mmcf, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

The measured PE rate at this emissions unit was determined to be 0.052 lb/hr via U.S. EPA Methods 1 through 5 tests conducted on November 9, 2005. If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

c. Emission Limitation:

NO_x emissions shall not exceed 1.0 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$NO_X(HR) = (H_{CURE\ OVEN} + H_{AFTERBURNER})/\text{Heat Content} \times EF$

where:

$NO_X(HR)$ = maximum, hourly NO_X rate, which is 0.89 lb/hr; and

EF = emission factor, which is 100 lbs uncontrolled NO_X/mmcf, from Table 1.4-1 in AP-42, Chap. 1.4 (7/98).

If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7E or equivalent, alternative method(s), as approved by Ohio EPA.

d. Emission Limitations:

PE shall not exceed 2.2 tpy.

NO_x emissions shall not exceed 4.4 tpy.

Applicable Compliance Method:

Compliance may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x **(**8,760 Hrs/YR**)** / **(**2,000 lbs/ton**)**.

where:

Pollutant(YR) = maximum, annual pollutant emissions, in tpy;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in f)(1)b and f)(1)c; and

8,760 Hrs/YR = the maximum, annual operating hours.

e. Emission Limitation:

OC emissions shall not exceed 9.9 tpy.

Applicable Compliance Methods:

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

i. Determination of the uncontrolled OC pollutant emissions from natural gas fuel combustion:

$$\text{OC Pollutant(MONTH)}_{FUEL} = NG_{CURE\ OVEN\ +\ AFTERBURNER} \times EF \times 1\ \text{ton}/2{,}000\ \text{lbs}$$

where:

$\text{OC Pollutant(MONTH)}_{FUEL}$ = actual, monthly uncontrolled OC pollutant emissions, in tons/month;

$NG_{CURE\ OVEN\ +\ AFTERBURNER}$ = actual natural gas fuel usage from the emissions unit, in million cubic feet/month (mmcf/month), as specified in d)(1); and

EF = emission factor, which is 11 lbs uncontrolled OC/mmcf and 5.5 lbs uncontrolled VOC/mmcf from natural gas fuel combustion, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the actual, controlled OC pollutant emissions from resin solution curing:

$$\text{OC Pollutant(MONTH)}_{\text{RESIN CURE}} = W_{MTLS} \times W_{\text{OC Pollutant}}\% \times (1 - CE) \times 1 \text{ ton/2,000 lbs}$$

where:

$\text{OC Pollutant(MONTH)}_{\text{RESIN CURE}}$ = actual, controlled OC pollutant emissions from resin curing, in tons/month;

W_{MTLS} = weight of all materials processed, in lbs/month, as specified in d)(1);

$W_{\text{OC Pollutant}}\%$ = weight percentage, as a decimal fraction, of an OC pollutant (single HAP, combined HAPs, VOC or OC), within the total materials weight, as specified in d)(1); and

CE = efficiency of control device, which is 0.98 (98%).

iii. Determination of the total OC pollutant emissions:

$$\text{OC Pollutant(MONTH)}_{TOTAL} = \text{OC Pollutant(MONTH)}_{FUEL} + \text{OC Pollutant(MONTH)}_{\text{RESIN CURE}}$$

where:

$\text{OC Pollutant(MONTH)}_{TOTAL}$ = total OC pollutant emissions from the combined operations of fuel combustion and resin curing, in tons/month.

iv. Determination of the annual OC pollutant emissions:

$$\text{OC Pollutant(YR)} = \text{12-month summation of OC Pollutant(MONTH)}_{TOTAL}$$

(2) U.S. EPA Method 24 (Appendix A to 40 CFR Part 60) or formulation data shall be used to determine the VOC content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the VOC content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

(3) U.S. EPA Method 311 (Appendix A to 40 CFR Part 63) or formulation data shall be used to determine the HAP content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the HAP content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

g) Miscellaneous Requirements

(1) None.

2. P002, Kiln no. 1

Operations, Property and/or Equipment Description:

14.343 mmBtu/hr natural gas-fired kiln no.1 for refractory products manufacture with a 7.171 mmBtu/hr natural gas-fired thermal oxidizer (AB2) to control OC emissions.

