



State of Ohio Environmental Protection Agency

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Columbus, OH 43216-1049

7/23/2008

DAVID LAWRIE  
Veitsch-Radex America - Saybrook Plant  
4741 KISTER CT  
Cleveland, OH 44004

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE  
Facility ID: 0204000450  
Permit Number: P0103656  
Permit Type: Admin mod  
County: Ashtabula

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR
No	CEMS
No	MACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install and Operate for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit comments on the permit. A public notice will appear in the Ohio EPA Weekly Review and the local newspaper, The Star Beacon. A copy of the public notice and the draft permit are enclosed. This permit has been posted to the Division of Air Pollution Control Web page <http://www.epa.state.oh.us/dapc> in Microsoft Word and Adobe Acrobat format. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall  
Permit Review/Development Section  
Ohio EPA, DAPC  
122 South Front Street  
Columbus, Ohio 43215

and Ohio EPA DAPC, Northeast District Office  
2110 East Aurora Road  
Twinsburg, OH 43087

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install and operate will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install and Operate is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)425-9171.

Sincerely,

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

Cc: U.S. EPA Region 5 *Via E-Mail Notification*  
Ohio EPA-NEDO; Pennsylvania; Canada

Ted Strickland, Governor  
Lee Fisher, Lieutenant Governor  
Chris Korleski, Director



PUBLIC NOTICE  
Issuance of Draft Air Pollution Permit-To-Install and Operate  
Veitsch-Radex America - Saybrook Plant

Issue Date: 7/23/2008  
Permit Number: P0103656  
Permit Type: Admin mod  
Permit Description: Administrative modification of P003.  
Facility ID: 0204000450  
Facility Location: Veitsch-Radex America - Saybrook Plant  
4741 Kister Ct,  
Ashtabula, OH 44004  
Facility Description: Clay Refractory Manufacturing

Chris Korleski, Director of the Ohio Environmental Protection Agency, 50 West Town Street, Columbus Ohio has issued a draft action of an air pollution control, federally enforceable permit-to-install and operate (PTIO) for the facility at the location identified above on the date indicated. Comments concerning this draft action, or a request for a public meeting, must be sent in writing no later than thirty (30) days from the date this notice is published. All comments, questions, requests for permit applications or other pertinent documentation, and correspondence concerning this action must be directed to Edward Fasko at Ohio EPA DAPC, Northeast District Office, 2110 East Aurora Road or (330)425-9171. The permit can be downloaded from the Web page: [www.epa.state.oh.us/dapc](http://www.epa.state.oh.us/dapc)



## SOURCE EVALUATION

### Source Description

The Saybrook plant has been classified as a synthetic minor facility through PTI 02-17873, issued on 8/21/03, to limit hazardous air pollutants (HAPs) to below major HAP threshold to exempt the Saybrook Plant from applicability of the maximum achievement control technology (MACT) rule, New Emission Standards for the Refractory Products Manufacturing Industry, 40 CFR Part 63, Subpart SSSSS. The Saybrook plant is also exempt from Title V operating permit requirements since volatile organic compounds (VOCs) and other criteria pollutant emissions are below major source levels.

Ashtabula County is in non-attainment status with the federal ozone standard. The facility is located in Saybrook Township, which is in attainment with the particulate matter with a diameter of up to 2.5 micrometers, PM<sub>2.5</sub> national standard.

### Source (Facility) Emissions and Attainment Status

Current PTI 02-17873 does have federally enforceable requirements for each of P001, P002 and P003 to employ its respective thermal oxidizer, AB1, AB2 and AB3, respectively. See Attachment 1 - "Comparison of Allowable/Potential Emissions Rates of non-HAPs, in Tons/Year", saved as 0222963t.xls for the potential, controlled rates. (Uncontrolled rates were estimated by dividing the controlled rate by 0.02, the uncontrolled portion.)

	Uncontrolled	Potential	Major Source	
	Tons/Year	Controlled	Threshold	
VOC	<u>Tons/Year</u>	<u>Tons/Year</u>	<u>Tons/Year</u>	
		320	6.40	100
Single HAP, ethylene glycol	125	2.5	10	
Multiple HAPs	235	4.7	25	

Ashtabula County is in non-attainment status with the federal ozone standard. The facility is located in Saybrook Township, which is in attainment with the PM<sub>2.5</sub> national standard for particulate matter with a diameter of up to 2.5 micrometers.

