Ohio Environmental Protection Agency

Ted Strickland, Governor
Lee Fisher, Lt. Governor
Chris Korleski, Director

7/2/2010

Certified Mail

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

Richard Hughes
Millennium Inorganic Chemicals, Inc. - Plant 2
2900 Middle Road
Ashtabula, OH 44005

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0204010193
Permit Number: P0106445
Permit Type: Administrative Modification
County: Ashtabula

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00, made payable to "Ohio Treasurer Kevin Boyce," 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
309 South Fourth Street, Room 222
Columbus, OH 43215

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. If you have any questions regarding this permit, please contact the Ohio EPA DAPC, Northeast District Office. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern

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

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

50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

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Ohio | Environmental Protection Agency

FINAL

Division of Air Pollution Control
Permit-to-Install
for
Millennium Inorganic Chemicals, Inc. - Plant 2

Facility ID: 0204010193
Permit Number: P0106445
Permit Type: Administrative Modification
Issued: 7/2/2010
Effective: 7/2/2010

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install
for
Millennium Inorganic Chemicals, Inc. - Plant 2

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Authorization

Facility ID: 0204010193
Facility Description: Manufacturing of titanium dioxide
Application Number(s): M0000828
Permit Number: P0106445
Permit Description: Adminstrative modification of PTI 02-22027 in order to resolve an appeal of PTI 02-16459 for emissions unit P001.
Permit Type: Administrative Modification
Permit Fee: $0.00
Issue Date: 7/2/2010
Effective Date: 7/2/2010

This document constitutes issuance to:

Millennium Inorganic Chemicals, Inc. - Plant 2
2426 Middle Road
Ashtabula, OH 44004

of a Permit-to-Install 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 a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director

Authorization (continued)

Permit Number: P0106445
Permit Description: Adminstrative modification of PTI 02-22027 in order to resolve an appeal of PTI 02-16459 for emissions unit P001.

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:	TiCl4 Vaporizer - TiO2 Unit
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

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

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

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

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

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

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

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

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

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

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

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

2. Severability Clause

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

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

3. General Requirements

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

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

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

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

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

4. Monitoring and Related Record Keeping and Reporting Requirements

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

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

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

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

(4) The analytical techniques or methods used.

(5) The results of such analyses.

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

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

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

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

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

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

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

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

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.
Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

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

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

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

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

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

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

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

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

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

7. Best Available Technology

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

8. Air Pollution Nuisance

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

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

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

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

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

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

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

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

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

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

12. Permit-To-Operate Application

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

13. Construction Compliance Certification

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

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

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

14. Public Disclosure

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

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

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

16. Fees

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

17. Permit Transfers

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

18. Risk Management Plans

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

19. Title IV Provisions

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

B. Facility-Wide Terms and Conditions

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

   a) None.

C. Emissions Unit Terms and Conditions

1. P001, TiCl4 Vaporizer - TiO2 Unit

Operations, Property and/or Equipment Description:

Oxidation process: including an aluminum choride generator (DC-813), an oxidation reactor (DC-827) with a paire filter (FD-822) product capture device, a slurry tank (FA-813), a neutralization tank (FA-601), and a packed column, caustic scrubber

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

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific 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.

Oxidation Process:

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Particulate emissions (PE) shall not exceed 41.2 lbs/hr from the stack egress point of the caustic scrubber (DA-847). The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A). See b)(2)a.
b.	OAC rule 3745-17-07(A)	Visible PE from any stack egress shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
c.	OAC rule 3745-17-11	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

16.8 mmBtu/hr natural gas-fired titanium tetrachloride ($TiCl_4$) vaporizer (BA-812):

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	Carbon monoxide (CO) emissions shall not exceed 0.67 lb/hr. Nitrogen oxides (NO_x) emissions shall not

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		exceed 3.86 lbs/hr. Organic compound (OC) emissions shall not exceed 0.18 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-10(B)(1).
b.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 lb/mmBtu of actual heat input.