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

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

a. d)(5)

(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 operations(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. 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)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)	Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average. Particulate emissions (PE) shall not exceed 0.5 lb/hr and 2.2 tpy. The requirements of this rule also include compliance with OAC rule 3745-31-05(E). See b)(2)b.
c.	OAC rule 3745-17-07(A)	The visible particulate emission limitation required by this applicable rule is less stringent than the visible particulate emission limitation established pursuant

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)	The PE limitation required by this applicable rule is less stringent than the PE limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-31-05(E) - voluntary restriction to avoid BAT requirements	Organic compound (OC) emissions shall not exceed 9.9 tpy. See b)(2)c.
f.	OAC rule 3745-31-05(D) - voluntary restriction to avoid MACT requirements and Title V requirements	See B.2.a) andB.2.b).

(2) Additional Terms and Conditions

a. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the carbon monoxide (CO) emissions nor nitrogen oxides (NO_x) emissions from this air contaminant source since the uncontrolled potential to emit for CO and NO_x is less than 10 tpy each. Maximum uncontrolled CO and NO_x emissions may be estimated by the following methods:

i. Determination of the maximum, uncontrolled, hourly CO emissions or maximum, uncontrolled, hourly NO_x emissions:

Pollutant(HR) = (H_{KILN} + $H_{AFTERBURNER}$)/Heat Content x EF

where:

Pollutant(HR) = maximum, hourly rate, which is 1.81 lbs/hr of CO emissions or 2.15 lbs/hr of NO_x emissions;

H_{KILN} = maximum heat input of the cure oven, which is 14.343 mmBtu/hr;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB2), which is 7.171 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 84 lbs uncontrolled CO/mmcf, from Table 1.4-1 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the maximum, uncontrolled, annual CO emissions or maximum, uncontrolled, annual NO_x emissions may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x (Summation of Hrs/YR) **/ (**2,000 lbs/ton**)**

where:

Pollutant(YR) = maximum, annual pollutant emissions, which is 7.92 tpy of CO emissions or 9.42 tpy of NO_x emissions;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in b)(2)a.i; and

Hrs/YR = the maximum annual operating hours, which is 8,760 hrs/yr.

b. The potential to emit PE, as defined in OAC rule 3745-31-01, for this emissions unit is 0.16 lb/hr and 0.72 ton per year from natural gas fuel combustion. The potential PE rates are less than the emission limitations of 0.5 lb/hr and 2.2 tpy, established pursuant to OAC rule 3745-31-05(A)(3). Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these short-term emission limitations.

c. Permit to Install and Operate P0113461 for this air contaminant source takes into account the following voluntary restriction(s) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3): operation of a thermal oxidizer, also known as afterburner no. 2 (AB2), with a minimum control efficiency of 98%, by weight, for OC/VOC.

c) Operational Restrictions

(1) All of the OC/VOC emissions from this emissions unit shall be vented to the thermal oxidizer, also known as afterburner no. 2 (AB2), when the emissions unit is in operation.

(2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable average combustion temperature within the thermal oxidizer, for any 3-hour block of time when the emissions unit controlled by the thermal oxidizer is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emissions unit was in compliance.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain monthly records of the following information for this emissions unit:

a. the weight of all materials processed in each batch, in pounds;

b. the individual HAP content for each HAP in each batch, in percent by weight;

c. the total combined HAP content in each batch, in percent by weight;

d. the VOC content of each batch, in percent by weight;

e. the OC content of each batch, in percent by weight;

f. the natural gas usage, in million cubic feet; and

g. an identification of each time period when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer.

(2) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal oxidizer when the emissions unit(s) is/are in operation. Units shall be in degrees Fahrenheit or Celsius. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within ± 1 percent of the temperature being measured or ± 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals. The permittee shall collect and record the following information each day the emissions unit is in operation:

a. all 3-hour blocks of time, when the emissions unit(s) controlled by the thermal oxidizer was/were in operation, during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emission unit was in compliance; and

b. a log of the downtime for the capture (collection) system, thermal oxidizer, and monitoring equipment when the associated emissions unit was in operation.

These records shall be maintained at the facility for a period of five years.

(3) Whenever the monitored average combustion temperature within the thermal oxidizer deviates from the range specified in 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 date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

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

e. 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/limit 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:

f. a description of the corrective action;

g. the date corrective action was completed;

h. the date and time the deviation ended;

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

j. the temperature readings immediately after the corrective action was implemented; and

k. 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.

