



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL
LAKE COUNTY**

Street Address:

122 S. Front Street

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

Mailing Address:

Lazarus Gov. Center
P.O. Box 1049

Application No: 02-14020

DATE: 6/21/00

Praxair, Inc.
Brian Trossman
PO Box 44 175 East Park Drive
Tonawanda, NY 141510044

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, Manager
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 02-14020

Application Number: 02-14020
APS Premise Number: 0243001317
Permit Fee: **\$200**
Name of Facility: Praxair, Inc.
Person to Contact: Brian Trossman
Address: PO Box 44 175 East Park Drive
Tonawanda, NY 141510044

Location of proposed air contaminant source(s) [emissions unit(s)]:
679 Hardy Rd(within Lonza site)
Painesville, Ohio

Description of proposed emissions unit(s):
Hydrogen production from natural gas feedstock by steam methane reforming process with 1.85 MMBTU/hr natural gas combustion unit.

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. 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 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 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. Records Retention Requirements

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.

4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. 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 verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

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 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. 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 emissions unit(s) that is (are) served by such control system(s).

6. 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.

7. 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.

8. 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.

9. 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

Praxair, Inc.

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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 are inadequate 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 prove to be inadequate or cannot meet applicable standards.

10. 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.

11. 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).

12. 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.

13. Source Operation and Operating Permit Requirements After Completion of Construction

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This 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 emissions unit(s) covered by this permit.

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14. 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.

15. 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.

B. 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>
Carbon Monoxide	4.72 tons per year
NOX	0.86 ton per year
OC	0.14 ton per year
SO2	0.005 ton per year
PM	0.065 ton per year

PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. 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.

OAC rule 3745-17-10

Operations, Property,
and/or Equipment

Applicable Rules/Requirements

P001 - Hydrogen production from natural gas feedstock by steam methane reforming process with 1.85 MMBTU/hr natural gas combustion unit.	OAC rule 3745-31-05(A)(3)
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OAC rule 3745-17-07(A)

Applicable Emissions
Limitations/Control Measures

Carbon Monoxide emissions shall not exceed 13.0 lb/hr and 4.0 tons per year from the reformer.

Emissions limits for combustion unit:

Oxides of nitrogen emissions shall not exceed 0.194 lb/hr and 0.86 ton per year.

Organic compound emissions shall not exceed 0.032 lb/hr and 0.14 ton per year.

Sulfur Dioxide emissions shall not exceed 0.001 lb/hr and 0.005 ton per year.

Particulate emissions shall not exceed 0.015 lb/hr and 0.065 ton per year.

Carbon monoxide emissions shall not exceed 0.163 lb/hr and 0.72 ton per year.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A).

The emission limitation specified by this rule is less stringent than the emission limitation established

pursuant to OAC rule 3745-31-05(A)(3).

Visible emissions shall not exceed 20% opacity as a six-minute average

2. Additional Terms and Conditions

- 2.a** This is a permit to install for a methane reforming process to produce hydrogen gas using natural gas as fuel and feedstock. Carbon Monoxide is emitted during the very first start-up and during restarts.
- 2.b.** Monitoring and/or recordkeeping requirements for CO are not required by this permit. Based on the maximum capacity of the equipment and an estimate of CO emissions from AP-42, section 1.4.1 on combustion emissions, the actual carbon monoxide emissions could not exceed the allowable emission rates established by this permit.

B. Operational Restrictions

1. The permittee shall limit the venting during restarts for this emission unit to 500 hours per year, for streams containing carbon monoxide.
2. In accordance with best available technology requirements:
 - a. The tailgas byproduct of this methane reformer shall be recirculated and used to supplement natural gas as fuel; and,
 - b. all reformer startups shall be fired at 25% of the normal firing rate, which shall be preprogrammed into the restart software, to reduce carbon monoxide emissions.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall keep records of the number of hours of venting during restarts for streams containing carbon monoxide for this methane reformer.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports whenever the number of hours of venting during restarts for streams containing carbon monoxide exceeds the allowable limit in this permit.

E. Testing Requirements

1. EMISSION LIMITATION: 13.0 lbs CO per hour from the reformer

APPLICABLE COMPLIANCE METHOD: recordkeeping as required

in this permit; if required by the Ohio EPA, compliance with the allowable CO emission limit shall be determined in accordance with the following method(s): Methods 1 - 4 and 10 or 10A of 40 CFR Part 60, Appendix A.

