



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL
ASHTABULA COUNTY**

CERTIFIED MAIL

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov.
Center

Application No: 02-16459

DATE: 7/5/2002

Millennium Inorganic Chemicals Inc Plt2
Dianna Henslee
P.O. Box 310
Ashtabula, OH 44004

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging 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 Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 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. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,

Thomas G. Rigo
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA

NEDO



Permit To Install

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

FINAL PERMIT TO INSTALL 02-16459

Application Number: 02-16459
APS Premise Number: 0204010193
Permit Fee: **\$2000**
Name of Facility: Millennium Inorganic Chemicals Inc Plt2
Person to Contact: Dianna Henslee
Address: P.O. Box 310
Ashtabula, OH 44004

Location of proposed air contaminant source(s) [emissions unit(s)]:
2426 Middle Rd
Ashtabula, Ohio

Description of proposed emissions unit(s):
2.2 mmBtu/hr oxygen preheater and modifications relating to two other oxygen preheaters.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) 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 above described 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



Director

Part I - GENERAL TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install General Terms and Conditions

1. Monitoring and Related Recordkeeping 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:
 - i. The date, place (as defined in the permit), and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. 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:
 - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
 - ii. 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 appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous

calendar quarters. See B.10 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., 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.
- iv. 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.

2. 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 appropriate Ohio EPA District Office or local air agency 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).

3. 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.

4. 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.

5. Severability Clause

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.

6. 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 reissuance, or modification, or for denial of a permit renewal application.
- 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, reopened, 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, reopening 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.

7. 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 this Permit To Install.

8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that 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, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
 - i. 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.
 - ii. 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.
 - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency 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:
 - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - ii. 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.

10. Permit To Operate Application

- a. If 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 obtained before 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).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the source(s) covered by this permit.

11. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

12. 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.

B. State Only Enforceable Permit To Install General Terms and Conditions**1. Compliance Requirements**

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

2. Reporting Requirements Related to Monitoring and Recordkeeping 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 appropriate Ohio EPA District Office or local air agency.
- 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 appropriate Ohio EPA District Office or local air agency. 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., 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.)

3. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

4. Termination of Permit To Install

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. 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.

5. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. 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 the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install 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.

6. 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.

7. 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).

8. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)

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., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

C. Permit To Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>	<u>Tons Per Year Increase</u>
PE/PM ₁₀	183.5	0.45
CO	5.74	1.31
NO _x		27.18
OC	1.33	1.33

11

Millen

PTI A₁

Issued: 7/5/2002

Emissions Unit ID: P001

12

Millennium Inorganic Chemicals Inc Plt2

PTI Application: **02-16459**

Issued: 7/5/2002

Facility ID: **0204010193**

13

Millen

PTI A₁

Issued: 7/5/2002

Emissions Unit ID: P001

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

None

B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - Oxidation process: including an aluminum chloride generator (DC-813), an oxidation reactor (DC-827) with a pair filter (FD-822) product capture device, a slurry tank (FA-813), a neutralization tank (FA-601), and a packed column, caustic scrubber (DA-402) with a venturi inlet and mist eliminator) - OAC CHAPTER 3745-31 MODIFICATION OF PTI 02-11771, ISSUED FEBRUARY 18, 1998	OAC rule 3745-31-05(A)(3) OAC rule 3745-17-07(A) OAC rule 3745-17-11	The particulate emissions (PE) rate shall not exceed 41.2 lbs/hr from the stack egress point of the caustic scrubber (DA-402). The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A). See section A.I.2.a. Visible PE from any stack egress shall not exceed 20% opacity as a 6-minute average, except as specified by rule. 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)	OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-10(B)(1) OAC rule 3745-21-08(B)

OAC rule 3745-23-06(B)	<p>The carbon monoxide (CO) emissions shall not exceed 0.67 lb/hr. The nitrogen oxides (NO_x) emissions shall not exceed 3.86 lbs/hr. The organic compound (OC) emissions shall not exceed 0.18 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-10(B)(1), 3745-21-08(B), and 3745-23-06(B).</p> <p>The PE rate shall not exceed 0.020 lb/mmBtu of actual heat input.</p> <p>See section A.I.2.b.</p>	
9.5 mmBtu/hr natural gas-fired oxygen (O ₂) preheater (BA-815)	<p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-17-10(B)(1)</p> <p>OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)</p>	<p>The CO emissions shall not exceed 0.46 lb/hr. The NO_x emissions shall not exceed 2.13 lbs/hr. The OC emissions shall not exceed 0.10 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-10(B)(1), 3745-21-08(B), and 3745-23-06(B).</p> <p>The PE rate shall not exceed 0.020 lb/mmBtu of actual heat input.</p> <p>See section A.I.2.b.</p>
2.2 mmBtu/hr natural gas-fired oxygen (O ₂) preheater (BA-816)	<p>OAC rule 3745-31-05(A)(3)</p> <p>OAC rule 3745-17-10(B)(1)</p>	<p>OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)</p>