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

(4) The permittee shall perform an inspection of the thermal oxidizer on at least an annual basis. Each inspection shall consist of internal and visual inspections in accordance with the manufacturer's recommendations and shall include a physical inspection of the unit and checks of associated equipment, including but not limited to burners, controls, dampers, valves, and monitoring and recording equipment. Repair and replacement of equipment shall be performed as determined by the inspection. The permittee shall maintain a record of the results of each annual inspection of the thermal oxidizer.

(5) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in 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, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.

e) Reporting Requirements

(1) The permittee shall submit deviation (excursion) reports that identify any time periods when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer (AB2). Each report shall be submitted within 30 days after the deviation occurs.

(2) The permittee shall submit quarterly reports that identify the following information concerning the operation of the thermal oxidizer during the operation of the emissions unit:

a. each period of time when the average combustion temperature within the thermal oxidizer was outside of the acceptable range;

b. an identification of each incident of deviation described in "a" (above) where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in "a" where prompt corrective action, that would bring the temperature into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s).

These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

(3) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.

(4) months for each air contaminant source identified in this permit.

(5) 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 District Office or 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 required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

(1) Compliance with the allowable emission limitations and control measures requirements in b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance 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:

PE shall not exceed 0.5 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$PE(HR) = (H_{KILN} + H_{AFTERBURNER})/\text{Heat Content} \times EF$

where:

PE(HR) = maximum, hourly PE rate, which is 0.16 lb/hr;

H_{KILN} = maximum heat input of kiln no. 1, which is 14.343 mmBtu/hr;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB2), which is 7.171 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 7.6 lbs uncontrolled PE/mmcf, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

c. Emission Limitation:

PE shall not exceed 2.2 tpy.

Applicable Compliance Method:

Compliance may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x 8,760 Hrs/YR / (2,000 lbs/ton)

where:

Pollutant(YR) = maximum, annual pollutant emissions, in tpy;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in f)(1)b; and

8,760 Hrs/YR = the maximum, annual operating hours.

d. Emission Limitation:

OC emissions shall not exceed 9.90 tpy.

Applicable Compliance Methods:

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

i. Determination of the maximum, uncontrolled OC pollutant emissions from natural gas fuel combustion:

$$\text{OC Pollutant(MONTH)}_{FUEL} = NG_{KILN + AFTERBURNER} \times EF \times 1 \text{ ton}/2{,}000 \text{ lbs}$$

where:

$\text{OC Pollutant(MONTH)}_{FUEL}$ = actual, monthly uncontrolled OC Pollutant emissions, in tons/month;

$NG_{CURE\ OVEN\ +\ AFTERBURNER}$ = actual natural gas fuel usage from the emissions unit, in million cubic feet/month (mmcf/month), as specified in d)(1); and

EF = emission factor, which is 11 lbs uncontrolled OC/mmcf or 5.5 lbs uncontrolled VOC/mmcf from natural gas fuel combustion, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the actual, controlled OC pollutant emissions from resite firing:

$$\text{OC Pollutant(MONTH)}_{RESITE\ FIRING} = W_{MTLS} \times W_{OC\ Pollutant}\% \times EF \times (1 - CE) \times 1 \text{ ton}/2{,}000 \text{ lbs}$$

where:

$\text{OC Pollutant(MONTH)}_{RESITE\ FIRING}$ = maximum, controlled OC pollutant emissions from resite firing, in tons /month;

W_{MTLS} = weight of all materials processed, in lbs/month, as specified in d)(1);

$W_{OC\ Pollutant}$% = weight percentage, as a decimal fraction, of an OC pollutant (VOC or OC), within the total materials weight, as specified in d)(1);

EF = emission factor, which is 0.45 lb uncontrolled OC/lbresite from a 55% carbon yield testing on resite as determined via thermogravimetric analysis (TGA); and

CE = efficiency of control device, which is 0.98 (98%).

iii. Determination of the total OC pollutant emissions:

$$\text{OC Pollutant(MONTH)}_{TOTAL} = \text{OC Pollutant(MONTH)}_{FUEL} + \text{OC Pollutant(MONTH)}_{RESITE\ FIRING}$$

where:

$\text{OC Pollutant(MONTH)}_{TOTAL}$ = total OC pollutant emissions from the combined operations of fuel combustion and resite firing, in tons/month.

iv. Determination of the annual OC pollutant emissions:

$$\text{OC Pollutant(YR)} = \text{12-month summation of OC Pollutant(MONTH)}_{TOTAL}$$

(2) U.S. EPA Method 24 (Appendix A to 40 CFR Part 60) or formulation data shall be used to determine the VOC content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the VOC content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

(3) U.S. EPA Method 311 (Appendix A to 40 CFR Part 63) or formulation data shall be used to determine the HAP content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the HAP content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

g) Miscellaneous Requirements

(1) None.