9.5 mmBtu/hr natural gas-fired oxygen (O_2) preheater (BA-815):

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	CO emissions shall not exceed 0.46 lb/hr. NO_x emissions shall not exceed 2.13 lbs/hr. OC emissions shall not exceed 0.10 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-10(B)(1).
b.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 lb/mmBtu of actual heat input.

2.2 mmBtu/hr natural gas-fired oxygen (O_2) preheater (BA-816):

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	CO emissions shall not exceed 0.18 lb/hr. NO_x emissions shall not exceed 0.21 lb/hr. OC emissions shall not exceed 0.02 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-10(B)(1).
b.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 lb/mmBtu of actual heat input.

All egress points:

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	PE shall not exceed 183.5 tons/year. CO emissions shall not exceed 5.74 tons/year. NO_x emissions shall not exceed 27.18 tons/year. OC emissions shall not exceed 1.33 tons/year.

(2) Additional Terms and Conditions

a. Exhaust gases from the paire filter (FD-822) product capture device, serving the oxidation reactor, are routed to the Chlorination Process (P002) instead of the atmosphere. However, during startup or equipment pressure testing, nitrogen or oxygen is used to warm the oxygen preheater(s), BA-815 and BA-816, so that no air contaminant emissions are generated when the paire filter gases are exhausted to the atmosphere.

c) Operational Restrictions

(1) The permittee shall burn only natural gas in the $TiCl_4$ vaporizer (BA-812) burner and in the O_2 preheater burners (BA-815 and BA-816).

d) Monitoring and/or Recordkeeping Requirements

(1) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(2) The permittee shall maintain daily records of the number of hours the emissions unit was in operation.

(3) The permittee shall properly operate and maintain equipment to monitor the packed column, caustic scrubber (DA-847) pH of the scrubber liquor and scrubber water flow rate, in gallons per minute, during operation of this emissions unit, except for periods of startup, shutdown and calibration periods. The monitoring equipment shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), unless the permittee determines that a departure therefrom is warranted based on good engineering and maintenance practices. The permittee shall record the pH of the scrubber liquor and the scrubber water flow rate on a once per 12-hour shift basis.

Whenever the monitored values for the pH of the scrubber liquor and/or scrubber water flow rate deviate from the values specified below, the permittee shall promptly

investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation: the date and time the deviation began and the magnitude of the deviation at that time, the date(s) the investigation was conducted, the names of the personnel who conducted the investigation, and 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 packed column, caustic scrubber (DA-847) within the optimum values specified below, 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: a description of the corrective action, the date it was completed, the date and time the deviation ended, the total period of time (in minutes) during which there was a deviation, the pH and/or scrubber water flow rate readings immediately after the corrective action, and the names 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.

For purposes of this condition, the optimum value for the pH of the scrubber liquor for the packed column, caustic scrubber (DA-847) is at or above 8 while the emissions unit is in operation, except during startup, shutdown or calibration periods. Also for purposes of this condition, the optimum value for the scrubber water flow rate for the packed column, caustic scrubber (DA-847) is a minimum value, in gallons per minute, established either during the most recent performance test that demonstrated that the emissions unit was in compliance or by the scrubber manufacturer's written recommendation while the emissions unit is in operation, except during startup, shutdown or calibration periods. These optimum values are effective for the duration of this permit. Any changes in the optimum values must be approved in writing by the Ohio EPA Northeast District Office. The permittee may request revisions to the optimum values based upon information obtained during future emission tests that demonstrate compliance with the allowable emission rates for this emissions unit. In addition, approved revisions to the optimum values will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative permit modification.

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.

(2) The permittee shall submit quarterly reports that identify the following information concerning the operation of the packed column, caustic scrubber (DA-847) during the operation of this emissions unit:

a. each period of time when the pH of the scrubber liquor for the packed column, caustic scrubber (DA-847) was outside of the optimum value;

b. each period of time when the scrubber water flow rate for the packed column, caustic scrubber (DA-847) was outside of the optimum value;

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

d. an identification of each incident of deviation described in (a) or (b) where prompt corrective action, that would bring the pH of the scrubber liquor or the scrubber water flow rate into compliance with the optimum value, was determined to be necessary and was not taken; and

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

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 that specify the CO, NO_x, OC and PE for the previous calendar year, in tons/year. These reports shall be submitted by April 15 of each year. The fee emissions report submittal, required by OAC rule 3745-77-07(A)(8) and OAC rule 3745-78, will fulfill the requirements of this permit term.

f) Testing Requirements

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

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

Visible PE from any stack egress shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

<u>Applicable Compliance Method</u>:

Compliance shall be determined based upon OAC rule 3745-17-03(B)(1).