### Permit Modification Proposal

Current PTI 02-17873 has hourly and annual limits on specific individual hazardous air pollutants (HAPs) and non-HAP emissions from P001, P002 and P003, combined. The applicant has requested that the modified permit have the proposed, facility-wide limits of 9.0 tons/year for any single HAP and 24.0 tons/year for all HAPs, as rolling 12-month summations. The recommendation will also include facility-wide limits of 99 tons VOC emissions, as a rolling 12-month summation to avoid applicability to Title V operating permit requirements.

An increase in maximum, hourly throughput (production) are proposed for P001 and P002 as well as increases in the allowable emissions limits for nitrogen oxide(s) (NO<sub>x</sub>), carbon monoxide (CO) organic compounds (OCs) at each emissions unit. P001 and P002 will be classified as Chap 31 modifications **and will be processed in PTIO# 02-22963**. The maximum materials throughput(production) hourly rate for P003 will not be changed, and there will be no physical change in operations, P003 will be classified as an administrative change **in the application for PTIO# P0103656** .

This project will have actual, minor increases of 4.33 tons/yr OC, 3.43 tons/yr VOC, 1.3 tons/year of ethylene glycol emissions (a HAP), 0.94 tons/yr CO and 18.8 tons/yr of ammonia (NH<sub>3</sub>) emissions and a decrease of 5.65 tons/yr NO<sub>x</sub> emissions. See Attachment 1 – Evaluation of Application for PTI 02-22963 – Comparison of Allowable/Potential Emissions Rates. This is a minor increase in criteria

and HAP emissions to a synthetic minor facility. The project is not subject to non-attainment major source federal review.

Project Emissions

	Current Project	Proposed Project	Proposed Project <b>Facility</b>	Proposed <b>Allowable</b> Limits	Proposed Controlled	Major Source Threshold
	Potential Controlled <u>Tons/Year</u>	Potential Controlled <u>Tons/Year</u>	<u>Tons/Year</u>	<u>Tons/Year</u>	<u>Tons/Year</u>	<u>Tons/Year</u>
VOC	6.40	9.83	29.7	99.0	100	
Single HAP, ethylene glycol	2.5 3.79	9.0	9.0	10		
Multiple HAPs	4.7	4.81	24.0	24.0	25	

Conclusion

This project will have minor allowable limit increases of 23.3 tons/yr VOC, 6.5 tons/year of ethylene glycol emissions (a HAP), and 19.3 tons/yr multiple HAP emissions. The proposal is to continue to have a restriction to employ a thermal oxidizer at each unit: P001, P002 & P003. Rolling 12-month emissions estimates of VOCs, single HAPs, and multiple HAPs will be recorded to check compliance with the proposed facility-wide limits. This is a minor increase in criteria and HAP emissions to a synthetic minor facility. The project is not subject to non-attainment major source federal review.



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**DRAFT**

**Air Pollution Permit-to-Install and Operate**  
for  
**Veitsch-Radex America - Saybrook Plant**

Facility ID: 0204000450  
Permit Number: P0103656  
Permit Type: Admin mod  
Issued: 7/23/2008  
Effective: To be entered upon final issuance  
Expiration: To be entered upon final issuance





**Air Pollution Permit-to-Install and Operate**  
 for  
 Veitsch-Radex America - Saybrook Plant

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State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

# Authorization

Facility ID: 0204000450  
Application Number(s): A0001866  
Permit Number: P0103656  
Permit Description: Administrative modification of P003.  
Permit Type: Admin mod  
Permit Fee: \$100.00 *DO NOT send payment at this time - subject to change before final issuance*  
Issue Date: 7/23/2008  
Effective Date: To be entered upon final issuance  
Expiration Date: To be entered upon final issuance  
Permit Evaluation Report (PER) Annual Date: To be entered upon final issuance

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 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 43087  
(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

Chris Korleski  
Director



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

## Authorization (continued)

Permit Number: P0103656

Permit Description: Administrative modification of P003.