2. EMISSION LIMITATION: 4.0 ton per year

APPLICABLE COMPLIANCE METHOD: 13 lbs/hr x the annual sum of hours for all restarts of the reformer divided by 2000 (lbs/ton)

3. EMISSION LIMITATION:

0.194 pound per hour of NOX emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

To determine the actual NOX emissions for natural gas combustion, emission factors outlined in AP-42, Section 1.4 (Natural Gas Combustion-Fifth Edition, 3/98) shall be used.

4. EMISSION LIMITATION:

0.86 ton per year of NOX emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

This limit is based on the allowable hourly emission limit listed above multiplied by the maximum possible operating hours (8760 hours per year), and divided by 2000 (pounds per ton). Therefore, provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

5. EMISSION LIMITATION:

0.032 pound per hour of organic compound emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

To determine the actual organic compound emissions for natural gas combustion, emission factors outlined in AP-42, Section 1.4 (Natural Gas Combustion-Fifth Edition, 3/98) shall be used.

6. EMISSION LIMITATION:

0.14 ton per year of organic compound emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

This limit is based on the allowable hourly emission limit listed above multiplied by the maximum possible operating hours (8760 hours per year), and divided by 2000 (pounds per ton). Therefore, provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

7. EMISSION LIMITATION:

0.001 pound per hour of sulfur dioxide emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

To determine the actual sulfur dioxide emissions for natural gas combustion, emission factors outlined in AP-42, Section 1.4 (Natural Gas Combustion-Fifth Edition, 3/98) shall be used.

8. EMISSION LIMITATION:

0.005 ton per year of sulfur dioxide emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

This limit is based on the allowable hourly emission limit listed above multiplied by the maximum possible operating hours (8760 hours per year), and divided by 2000 (pounds per ton). Therefore, provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

9. EMISSION LIMITATION:

0.015 pound per hour of particulate emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

To determine the actual particulate emissions emissions for natural gas combustion, emission factors outlined in AP-42, Section 1.4 (Natural Gas Combustion-Fifth Edition, 3/98) shall be used.

10. EMISSION LIMITATION:

0.065 ton per year of particulate emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

This limit is based on the allowable hourly emission limit listed above multiplied by the maximum possible operating hours (8760 hours per year), and divided by 2000 (pounds per ton). Therefore, provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

11. EMISSION LIMITATION:

0.163 pound per hour of carbon monoxide emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

To determine the actual carbon monoxide emissions for natural gas combustion, emission factors outlined in AP-42, Section 1.4 (Natural Gas Combustion-Fifth Edition, 3/98) shall be used.

12. EMISSION LIMITATION:

0.72 ton per year of carbon monoxide emissions from combustion unit

APPLICABLE COMPLIANCE METHOD:

This limit is based on the allowable hourly emission limit listed above multiplied by the maximum possible operating hours (8760 hours per year), and divided by 2000 (pounds per ton). Therefore, provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

13. EMISSION LIMITATION:

20% opacity for visible particulate emissions

APPLICABLE COMPLIANCE METHOD:

If required by the Ohio EPA, compliance shall be determined by visible emission evaluations

performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA reference method 9.

F. Miscellaneous Requirements

1. None

NEW SOURCE REVIEW FORM B

PTI Number: 02-14020 Facility ID: 0243001317

FACILITY NAME Praxair, Inc.

FACILITY DESCRIPTION Hydrogen production from natural gas feedstock by steam methane reforming process with 1.85 MMBTU/hr natural gas combustion unit. CITY/TWP Painesville

SIC CODE 2813-Industrial Gases SCC CODE 3-01-999-98 EMISSIONS UNIT ID P001

EMISSIONS UNIT DESCRIPTION Hydrogen production from natural gas feedstock by steam methane reforming process with 1.85 MMBTU/hr natural combustion unit

DATE INSTALLED 2nd half 2000

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	all same as allowable		0.015	0.065
PM ₁₀					
Sulfur Dioxide	Attainment			0.001	0.005
Organic Compounds	Attainment			0.032	0.14
Nitrogen Oxides	Attainment			0.194	0.86
Carbon Monoxide	Attainment	10.8 lb/hr		13.0 lb/hr	4.0 tpy
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination: Recirculation and use of the byproduct tailgas; reformer start-ups fired at reduced rates programmed into the restart software to reduce CO emission rate in accordance with OAC rule 3745-31-05.

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? no
 OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? \$ _____

TOXIC AIR CONTAMINANTS

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

AIR TOXICS MODELING PERFORMED*? _____ YES xxx NO

IDENTIFY THE AIR CONTAMINANTS: _____