Issued

Emissions Unit ID: P001

<p>The CO emissions shall not exceed 0.18 lb/hr. The NO_x emissions shall not exceed 0.21 lb/hr. The OC emissions shall not exceed 0.02 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-10(B)(1), 3745-21-08(B), and 3745-23-06(B).</p>	<p>All egress points</p>	<p>OAC rule 3745-31-05(A)(3)</p>
<p>The PE rate shall not exceed 0.020 lb/mmBtu of actual heat input.</p>		

See section A.I.2.b.

The PE rate shall not exceed 183.5 tons/year. The CO rate shall not exceed 5.74 tons/year. The NO_x rate shall not exceed 27.18 tons/year. The OC rate shall not exceed 1.33 tons/year.

2. Additional Terms and Conditions

- 2.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.

- 2.b** The permittee has satisfied the "best available control techniques and operating practices" and "latest available control techniques and operating practices" required pursuant to OAC rule 3745-21-08 and 3745-23-06, respectively, by committing to comply with the best available technology requirements established by this permit-to-install.

II. Operational Restrictions

1. The pH of the scrubber liquor for the packed column, caustic scrubber (DA-402) shall be continuously maintained at or above 8 at all times, except during calibration, startup and shutdown periods, while the emissions unit is in operation.
2. The packed column, caustic scrubber (DA-402) water flow rate shall be continuously maintained at 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 calibration, startup and shutdown periods.
3. The permittee shall burn only natural gas in the TiCl₄ vaporizer (BA-812) burner, in the O₂ preheater burners (BA-815 and BA-816).

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall properly operate and maintain equipment to monitor and record the operating parameters of packed column, caustic scrubber (DA-402) while the emissions unit is in operation. Each monitor and recorder shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals. The permittee shall collect and record the following information each day:
 - a. the pH of the scrubber liquor, on a once per 8-hour basis,
 - b. the scrubber water flow rate, in gallons per minute, on a once per 8-hour basis, and
 - c. a log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.
2. 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.

IV. Reporting Requirements

1. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the following parameters of the packed column, caustic scrubber (DA-402) liquor parameters were not maintained as specified in section A.II.1.:
 - a. the pH of the scrubber liquor, and

- b. the scrubber water flow rate.
2. 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.
 3. The permittee shall submit annual reports that specify the PE rate, the CO, NO_x and OC emissions 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.

V. Testing Requirements

1. Compliance with the emissions limitation(s) in Section A.I.1. of these terms and conditions shall be determined in accordance with the following methods(s):

- a. Emission Limitation: 20% opacity of visible particulate emissions.

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

- b. Emission Limitation: 41.2 lbs/hr PE from the caustic scrubber (DA-402) stack egress.

Applicable Compliance Method(s): To determine the worst case emissions rate, the following equation may be used:

$$E_{DA402(PE)} = \text{Conc}_{PE} \times Q \times 1 \text{ lb PE}/7,000 \text{ grains PE} \\ \times [528/(460 + T) \times (1 - H_2O)] \times 60 \text{ min/hr.}$$

where:

$E_{DA402(PE)}$ = 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.

H₂O = 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 40 CFR Part 60, Appendix A, Methods 1-5.

- c. Emission Limitations: 0.020 lb PE/mmBtu from each egress for the TiCl₄ vaporizer

(BA-812), the O₂ preheater (BA-815), and the O₂ preheater (BA-816).

Applicable Compliance Method(s): To determine the worst case emissions rate, the following equation may be used:

$$E(\text{PE}) = \text{EF}/\text{HC}$$

where:

E_{BA812}(PE) = the PE rate from the TiCl₄ vaporizer (BA-812), in pounds PE per million Btu of maximum heat input.

E_{BA815}(PE) = the PE rate from the O₂ preheater (BA-815) , in pounds PE per million Btu of maximum heat input.

E_{BA816}(PE) = the PE rate from the O₂ 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).

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 40 CFR Part 60, Appendix A, Methods 1-5.

- d. Emission Limitation: 183.5 TPY PE from all egress points.