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

<b>Emissions Unit ID:</b>	<b>P003</b>
Company Equipment ID:	Kiln no. 2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

## **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 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 Ohio EPA DAPC, Northeast District Office in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

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

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

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

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

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

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

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

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

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

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



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

**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.



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

## **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) 2.a) through 2.c).
2. Permit to Install 02-22963 for this air contaminant source takes into account the following voluntary restrictions, regarding the emissions units specified in 3. and 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 3. and 4., shall not exceed 9.0 tons/year, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1) and C.1.c)(2) within this permit for emissions unit P003, respectively, and C.1.c)(1), C.1.c)(2), C.2.c)(1), and C.2.c)(2) for P001 and P002, respectively, within permit # 02-22963.
  - b) The emissions of combined HAPs from the emissions units, specified in 3. and 4., shall not exceed 24.0 tons/year, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1) and C.1.c)(2) within this permit for emissions unit P003, respectively, and C.1.c)(1), C.1.c)(2), C.2.c)(1), and C.2.c)(2) for P001 and P002, respectively, within permit # 02-22963.
  - c) The emissions of volatile organic compounds (VOCs) from the emissions units, specified in 3. and 4., shall not exceed 99.0 tons/year, based on a rolling 12-month summation, and shall be achieved by employing the operational restrictions, specified in C.1.c)(1) and C.1.c)(2) within this permit for emissions unit P003, respectively, and C.1.c)(1), C.1.c)(2), C.2.c)(1), and C.2.c)(2) for P001 and P002, respectively, within permit # 02-22963.
3. Voluntary restrictions to limit potential facility-wide emissions of single HAPs, 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 de minimis 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 emissions limitation(s) on single HAPs, combined HAPs and/or VOCs specified in 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 3.a) through 3.c) and 4.:
- a) the rolling, 12-month single HAP emissions for each HAP, in tons;
  - b) the rolling, 12-month 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 emissions limitation(s) on single HAPs, combined HAPs and VOCs from the emissions units specified in 3. and 4. exceeded 9.0 tons/yr of each single HAP, 24.0 tons combined HAPs/yr, and 99.0 tons VOC/yr; and
  - b) for each deviation, the actual rolling, 12-month emissions of single HAPs, 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. Emission Limitation(s):

9.0 tons/year of each single HAP, based on a rolling 12-month summation of the emissions from the emissions units specified in 3. and 4.

24.0 tons/year of combined HAPs, based on a rolling 12-month summation of the emissions from the emissions units specified in 3. and 4.

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

Applicable Compliance Method: Compliance shall be based upon the following:

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

For emissions units, specified in 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.



State of Ohio Environmental Protection Agency  
Division of Air Pollution Control

**Draft Permit-to-Install and Operate**

**Permit Number:** P0103656

**Facility ID:** 0204000450

**Effective Date:** To be entered upon final issuance

## **C. Emissions Unit Terms and Conditions**



**1. 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. Administrative modification of PTI 02-17873, issued on 8/21/03 and a corrected copy issued on 11/16/04.

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 percent opacity as a 6-minute average. The particulate emissions (PE) shall not exceed 0.5 lb/hr and 2.2 tons/year. The nitrogen oxides (NO <sub>x</sub> ) emissions shall not exceed 2.0 lbs/hr and 8.8 tons/year. 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 specified by this rule is less stringent than the visible emission limitation established pursuant to OAC rule 3745-31-05(A)(3).



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-11(B)	The PE limitation specified by this rule is less stringent than the particulate emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
e.	OAC rule 3745-31-05(E) - voluntary restriction to avoid BAT requirements	The organic compound (OC) emissions shall not exceed 9.9 tons/year. 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 through b)(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 tons/yr. Maximum uncontrolled CO emissions may be estimated by the following methods:

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

$$\text{Pollutant(HR)} = (\text{H}_{\text{KILN}} + \text{H}_{\text{AFTERBURNER}}) / \text{Heat Content} \times \text{EF}$$

where:

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

H<sub>KILN</sub> = maximum heat input of the cure oven, which is 4.918 mmBtu/hr, as specified in the application for PTI 02-22963;