3. P003, Kiln no. 2

Operations, Property and/or Equipment Description:

4.918 mmBTU/hr natural gas-fired kiln no. 2 for refractory products manufacture with a 2.049 mmBTU/hr thermal oxidizer (AB3) to control OC emissions.

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

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

a. d)(5)

(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 operations(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. 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)(b)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)	Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average. Particulate emissions (PE) shall not exceed 0.5 lb/hr and 2.2 tpy. Nitrogen oxides (NO_X) emissions shall not exceed 2.0 lbs/hr and 8.8 tpy. The requirements of this rule also include compliance with OAC rule 3745-31-05(E). See b)(2)b and b)(2)c.
c.	OAC rule 3745-17-07(A)	The visible particulate emission limitation

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		required by this applicable rule is less stringent than the visible particulate emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
d.	OAC rule 3745-17-11(B)	The PE limitation required by this applicable rule is less stringent than the PE limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-31-05(E) - voluntary restriction to avoid BAT requirements	Organic compound (OC) emissions shall not exceed 9.9 tpy. See b)(2)d.
f.	OAC rule 3745-31-05(D) - voluntary restriction to avoid MACT requirements and Title V requirements	See B.2.a), B.2.b)andB.2.c).

(2) Additional Terms and Conditions

a. The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the carbon monoxide (CO) emissions from this air contaminant source since the uncontrolled potential to emit for CO is less than 10 tpy. Maximum uncontrolled CO emissions may be estimated by the following methods:

i. Determination of the maximum, uncontrolled, hourly CO emissions:

Pollutant(HR) = (H_{KILN} + $H_{AFTERBURNER}$)/Heat Content x EF.

where:

Pollutant(HR) = maximum, hourly rate, which is 0.59 lb/hr of CO emissions;

H_{KILN} = maximum heat input of the cure oven, which is 4.918 mmBtu/hr;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB3), which is 2.049 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 84 lbs uncontrolled CO/mmcf, from Table 1.4-1 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the maximum, uncontrolled, annual CO emissions may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x (Summation of Hrs/YR) **/ (**2,000 lbs/ton**)**.

where:

Pollutant(YR) = maximum, annual pollutant emissions, which is 2.56 tpy of CO emissions;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in b)(2)a.i; and

Hrs/YR = the maximum annual operating hours, which is 8,760 hrs/yr.

b. The potential to emit NO_X, as defined in OAC rule 3745-31-01, for this emissions unit is 0.70 lb/hr and 3.05 tpy from natural gas fuel combustion. The potential NO_X emission rates are less than the emission limitations of 2.0 lbs/hr and 8.8 tpy, established pursuant to OAC rule 3745-31-05(A)(3). Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with the short-term emission limitations.

c. The potential to emit PE, as defined in OAC rule 3745-31-01, for this emissions unit is 0.05 lb/hr and 0.23 ton per year from natural gas fuel combustion. The potential PE rates are less than the emission limitations of 0.5 lb/hr and 2.2 tpy, established pursuant to OAC rule 3745-31-05(A)(3). Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these short-term emission limitations.

d. Permit to Install and Operate P0113461 for this air contaminant source takes into account the following voluntary restriction(s) as proposed by the permittee for the purpose of avoiding Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3): operation of a thermal oxidizer, also known as afterburner no. 3 (AB3), with a minimum control efficiency of 98%, by weight, for OC/VOC.

c) Operational Restrictions

(1) All of the OC/VOC emissions from this emissions unit shall be vented to the thermal oxidizer, also known as afterburner no. 3 (AB3), when the emissions unit is in operation.

(2) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable average combustion temperature within the thermal oxidizer, for any 3-hour block of time when the emissions unit controlled by the thermal oxidizer is in operation, shall not be more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emissions unit was in compliance.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain monthly records of the following information for this emissions unit:

a. the weight of all materials processed in each batch, in pounds;

b. the individual HAP content for each HAP in each batch, in percent by weight;

c. the total combined HAP content in each batch, in percent by weight;

d. the VOC content of each batch, in percent by weight;

e. the OC content of each batch, in percent by weight;

f. the natural gas usage, in million cubic feet; and

g. an identification of each time period when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer.