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

$$\begin{aligned} \text{PE_TOTAL} = & [\text{E_DA402}(\text{PE}) + (\text{E_BA812}(\text{PE}) \times \text{mmBtu_BA812/hr}) \\ & + (\text{E_BA815}(\text{PE}) \times \text{mmBtu_BA815/hr}) + (\text{E_BA816}(\text{PE}) \times \text{mmBtu_BA816/hr})] \\ & \times \text{HRS/YR} \times 1 \text{ ton}/2000 \text{ lbs.} \end{aligned}$$

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 TiCl₄ vaporizer

(BA-812), 16.8 mmBtu/hr.

mmBtu_BA815/hr = the maximum rated heat input capacity of the O₂ preheater (BA-815),
9.5 mmBtu/hr.

mmBtu_BA816/hr = the maximum rated heat input capacity of the O₂ preheater (BA-816),
2.2 mmBtu/hr.

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 of section A.III.2, for the calendar year.

- e. Emission Limitations: 0.67 lb CO/hr from the TiCl₄ vaporizer (BA-812) egress, 0.46 lb CO/hr from the O₂ preheater (BA-815) egress, and 0.18 lb CO/hr from the O₂ preheater (BA-816) egress.

3.86 lbs NO_x/hr from the TiCl₄ vaporizer (BA-812) egress, 2.13 lbs NO_x/hr from the O₂ preheater (BA-815) egress, and 0.21 lb NO_x/hr from the O₂ preheater (BA-816) egress.

0.18 lb OC/hr from the TiCl₄ vaporizer (BA-812) egress, 0.10 lb OC/hr from the O₂ preheater (BA-815) egress, and 0.02 lb OC/hr from the O₂ preheater (BA-816) egress.

Applicable Compliance Method(s): To determine the worst case emissions rate, the following equation may be used:

$$E(\text{lbs/hr}) = EF \times \text{mmBtu/hr} \times \text{cf}/1029 \text{ Btu.}$$

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.

Issued

Emissions Unit ID: P001

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).

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: 5.74 TPY CO, 27.18 TPY NO_x and 1.33 TPY OC emissions from all egress points.

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

$$E(\text{TPY}) = (E_{\text{BA812}} + E_{\text{BA815}} + E_{\text{BA816}}) \times \text{HRS/YR} \times 1 \text{ ton}/2,000 \text{ lbs.}$$

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 TiCl₄ vaporizer (BA-812), in pound(s) per hour, as specified in section A.V.1.e.

E_BA815 = the CO, NO_x or OC emissions rate from the O₂ preheater (BA-815), in pound(s) per hour, as specified in section A.V.1.e.

E_BA816 = the CO, NO_x or OC emissions rate from the O₂ preheater (BA-816), in pound(s) per hour, as specified in section A.V.1.e.

If required, the permittee shall demonstrate compliance with these emission limitations through emission tests performed in accordance with U.S. EPA Methods 1-4 and 10 for CO emissions, U.S. EPA Methods 1-4 and 7E for NO_x emissions, and U.S. EPA Methods 1-4 and 18, 25 or 25A, as appropriate for OC emissions as found in 40 CFR Part 60, Appendix A. Equivalent, alternative methods (as approved by Ohio EPA) may be

23

Millen

PTI A₁

Issued: 7/5/2002

Emissions Unit ID: P001

performed.

VI. 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 02-11771, as issued on February 18, 1998: A.I., A.II., A.III., A.IV., A.V., B.I., B.II., B.III., B.IV., and B.V.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - Oxidation process: including an aluminum chloride 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 (DA-402 with a venturi inlet and mist eliminator) with a 16.8 mmBtu/hr natural gas-fired titanium tetrachloride (TiCl ₄) vaporizer (BA-812), 9.5 mmBtu/hr natural gas-fired oxygen (O ₂) preheater (BA-815) and a 2.2 mmBtu/hr natural gas-fired oxygen (O ₂) preheater (BA-816) - OAC CHAPTER 3745-31 MODIFICATION OF PTI 02-11771, ISSUED FEBRUARY 18, 1998		Compliance with the Air Toxics Policy as specified in section B.III.1.

2. Additional Terms and Conditions

25

Millennium Inorganic Chemicals Inc Plt2

PTI Application: **02 16450**

Issued

Facility ID: **0204010193**

Emissions Unit ID: P001

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Record keeping Requirements

1. Modeling to demonstrate compliance with Ohio EPA's "Air Toxic Policy" was not necessary because the emissions unit's maximum annual emissions for each toxic compound and criteria pollutant will be less than 1.0 ton and less than the significant level for modeling. 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 pollutant that has a listed threshold limit value (TLV) to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit-to-install.

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None