



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: 02-16029**

**DATE:** 1/7/2003

Millennium Inorganic Chemicals Plant 1  
Dianna Henslee  
PO 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,

*Michael W. Ahern*

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

NEDO



STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install  
Terms and Conditions**

**Issue Date: 1/7/2003  
Effective Date: 1/7/2003**

**FINAL PERMIT TO INSTALL 02-16029**

Application Number: 02-16029  
APS Premise Number: 0204010200  
Permit Fee: **\$2400**  
Name of Facility: Millennium Inorganic Chemicals Plant 1  
Person to Contact: Dianna Henslee  
Address: PO Box 310  
Ashtabula, OH 44004

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**2900 Middle Road**  
**Ashtabula, Ohio**

Description of proposed emissions unit(s):  
**TiO<sub>2</sub> paste head tank, TiO<sub>2</sub> paste dryer, 24 mmBtu/hr natural gas fired burner.**

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 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:
  - 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 record keeping 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 record keeping 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

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calendar quarters. See B.9 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, record keeping, 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.

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#### **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 ninety (90) 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 Record keeping Requirements**

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or record keeping 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 record keeping 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**

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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>
PE/PM <sub>10</sub>	85.99
CO	10.61
NO <sub>x</sub>	17.12
OC	2.05

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**Millennium Inorganic Chemicals Plant 1**

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**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>
P002 - Train "A" Finishing process: including a TiO <sub>2</sub> paste feed tank (TNK-2501), TiO <sub>2</sub> paste dryer (DRY-2505), a 24 mmBtu/hr natural gas fired burner (BRN-2508) with two product capture baghouses (BAG-2515 and BAG-2520) to control particulate emissions. ADMINISTRATIVE MODIFICATION	OAC rule 3745-17-07(A)	Visible particulate emissions (PE) from this emissions unit shall not exceed 20% opacity as a 6-minute average.
	OAC rule 3745-17-11	The PE rate shall not exceed 19.2 lbs/hr. The allowable, hourly PE rate is based on Table 1 in OAC rule 3745-17-11.

**2. Additional Terms and Conditions**

- 2.a. Emissions unit P002 is considered an existing source since it was installed in 1968. This emissions unit is not subject to OAC rules 3745-23-06 nor 3745-31-05(A)(3).

**II. Operational Restrictions**

1. The permittee shall burn only natural gas in the Train "A" TiO<sub>2</sub> paste dryer burner (BRN-2508).

**III. Monitoring and/or Record keeping 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 perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this

Emissions Unit ID: P002

emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

- a. The color of the emissions;
- b. Whether the emissions are representative of normal operations;
- c. If the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. Whether the visible emissions during the observation period were continuous or intermittent; and
- e. Any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

#### IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that include an identification of each day when a fuel other than natural gas was burned in the Train "A" TiO<sub>2</sub> paste dryer burner (BRN-2508). Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit semiannual written reports that (a) identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit and (b) describe any corrective actions taken to minimize or eliminate the visible particulate emissions. These reports shall be submitted to the Ohio EPA Northeast District Office by January 31 and July 31 of each year and shall cover the previous 6-month period.

#### V. Testing Requirements

1. Compliance with the allowable emissions limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

Emissions Unit ID: P002

- 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: 19.2 lbs PE/hr.

Applicable Compliance Method: To determine the actual worst case emission rate for PE, the following equation may be used:

$$E_{PE} = Q_{ds} \times (PE_{\text{grain load}}) \times (1 \text{ lb PE}/7000 \text{ grains PE}) \times (60 \text{ min/hr}).$$

Where the following applies:

$$E_{PE} = \text{PE rate, in pounds per hour.}$$

$Q_{ds}$  = dry, standard actual exhaust flow from the final egress point (STK-2535), in dry standard cubic feet per minute (dcfm), measured during the most recent, representative stack test conducted at maximum capacity.

PE grain load = maximum particulate load from the final egress point (STK-2535), in grains PE/dscf, measured during the most recent, representative stack test conducted at maximum capacity.

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.

## VI. Miscellaneous Requirements

1. Emissions unit P002 previously included process units associated with the following newly designated emissions units: (P011) Train "A" Oxidation Process; (S008 - S009) Train "A" Slurry Surge Tanks Nos. 1, 2 and 3; (Z400) Train "A" Wet Slurry Flow Treatment; (S016 - S018) Train "A" Rotary Drum Vacuum filter Separators Nos. 1, 2 and 3; (S023 - S026) Train "A" Micronizing (Grinding) Operations; and (S030 - S033) Train "A" Dry Pigment Packaging.