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

PE shall not exceed 41.2 lbs/hr from the stack egress point of the caustic scrubber (DA-847).

<u>Applicable Compliance Method</u>:

To determine the worst case emissions rate, the following equation may be used:

E_DA847(PE) = Conc_PE x Q x 1 lb PE/7,000 grains PE x [528/(460 + T) x (1 - H2O)] x 60 min/hr

where:

E_DA847(PE) = PE rate from the caustic scrubber, in pounds per hour;

Conc_PE = maximum PE concentration in scrubber exhaust, which is 0.03 grain PE/dscf, per engineering estimates noted in the application for PTI 02-16459;

Q = scrubber exhaust flow rate, which is approximately 1,270 acfm as noted in the application for PTI 02-16459;

T = actual temperature of scrubber exhaust, which is approximately 68 degrees Fahrenheit; and

H20 = moisture content of scrubber exhaust, which is approximately 0.25.

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

c. Emission Limitations:

PE shall not exceed 0.020 lb/mmBtu of actual heat input from each egress point for the $TiCl_4$ vaporizer (BA-812), the O_2 preheater (BA-815) and the O_2 preheater (BA-816).

Applicable Compliance Method:

To determine the worst case emissions rate, the following equation may be used:

E(PE) = EF/HC

where:

E_BA812(PE) = the PE rate from the $TiCl_4$ vaporizer (BA-812), in pounds PE per million Btu of maximum heat input;

E_BA815(PE) = the PE rate from the O_2 preheater (BA-815), in pounds PE per million Btu of maximum heat input;

E_BA816(PE) = the PE rate from the O_2 preheater (BA-816), in pounds PE per million Btu of maximum heat input;

EF = the emission factor for the PE rate, 1.9 pounds of filterable particulate emissions per million cubic feet of natural gas employed, specified in AP-42, Table 1.4-2, Chapter 1.4(7/98); and

HC = maximum heat content of natural gas, which is 1,029 Btu per cubic foot as specified in the application for PTI 02-16459.

If required, the permittee shall demonstrate compliance with these emission limitations through emission tests performed in accordance with the procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 5.

d. Emission Limitation:

PE shall not exceed 183.5 tons/year from all egress points.

Applicable Compliance Method:

To determine the annual rate, the following equation may be used:

PE_TOTAL = [E_DA847(PE) + (E_BA812(PE) x mmBtu_BA812/hr) + (E_BA815(PE) x mmBtu_BA815/hr) + (E_BA816(PE) x mmBtu_BA816/hr)] x HRS/YR x 1 ton/2000 lbs.

where:

PE_TOTAL = the total PE rate from all egress points, in tons/year;

mmBtu_BA812/hr = the maximum rated heat input capacity of the $TiCl_4$ vaporizer (BA-812), 16.8 mmBtu/hr;

mmBtu_BA815/hr = the maximum rated heat input capacity of the O_2 preheater (BA-815), 9.5 mmBtu/hr;

mmBtu_BA816/hr = the maximum rated heat input capacity of the O_2 preheater (BA-816), 2.2 mmBtu/hr; and

HRS/YR = the actual hours of operation per year, which is the sum of the daily operating hours, as specified in the record keeping requirements in d)(2), for the calendar year.

e. Emission Limitations:

CO emissions shall not exceed 0.67 lb/hr from the $TiCl_4$ vaporizer (BA-812) egress.

CO emissions shall not exceed 0.46 lb/hr from the O_2 preheater (BA-815) egress.

CO emissions shall not exceed 0.18 lb/hr from the O_2 preheater (BA-816) egress.