(2) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within the thermal oxidizer when the emissions unit(s) is/are in operation. Units shall be in degrees Fahrenheit or Celsius. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within ± 1 percent of the temperature being measured or ± 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals. The permittee shall collect and record the following information each day the emissions unit is in operation:

a. all 3-hour blocks of time, when the emissions unit(s) controlled by the thermal oxidizer was/were in operation, during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature measured during the most recent emissions test that demonstrated the emission unit was in compliance; and

b. a log of the downtime for the capture (collection) system, thermal oxidizer, and monitoring equipment when the associated emissions unit was in operation.

These records shall be maintained at the facility for a period of five years.

(3) Whenever the monitored average combustion temperature within the thermal oxidizer deviates from the range specified in 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 date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

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

e. 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/limit 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:

f. a description of the corrective action;

g. the date corrective action was completed;

h. the date and time the deviation ended;

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

j. the temperature readings immediately after the corrective action was implemented; and

k. 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.

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

(4) The permittee shall perform an inspection of the thermal oxidizer on at least an annual basis. Each inspection shall consist of internal and visual inspections in accordance with the manufacturer's recommendations and shall include a physical inspection of the unit and checks of associated equipment, including but not limited to burners, controls, dampers, valves, and monitoring and recording equipment. Repair and replacement of equipment shall be performed as determined by the inspection. The permittee shall maintain a record of the results of each annual inspection of the thermal oxidizer.

(5) Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute" in 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, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.

e) Reporting Requirements

(1) The permittee shall submit deviation (excursion) reports that identify any time periods when the emissions unit was in operation and the OC emissions were not vented to the thermal oxidizer (AB3). Each report shall be submitted within 30 days after the deviation occurs.

(2) The permittee shall submit quarterly reports that identify the following information concerning the operation of the thermal oxidizer during the operation of the emissions unit:

a. each period of time when the average combustion temperature within the thermal oxidizer was outside of the acceptable range;

b. an identification of each incident of deviation described in "a" (above) where a prompt investigation was not conducted;

c. an identification of each incident of deviation described in "a" where prompt corrective action, that would bring the temperature into compliance with the acceptable range, was determined to be necessary and was not taken; and

d. an identification of each incident of deviation described in "a" where proper records were not maintained for the investigation and/or the corrective action(s).

These quarterly reports shall be submitted (i.e., postmarked) by January 31, April 30, July 31, and October 31 of each year; and each report shall cover the previous calendar quarter.

(3) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.

(4) 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 District Office or 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 required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

(1) Compliance with the allowable emission limitations and control measures requirements in b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 5% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance 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:

PE shall not exceed 0.5 lb/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$PE(HR) = (H_{KILN} + H_{AFTERBURNER})/\text{Heat Content} \times EF$

where:

PE(HR) = maximum, hourly PE rate, which is 0.05 lb/hr;

H_{KILN} = maximum heat input of kiln no. 2, which is 4.918 mmBtu/hr, as specified in the application for PTIO P0103656;

$H_{AFTERBURNER}$ = maximum heat input of the afterburner (AB3), which is 2.049 mmBtu/hr;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas; and

EF = emission factor, which is 7.6 lbs uncontrolled PE/mmcf, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

c. Emission Limitation:

NO_X emissions shall not exceed 2.0 lbs/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

$NO_X(HR) = (H_{KILN} + H_{AFTERBURNER})/\text{Heat Content} \times EF$

where:

$NO_X(HR)$ = maximum, hourly NO_X rate, which is 0.70 lb/hr; and

EF = emission factor, which is 100 lbs uncontrolled NO_X/mmcf, from Table 1.4-1 in AP-42, Chap. 1.4 (7/98).

If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7E or equivalent, alternative method(s), as approved by Ohio EPA.

d. Emission Limitations:

PE shall not exceed 2.2 tpy.

NO_X emissions shall not exceed 8.8 tpy.

Applicable Compliance Method:

Compliance may be based on the following equation:

Pollutant(YR) = Pollutant(HR) x 8,760 Hrs/YR / (2,000 lbs/ton)

where:

Pollutant(YR) = maximum, annual pollutant emissions, in tpy;

Pollutant (HR) = maximum, hourly pollutant emissions, in lbs/hr, as specified in f)(1)b and f)(1)c; and

8, 760 Hrs/YR = the maximum, annual operating hours.

e. Emission Limitation:

OC emissions shall not exceed 9.9 tpy.