**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>
P002 - Train "A" Finishing process: including a TiO2 paste feed tank (TNK-2501), TiO2 paste dryer (DRY-2505), a 24 mmBtu/hr natural gas fired burner (BRN-2508) with two product capture baghouses (BAG-2515 and BAG-2520) to control particulate emissions. ADMINISTRATIVE MODIFICATION		

2. **Additional Terms and Conditions**

- 2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record keeping Requirements**

None

**IV. Reporting Requirements**

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Emissions Unit ID: **P002**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

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>
P011 - Train "A" Oxidation process: including an aluminum chloride generator (GEN-1903), an oxidation reactor (REA-1921) with a paire filter product capture device (FLT-1935), a flue pond (HEX-1924) and a slurry tank (TNK-1940). OAC CHAPTER 3745-31 MODIFICATION	OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-10(B)(1)
14.6 mmBtu/hr natural gas-fired titanium tetrachloride (TiCl <sub>4</sub> ) vaporizer (VAP-1901)	OAC rule 3745-17-07(A)	OAC rule 3745-23-06(B)

**Millen**

**PTI A**

**Issued: 1/7/2003**

Emissions Unit ID: **P011**

The carbon monoxide (CO) emissions shall not exceed 1.19 lbs/hr. The nitrogen oxides (NO<sub>x</sub>) emissions shall not exceed 1.42 lbs/hr. The organic compound (OC) emissions shall not exceed 0.16 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-10(B)(1) and 3745-23-06(B).

Visible particulate emissions (PE) from any stack egress shall not exceed 20% opacity as a 6-minute average, except as specified by rule.

The PE rate shall not exceed 0.020 lb/mmBtu of actual heat input.

See section A.I.2.b.

The CO emissions shall not exceed 0.57 lb/hr. The NO<sub>x</sub> emissions shall not exceed 0.68 lb/hr. The OC emissions shall not exceed 0.08 lb/hr. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-10(B)(1) and 3745-23-06(B).

Visible PE from any stack

7 mmBtu/hr natural gas-fired oxygen (O<sub>2</sub>) preheater (HTR-1902)

OAC rule 3745-31-05(A)(3)

OAC rule 3745-17-07(A)

OAC rule 3745-17-10(B)(1)

OAC rule 3745-23-06(B)

egress shall not exceed 20% opacity as a 6-minute average, except as specified by rule.

The PE rate shall not exceed 0.020 lb/mmBtu of actual heat input.

See section A.I.2.b.

All egress points

OAC rule 3745-31-05(A)(3) | The PE rate shall not exceed 1.89 tons/year. The CO rate shall not exceed 7.72 tons/year. The NO<sub>x</sub> rate shall not exceed 9.19 tons/year. The OC rate shall not exceed 1.01 tons/year.

## 2. Additional Terms and Conditions

- 2.a** Exhaust gases from the paire filter (FLT-1935) product capture device, serving the oxidation reactor, are routed to the Train "A" Chlorination Process (P001) instead of the atmosphere. However, during startup, shutdown or equipment pressure testing, nitrogen or oxygen is used to warm or purge the oxygen preheater (HTR-1902), so 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 permittee shall burn only natural gas in the TiCl<sub>4</sub> vaporizer (VAP-1901) burner and in the O<sub>2</sub> preheater burner (HTR-1902).

## III. Monitoring and/or Record keeping 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 perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack egresses (STK-1901 and STK-1902) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. The color of the emissions;
  - b. Whether the emissions are representative of normal operations;

- c. If the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. The total duration of any visible emission incident; and
- e. Any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

3. The permittee shall collect in a log and record the operating time for this emissions unit.

#### **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that include an identification of each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit semiannual written reports that (a) identify all days during which any visible particulate emissions were observed from the stack egresses (STK-1901 and STK-1902) serving this emissions unit and (b) describe any corrective actions taken to minimize or eliminate the visible particulate emissions. These reports shall be submitted to the Director (the Ohio EPA Northeast District Office) by January 31 and July 31 of each year and shall cover the previous 6-month period.
3. The permittee shall submit annual reports that specify the PE rate, the CO, NO<sub>x</sub> 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 allowable emissions limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:
  - 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: 0.020 lb PE/mmBtu from each egress for the TiCl<sub>4</sub> vaporizer (VAP-1901) and for the O<sub>2</sub> preheater (HTR-1902).