H<sub>AFTERBURNER</sub> = maximum heat input of the afterburner (AB3), which is 2.049 mmBtu/hr, as specified in the application for PTI 02-22963;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas, as specified in the application for PTI 02-22963; and

EF = emissions factor, which is 84 lbs uncontrolled CO/mmcf or 100 lbs uncontrolled NO<sub>x</sub>/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:

$$\text{Pollutant(YR)} = \text{Pollutant(HR)} \times (\text{Summation of Hrs/YR}) \times 2000 \text{ lbs/ton}$$

where:



Pollutant(YR) = maximum, annual pollutant emissions, which is 2.56 tons/yr 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<sub>x</sub>, as defined in OAC rule 3745-31-01, for this emissions unit is 0.70 lb/hr and 3.05 tons per year from natural gas fuel combustion. The potential NO<sub>x</sub> rates are less than the emissions limits of 2.0 lbs/hr and 8.8 tons/year, 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 emissions 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 emissions limits of 0.5 lb/hr and 2.2 tons/year, 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 emissions limitations.
- d. Permit to Install 02-22963 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.

c) Operational Restrictions

- (1) All of the OC 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 VOC content of each batch, in percent by weight;
  - c. the OC content of each batch, in percent by weight;
  - d. the natural gas usage, in million cubic feet; and



- e. 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  $\pm 1$  percent of the temperature being measured or  $\pm 5$  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.

f) Testing Requirements

- (1) Compliance with the allowable emission limitations and control measures requirements in C.1.b)(1) 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:

Compliance shall be determined through visible emission observations performed in accordance with 40 CFR Part 60 ("Standards of Performance for New Stationary Sources"), Appendix A, U.S. EPA Reference 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:

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

where:

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

H<sub>KILN</sub> = maximum heat input of kiln no. 2, which is 4.918 mmBtu/hr, as specified in the application for PTI 02-22963;

H<sub>AFTERBURNER</sub> = maximum heat input of the afterburner (AB3), which is 2.049 mmBtu/hr, as specified in the application for PTI 02-22963;

Heat Content = heat content of fuel, which is 1,000 Btu/cf for natural gas, as specified in the application for PTI 02-22963; and



EF = emissions 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 emissions tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 or equivalent, alternative method(s), as approved by Ohio EPA.

c. Emission Limitation:

The NO<sub>x</sub> emissions shall not exceed 2.0 lbs/hr.

Applicable Compliance Method:

Compliance may be based on the following equation:

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

where:

NO<sub>x</sub>(HR) = maximum, hourly NO<sub>x</sub> rate, which is 0.70 lb/hr; and

EF = emissions factor, which is 100 lbs uncontrolled NO<sub>x</sub>/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 emissions tests performed in accordance with 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:

The PE rate shall not exceed 2.2 tons/year.

The NO<sub>x</sub> emissions shall not exceed 3.05 tons/year.

Applicable Compliance Method:

Compliance may be based on the following equation:

$$Pollutant(YR) = Pollutant(HR) \times 8,760\ Hrs/YR \times 2000\ lbs/ton.$$

where:

Pollutant(YR) = maximum, annual pollutant emissions, in tons/yr;

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:

The OC emissions shall not exceed 9.9 tons/year.

Applicable Compliance Method(s):

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

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

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

where:

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

EF = emissions 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:

$$\text{OC Pollutant(MONTH)}_{\text{RESITE FIRING}} = W_{\text{MTLS}} \times W_{\text{OC Pollutant}\%} \times \text{EF} \times (1 - \text{CE}).$$

where:

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

$W_{\text{MTLS}}$  = 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 (VOC or OC), within the total materials weight, as specified in section d)(1);

EF = emissions factor, which is 0.45 lb uncontrolled OC/lb resite 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%), as specified in the application for PTI 02-22963.

iii. Determination of the total OC pollutant emissions:

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

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



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) The terms and conditions contained in this permit for this emissions unit shall supersede all the air pollution control requirements for the emissions unit contained in the permit to install 02-17873 issued on 8/21/03 with a corrected copy issued on 11/16/04.