Applicable Compliance Methods:

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

i. Determination of the maximum, uncontrolled OC pollutant emissions from natural gas fuel combustion:

$\text{OC Pollutant(MONTH)}_{FUEL} = NG_{KILN + AFTERBURNER} \times EF \times 1 \text{ ton}/2{,}000 \text{ lbs}$

where:

OC Pollutant(MONTH)$_{FUEL}$ = actual, monthly uncontrolled OC Pollutant emissions, in tons/month;

NG$_{CURE\ OVEN\ +\ AFTERBURNER}$ = actual natural gas fuel usage from the emissions unit, in million cubic feet/month (mmcf/month), as specified in d)(1); and

EF = emission factor, which is 11 lbs uncontrolled OC/mmcf or 5.5 lbs uncontrolled VOC/mmcf from natural gas fuel combustion, from Table 1.4-2 in AP-42, Chap. 1.4 (7/98).

ii. Determination of the actual, controlled OC pollutant emissions from resite firing:

OC Pollutant(MONTH)$_{RESITE\ FIRING}$ = W_{MTLS} x $W_{OC\ Pollutant}$% x EF x (1 - CE) x 1 ton/2,000 lbs

where:

OC Pollutant(MONTH)$_{RESITE\ FIRING}$ = maximum, controlled OC pollutant emissions from resite firing, in tons /month;

W_{MTLS} = weight of all materials processed, in lbs/month, as specified in d)(1);

$W_{OC\ Pollutant}$% = weight percentage, as a decimal fraction, of an OC pollutant (VOC or OC), within the total materials weight, as specified in section d)(1);

EF = emission factor, which is 0.45 lb uncontrolled OC/lbresite from a 55% carbon yield testing on resite as determined via thermogravimetric analysis (TGA); and

CE = efficiency of control device, which is 0.98 (98%).

iii. Determination of the total OC pollutant emissions:

OC Pollutant(MONTH)$_{TOTAL}$ = OC Pollutant(MONTH)$_{FUEL}$

+ OC Pollutant(MONTH)$_{RESITE\ FIRING}$

where:

OC Pollutant(MONTH)$_{TOTAL}$ = total OC pollutant emissions from the combined operations of fuel combustion and resite firing, in tons/month.

iv. Determination of the annual OC pollutant emissions:

OC Pollutant(YR) = 12-month summation of OC Pollutant(MONTH)$_{TOTAL}$

(2) U.S. EPA Method 24 (Appendix A to 40 CFR Part 60) or formulation data shall be used to determine the VOC content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the VOC content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

(3) U.S. EPA Method 311 (Appendix A to 40 CFR Part 63) or formulation data shall be used to determine the HAP content of production and cleanup materials. The permittee may request to use an alternative method or procedure for the HAP content determination. The Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.

g) Miscellaneous Requirements

(1) None.

4. P004, Deltek Mixing Process

Operations, Property and/or Equipment Description:

Deltek Mixing: raw materials weighing and dispensing with a fabric filter (P004A) to control the particulate emissions (PE) rate; mixer with a cartridge filter (P004B) to control PE; and an enclosed screw conveyor and an indirectly fired 0.9 mmBtu/hr natural gas dryer with a multiclone (P004C) to control PE.

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

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

a. None.

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

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) as effective 11/30/01 established in P0108017 as issued on 8/19/2011	Visible particulate emissions (PE) shall not exceed 0% opacity, as a 6-minute average, from the raw materials weighing and dispensing operations, the mixer operation and the 0.9 mmBtu/hr natural gas-fired dryer, each. PE shall not exceed 1.54 lbs/hr and 6.8 tpy from the raw materials weighing and dispensing operations. PE shall not exceed 1.54 lbs/hr and 6.8 tpy from the mixer operation. PE shall not exceed 1.0 lb/hr and 4.5 tpy from the 0.9 mmBtu/hr natural gas-fired dryer.
b.	OAC rule 3745-17-07(A)	The PE limitations required by these applicable

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	OAC rule 3745-17-10(B)(1) OAC rule 3745-17-11(B)	rules are less stringent than the PE limitations established pursuant to OAC rule 3745-31-05(A)(3).