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

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

where:

$E_{\text{VAP1901}}(\text{PE})$  = the PE rate from the TiCl<sub>4</sub> vaporizer (VAP-1901), in pounds PE per million Btu of maximum heat input.

$E_{\text{HTR1902}}(\text{PE})$  = the PE rate from the O<sub>2</sub> preheater (HTR-1902), 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 02-16029.

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.

- c. Emission Limitation: 1.89 TPY PE from all egress points.

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

$$\text{PE\_TOTAL} = [(E_{\text{VAP1901}}(\text{PE}) \times \text{mmBtu\_VAP1901/hr}) \\ + (E_{\text{HTR1902}}(\text{PE}) \times \text{mmBtu\_HTR1902/hr}) \\ \times \text{HRS/YR} \times 1 \text{ ton PE/2000 lbs PE}.$$

where:

PE\_TOTAL = the total PE rate from all egress points, in tons/year.

mmBtu\_VAP1901/hr = the maximum rated heat input capacity of the TiCl<sub>4</sub> vaporizer (VAP-1901), which is 14.6 mmBtu/hr as specified in the application for PTI 02-16029.

mmBtu\_HTR1902/hr = the maximum rated heat input capacity of the O<sub>2</sub> preheater (HTR-1902), which is 7 mmBtu/hr as specified in the application for PTI 02-16029.

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.3, for the calendar year.

- d. Emission Limitations: 1.19 lbs CO/hr from the TiCl<sub>4</sub> vaporizer (VA9-1901) egress and 0.57 lb CO/hr from the O<sub>2</sub> preheater (HTR-1902) egress.

1.42 lbs NO<sub>x</sub>/hr from the TiCl<sub>4</sub> vaporizer (VA9-1901) egress and 0.68 lb NO<sub>x</sub>/hr from the O<sub>2</sub> preheater (HTR-1902) egress.

0.16 lb OC/hr from the TiCl<sub>4</sub> vaporizer (VAP-1901) egress and 0.08 lb OC/hr from the O<sub>2</sub> preheater (HTR-1902) 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<sub>x</sub> or OC emissions, in pounds/hour.

EF(CO) = the CO emissions factor, 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(NO<sub>x</sub>) = the NO<sub>x</sub> emissions factor, 100 pounds of NO<sub>x</sub> 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(OC) = 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).

- e. Emission Limitations: 7.72 TPY CO, 9.19 TPY NO<sub>x</sub> and 1.01 TPY OC emissions from all egress points.

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

$$E(\text{TPY}) = (E\_VAP1901 + E\_HTR1902) \times \text{HRS/YR} \times 1 \text{ ton}/2,000 \text{ lbs.}$$

where:

$E(\text{TPY})$  = the rate of CO, NO<sub>x</sub> or OC emissions, in tons/year.

$E\_VAP1901$  = the CO, NO<sub>x</sub> or OC emissions rate from the TiCl<sub>4</sub> vaporizer (VAP-1901), in pound(s) per hour, as specified in section A.V.1.d.

$E\_HTR1902$  = the CO, NO<sub>x</sub> or OC emissions rate from the O<sub>2</sub> preheater (HTR-1902), in pound(s) per hour, as specified in section A.V.1.d.

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<sub>x</sub> 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 performed.

## VI. Miscellaneous Requirements

Newly designated emissions unit, P011, was previously associated with emissions unit, (P002) Train "A" Finishing Process.

**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>
P011 - Train A Oxidation process: including an aluminum chloride generator (GEN-1903), an oxidation reactor (REA-1921) with a paire filter product capture device (FLT-1935), a flue pond (HEX-1924) and a slurry tank (TNK-1940). OAC CHAPTER 3745-31 MODIFICATION		Compliance with the Air Toxics Policy as specified in section B.III.1.