NO_x emissions shall not exceed 3.86 lbs/hr from the $TiCl_4$ vaporizer (BA-812) egress.

NO_x emissions shall not exceed 2.13 lbs/hr from the O_2 preheater (BA-815) egress.

NO_x emissions shall not exceed 0.21 lb/hr from the O_2 preheater (BA-816) egress.

OC emissions shall not exceed 0.18 lb/hr from the $TiCl_4$ vaporizer (BA-812) egress.

OC emissions shall not exceed 0.10 lb/hr from the O_2 preheater (BA-815) egress.

OC emissions shall not exceed 0.02 lb/hr from the O_2 preheater (BA-816) egress.

Applicable Compliance Method:

To determine the worst case emissions rate, the following equation may be used:

E(lbs/hr) = EF x mmBtu/hr x cf/1029 Btu.

where:

E(lbs/hr) = the rate of CO, NO_x or OC emissions, in pounds/hour;

EF_BA812(CO) = the CO emissions factor for BA-812, 41.16 pounds of CO emissions per million cubic feet of natural gas employed, derived from manufacturer data, in the application for PTI 02-16459;

EF_BA815(CO) = the CO emissions factor for BA-815, 49.7 pounds of CO emissions per million cubic feet of natural gas employed, derived from manufacturer data, in the application for PTI 02-16459;

EF_BA816(CO) = the CO emissions factor for BA-816, 84 pounds of CO emissions per million cubic feet of natural gas employed for small, uncontrolled, natural gas-fired boilers, specified in AP-42, Table 1.4-1, Chapter 1.4 (7/98);

EF_BA812(NO_x) = the NO_x emissions factor for BA-812, 236.67 pounds of NO_x emissions per million cubic feet of natural gas employed, derived from manufacturer data, in the application for PTI 02-16459;

EF_BA815(NO_x) = the NO_x emissions factor for BA-815, 230.50 pounds of NO_x emissions per million cubic feet of natural gas employed, derived from manufacturer data, in the application for PTI 02-16459;

EF_BA816(NO_x) = the NO_x emissions factor for BA-816, 100 pounds of NO_x emissions per million cubic feet of natural gas employed for small, uncontrolled, natural gas-fired boilers, specified in AP-42, Table 1.4-1, Chapter 1.4 (7/98); and

EF_BA812(OC) = EF_BA815(OC) = EF_BA816(CO) = the OC emissions factor, 11 pounds of OC emissions per million cubic feet of natural gas employed for small, uncontrolled, natural gas-fired boilers, specified in AP-42, Table 1.4-2, Chapter 1.4 (7/98).

f. Emission Limitations:

CO emissions shall not exceed 5.74 tons/year from all egress points.

NO_x emissions shall not exceed 27.18 tons/year from all egress points.

OC emissions shall not exceed 1.33 tons/year from all egress points.

Applicable Compliance Method:

To determine the annual rate, the following equation may be used:

E(TPY) = (E_BA812 + E_BA815 + E_BA816) x HRS/YR x 1 ton/2,000 lbs.

where:

E(TPY) = the rate of CO, NO_x or OC emissions, in tons/year;

E_BA812 = the CO, NO_x or OC emissions rate from the $TiCl_4$ vaporizer (BA-812), in pound(s) per hour, as specified in f)(1)e;

E_BA815 = the CO, NO_x or OC emissions rate from the O_2 preheater (BA-815), in pound(s) per hour, as specified in f)(1)e; and

E_BA816 = the CO, NO_x or OC emissions rate from the O_2 preheater (BA-816), in pound(s) per hour, as specified in f)(1)e.

If required, the permittee shall demonstrate compliance with these emission limitations through emission tests performed in accordance with the procedures specified in the following methods:

for CO – 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 10

for NO_x - 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 7E

for OC - 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 18, 25 or 25A, as appropriate.

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

g) Miscellaneous Requirements

(1) The following terms and conditions shall supersede all of the air pollution control requirements for this emissions unit contained in permit to install 02-16459, as issued on July 5, 2002: a), b), c), d), e) and f).