(2) Additional Terms and Conditions

a. None.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from each stack (e.g. raw material batching baghouse egress, mixer cartridge filter egress and rotary dryer multiclone egress), serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

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

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

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

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the 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.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA. The PER must be submitted by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air

contaminant source identified in this permit. The permittee shall identify the following information in the annual PER in accordance with the monitoring requirements for visible emissions in d)(1) above:

a. all days during which any visible particulate emissions were observed from any stack serving this emissions unit; and

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

(2) 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 District Office or 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 required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

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 PE shall not exceed 0% opacity, as a 6-minute average, from the raw materials weighing and dispensing operations, the mixer operation and the 0.9 mmBtu/hr natural gas-fired dryer, each.

<u>Applicable Compliance Method</u>:

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

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

PE shall not exceed 1.54 lbs/hr from the raw materials weighing and dispensing operations.

PE shall not exceed 1.54 lbs/hr from the mixer operation.

Applicable Compliance Method:

Compliance may be based on the following equation:

PE(HR) = Q x PE(CONC) x 1 lb PE/7000 grains PE x 60 min/hr

where:

PE(HR) = maximum, controlled hourly PE rate, which is estimated to be 1.54 lbs/hr;

Q = maximum control equipment egress flow, which is 6000 dscf/min; and

PE(CONC) = maximum, controlled PE concentration from control equipment egress, which is 0.03 grain PE/dscf, per control equipment manufacturer specifications.

If required, the permittee shall demonstrate compliance with these emission limitations through emission tests performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

c. Emission Limitation:

The PE rate shall not exceed 1.0 lb/hr from the 0.9 mmBtu/hr natural gas-fired dryer.

Applicable Compliance Method:

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

i. Determination of the maximum, hourly uncontrolled PE rate from natural gas fuel combustion:

PE(HR_GAS) = EF x H

where:

PE(HR_GAS) = the PE rate, which is estimated to be 0.0050 lb PE/hr;

EF = an emission factor for the PE rate, 0.000559 lb PE/mmBtu, as developed from an emission factor of 5.7 lbscondensible PE per million standard cubic feet found in Table 1.4-2, AP42 Chap 1.4 (7/98); and

H = maximum rated heat input, in million Btu/hr, which is 0.9 mmBtu/hr.

ii. Determination of the maximum, hourly controlled PE rate from the rotary dryer process:

PE(HR_DRYER) = Q x PE(CONC) x 1 lb PE/7000 grains PE x 60 min/hr

where:

PE(HR_DRYER) = maximum, controlled hourly PE rate, which is estimated to be 0.846 lb/hr;

Q = maximum control equipment egress flow, which is 3291 dscf/min, derived from actual exhaust data of 4000 acf/min at 176°F, and a 1.19% moisture content, [$Q = Q_A \times T_{STD}/T_A \times (1 - B_W)$ = 4000 acfm x 528°R/634°R x (1 - 0.0119) = 3291 dscf/min]; and

PE(CONC) = maximum, controlled PE concentration from control equipment egress, which is 0.03 grain PE/dscf, per control equipment manufacturer specifications.

iii. Determination of the total, PE rate from the natural gas-fired dryer:

PE(HR) = PE(HR_GAS) + PE(HR_DRYER)

where:

PE(HR) = the total PE rate from the dryer, which is estimated to 0.851 lb/hr.

If required, the permittee shall demonstrate compliance with this emission limitation through an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

d. Emission Limitations:

The PE rate shall not exceed the following limits from the specified operations at this emissions unit:

6.8 tpy from the raw materials weighing and dispensing operations;

6.8 tpy from the mixer operation; and

4.5 tpy from the the 0.9 mmBtu/hr natural gas-fired dryer.

Applicable Compliance Method:

Compliance may be based on the following equation: Determination of the maximum, controlled, annual emissions may be made by the following equation:

PE(YR) = PE(HR) x Hrs/yr x 2,000 lbs/ton

where:

PE(YR) = maximum emissions, in tpy, which is estimated to be 6.8 tpy from the raw materials weighing and dispensing operations, 6.8 tpy from the mixer

operation, and 4.5 tpy from the 0.9 mmBtu/hr natural gas-fired dryer tons PE/yr, respectively;

PE(HR) = maximum, hourly uncontrolled pollutant emissions, in lbs/hr, as specified in f)(1)b and f)(1)c; and

Hrs/yr = the maximum annual operating hours, which is 8,760 hrs/yr.

g) Miscellaneous Requirements

(1) None.