**2. Additional Terms and Conditions**

**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

Emissions Unit ID: **P011**

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

**NEW SOURCE REVIEW FORM B**

PTI Number: 02-16029 Facility ID: 0204010200

FACILITY NAME Millennium Inorganic Chemicals Plant 1

FACILITY DESCRIPTION TiO<sub>2</sub> paste head tank, TiO<sub>2</sub> paste dryer, 24 mmBtu/hr natural gas fired burner CITY/TWP Ashtabula

SIC CODE 2816 SCC CODE 3-01-035-53 EMISSIONS UNIT ID P002

EMISSIONS UNIT DESCRIPTION Train A Finishing process: including a TiO<sub>2</sub> paste feed tank (TNK-2501), TiO<sub>2</sub> paste dryer (DRY-2505), a 24 mmBtu/hr natural gas fired burner (BRN-2508) with two baghouses (BAG-2515 and BAG-2520) to control particulate emissions

DATE INSTALLED 1968

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	0.93 lb/hr	4.07	19.2 lbs/hr	na
PM <sub>10</sub>	Unclassified	0.93 lb/hr	4.07	na	na
Sulfur Dioxide	Attainment				
Organic Compounds	Attainment	0.24 lb/hr	1.04	na	na
Nitrogen Oxides	Attainment	1.81 lbs/hr	7.93	na	na
Carbon Monoxide	Attainment	0.66 lb/hr	2.89	na	na
Lead	Attainment				
Other: Air Toxics	Unclassified				

APPLICABLE FEDERAL RULES:

NSPS? NA

NESHAP? NA

PSD? NA

OFFSET POLICY? NA

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

**Enter Determination** P002 is an existing emissions unit and is not subject to BAT requirements.

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? No.

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$ unknown

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*? \_\_\_\_\_ YES X NO

IDENTIFY THE AIR CONTAMINANTS: NA.

**28 NEW SOURCE REVIEW FORM B**

PTI Number: 02-16029

Facility ID: 0204010200

FACILITY NAME Millennium Inorganic Chemicals Plant 1

FACILITY DESCRIPTION TiO2 naste head tank. TiO2 naste drver. 24 CITY/TWP Ashtabula

Emissions Unit ID: **P011**

SIC CODE 2816

SCC CODE 3-01-035-03

EMISSIONS UNIT ID P011

EMISSIONS UNIT DESCRIPTION Train A Oxidation process: including an aluminum chloride generator (GEN-1903), an oxidation reactor (REA-1921) with a paire filter product capture device (FLT-1935), a flue pond (HEX-1924) and a slurry tank (TNK-1940)

DATE INSTALLED 1996

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter/PM <sub>10</sub> - VAP-1901	Attainment	0.0002 lb/mmBtu	0.12	0.020 lb/mmBtu	na
Particulate Matter/PM <sub>10</sub> - HTR-1902	Attainment	0.0002 lb/mmBtu	0.06	0.020 lb/mmBtu	na
Particulate Matter/PM <sub>10</sub> -all egress points	Attainment	0.40 lb/hr	0.18	na	1.89
Sulfur Dioxide	Attainment				
Organic Compounds - VAP-1901	Attainment	0.16 lb/hr	0.68	0.16 lb/hr	na
Organic Compounds - HTR-1902	Attainment	0.08 lb/hr	0.33	0.08 lb/hr	na
Organic Compounds - all egress points	Attainment	0.24 lb/hr	1.01	na	1.01
Nitrogen Oxides - VAP-1901	Attainment	1.42 lbs/hr	6.21	1.42 lbs/hr	na
Nitrogen Oxides - HTR-1902	Attainment	0.68 lb/hr	2.98	0.68 lb/hr	na
Nitrogen Oxides - all egress points	Attainment	2.10 lbs/hr	9.19	na	9.19
Carbon Monoxide - VAP-1901	Attainment	1.19 lbs/hr	5.22	1.19 lbs/hr	na
Carbon Monoxide - HTR-1902	Attainment	0.57 lb/hr	2.50	0.57 lb/hr	na
Carbon Monoxide - all egress points	Attainment	1.76 lbs/hr	7.72	na	7.72
Lead	Attainment				
Other: Air Toxics	Unclassified				

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

**WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?**

**Enter Determination** 0.020 lb PE/mmBtu for natural gas-fired units per OAC rule 3745-17-10(B)(1). NO<sub>x</sub>, OC & CO lb/hr limits based on AP-42 EF Chapter 1.4 (7/98). PE, OC, NO<sub>x</sub> & CO TPY limits based on sum of maximum emissions from all egress points.

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY?

No.

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT?

\$0 (NA).

**TOXIC AIR CONTAMINANTS**

Ohio EPA's air toxics policy applies to contaminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED\*?

YES X NO

IDENTIFY THE AIR CONTAMINANTS:

NA.