State of Ohio Environmental Protection Agency

RE: FINAL PERMIT TO INSTALL **CERTIFIED MAIL**
SANDUSKY 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: 03-13457

DATE: 11/27/2001

Magnesium Refining Technologies Inc
Chris Kiser
4878 Chaincraft Road
Garfield Hts, OH 44125

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

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

CC: USEPA **NWDO**

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit To Install		**Issue Date:**	**11/27/2001**
Terms and Conditions		**Effective Date:**	**11/27/2001**

FINAL PERMIT TO INSTALL 03-13457

Application Number:	03-13457
APS Premise Number:	0372010227
Permit Fee:	**$800**
Name of Facility:	Magnesium Refining Technologies Inc
Person to Contact:	Chris Kiser
Address:	4878 Chaincraft Road Garfield Hts, OH 44125

Location of proposed air contaminant source(s) [emissions unit(s)]:
301 Sandusky County Rd 177
Bellevue, **Ohio**

Description of proposed emissions unit(s):
Two 24000 pound capacity natural gas fired crucible furnaces.

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 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.

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.

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

Pollutant	Tons Per Year
PE	1.16
HCL	0.62
NOx	32.84
CO	18.4

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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	OAC rule 3745-17-11(B)
P903 - natural gas fired crucible furnace (24,000 lb holding capacity/1.5 tons/hr melting capacity)	OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-07(A)
		OAC rule 3745-17-08(B)

Applicable Emissions
Limitations/Control Measures

See A.2.a

Stack emissions:

0.08 lbs/hr and 0.35 TPY PE

0.06 lbs/hr and 0.26 TPY HCl

3.75 lbs/hr and 16.42 TPY NOx

2.1 lbs/hr and 9.2 TPY CO

Baghouse emissions shall not exceed 3 percent opacity as a six-minute average

Building roof vent emissions shall not exceed 6 percent opacity as a six-minute average

Fugitive emissions:

0.23 TPY PE

0.05 TPY HCl

No visible emissions from any other building opening, including doors, windows, air intake vents, etc. other than the baghouse stack and building roof vent emissions

See A.2.b

See A.2.b

See A.2.c

2. Additional Terms and Conditions

2.a "Best Available Technology" (BAT) for this emissions unit has been determined to be use of a baghouse control system with a 90% capture efficiency and a 95% removal efficiency for PE (85.5% overall controll efficiency)*.

BAT for this emissions unit has also been determined to include the use of pre-coated aluminum silicate bags and a continuous aluminum silicate feed system to the baghouse achieving a 97% removal efficiency for HCl (87.3 overall control efficiency based on 90% capture efficiency from utilization of same capture system used for PE)

*The 95% removal efficiency for PE is based on the removal efficiency between the inlet and outlet of the baghouse only. The inlet to the continuous aluminum silicate feed system shall not be used as the inlet to the control system for purposes of determining removal efficiency.

2.b The emission limitation specified by this rule is less stringent that the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2.c Magnesium Refining Technologies Inc. is not located within an "Appendix A" area as identified in OAC rule 3745-17-08. Therefore, pursuant to OAC rule 3745-17-08(A), this emissions unit is exempt from the requirements of OAC rule 3745-17-08(B)(1).

B. Operational Restrictions

1. The pressure drop across the baghouse, in inches of water, shall be maintained within the range established during the most recent emission test that demonstrated that the emissions unit was in compliance.

2. The feed rate of aluminum silicate, in pounds per hour, to the baghouse control system shall be maintained within the range established during the most recent emission test that demonstrated that the emissions unit was in compliance.

C. Monitoring and/or Recordkeeping Requirements

1. The permit to install for emissions units P903 and P904 was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emissions unit exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

   Pollutant: hydrogen chloride

   TLV (ug/m3): 3,685

   Maximum Hourly Emission Rate (lbs/hr): 0.40

   Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.00

   MAGLC (ug/m3): 87.74

   Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased

exhaust flow, changes in stack height, changes in stack diameter, etc.).

2. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

   The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

   a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

   b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

   c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

3. For purposes of determining the aluminum silicate feed rate to the baghouse control system, the permittee shall collect and record the following information each time the baghouse control system is replenished with aluminum silicate:

   a. The amount of aluminum silicate placed into the system feed hopper, in pounds.

   b. The total number of hours of operation of the baghouse control system since the aluminum silicate feed hopper was last filled.

   c. The average hourly aluminum silicate feed rate to the baghouse control system i.e., (C.2.a)/(C.2.b), in pounds per hour (average)

4. The permittee shall properly install, operate and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse on a once per day basis.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify any and all exceedances of the following:

a. All periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified above.

b. All periods of time during which the aluminum silicate feed rate to the baghouse control system did not comply with the level specified above.

The permittee shall submit these deviation reports in accordance with the general terms and conditions of this permit.

E. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

   a. The emission testing shall be conducted no later than 180 days following start-up of this emissions unit.

   b. The emission testing shall be conducted to demonstrate compliance with the hourly allowable emission rates for HCl, and particulate emissions (PE).

   c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:

      i. For HF, Methods 1 - 4 and Method 26/Method 26A of 40 CFR Part 60, Appendix A

      ii. For PE, Methods 1 - 5 of 40 CFR Part 60, Appendix A

   The tests shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

   Not later than 30 days prior to the proposed test dates, the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the tests, and the person(s) who will be conducting the tests. Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission tests.

   Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

   A comprehensive written report on the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the tests.

2. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following method(s):

a. Emission Limitation:
0.08 lb PE/hr (Stack)

Applicable Compliance Method:
The emission limitation was developed by multiplying an uncontrolled emission factor of 0.355 lb PE/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit) and a maximum furnace capacity of 1.5 tons/hr and applying an overall control efficiency of 85.5 %. The permittee shall demonstrate compliance with hourly emission limitation through the emission testing required in section E.1.

b. Emission Limitation:
0.35 ton PE/year (Stack)

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

c. Emission Limitation:
0.23 tons PE/yr (Fugitive)

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an uncontrolled emission factor of 0.355 lb PE/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit), a maximum furnace capacity of 13,140 tons/yr, applying a capture efficiency of 90% and dividing by 2000 lbs/ton.

d. Emission Limitation:
0.06 lb HCl/hr (Stack)

Applicable Compliance Method:
The emission limitation was developed by multiplying an uncontrolled emission factor of 0.3074 lb HCl/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit) and a maximum furnace capacity of 1.5 tons/hr and applying an overall control efficiency of 87.3 %. The permittee shall demonstrate compliance with hourly emission limitation through the emission testing required in section E.1.

e. Emission Limitation:
0.26 ton HCl/year (Stack)

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

f. Emission Limitation:
0.05 ton HCl/yr (Fugitive)

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an uncontrolled emission factor of 0.3074 lb HCl/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit), a maximum furnace capacity of 13,140 tons/hr, applying a capture efficiency of 90% and dividing by 2000 lbs/ton.

g. Emission Limitation:
Baghouse emissions shall not exceed 3 percent opacity as a six-minute average

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 9 of 40 CFR Part 60, Appendix A.

h. Emission Limitation:
Building roof vent emissions shall not exceed 6 percent opacity as a six-minute average

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 9 of 40 CFR Part 60, Appendix A.

i. Emission Limitation:
No visible emissions from any other building opening, including doors, windows, air intake vents, etc. other than the baghouse stack and building roof vent emissions

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 22 of 40 CFR Part 60, Appendix A.

j. Emission Limitation:
3.75 lbs NOx/hr

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an emission factor of 2.5 lbs NOx/ton of magnesium produced (FIRE 6.23 Data System, released October 2000 - SCC

Code 304000601) by a maximum furnace capacity of 1.5 tons/hr . If required the permittee shall demonstrate compliance by emission testing using 40 CFR Part 60, Appendix A, Methods 1-4 and Method 7.

k. Emission Limitation:
16.42 tons NOx/yr

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

l. Emission Limitation:
2.1 lbs CO/hr

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an emission factor of 1.4 lbs NOx/ton of magnesium produced (Table 4.1-3 from Background Report for AP-42 Section 12.12, 11/94) by a maximum furnace capacity of 1.5 tons/hr . If required the permittee shall demonstrate compliance by emission testing using 40 CFR Part 60, Appendix A, Methods 1-4 and Method 10.

m. Emission Limitation:
9.2 tons CO/yr

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

F. Miscellaneous Requirements

None

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.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	
P904 - natural gas fired crucible furnace (24,000 lb holding capacity/1.5 tons/hr melting capacity)	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-17-11(B)
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-08(B)

Applicable Emissions Limitations/Control Measures
See A.2.a
Stack emissions:
0.08 lbs/hr and 0.35 TPY PE
0.06 lbs/hr and 0.26 TPY HCl
3.75 lbs/hr and 16.42 TPY NOx
2.1 lbs/hr and 9.2 TPY CO
Baghouse emissions shall not exceed 3 percent opacity as a six-minute average
Building roof vent emissions shall not exceed 6 percent opacity as a six-minute average
Fugitive emissions:
0.23 TPY PE
0.05 TPY HCl
No visible emissions from any other building opening, including doors, windows, air intake vents, etc. other than the baghouse stack and building roof vent emissions

See A.2.b

See A.2.b

See A.2.c

2. Additional Terms and Conditions

2.a "Best Available Technology" (BAT) for this emissions unit has been determined to be use of a baghouse control system with a 90% capture efficiency and a 95% removal efficiency for PE (85.5% overall controll efficiency)*.

BAT for this emissions unit has also been determined to include the use of pre-coated aluminum silicate bags and a continuous aluminum silicate feed system to the baghouse achieving a 97% removal efficiency for HCl (87.3 overall control efficiency based on 90% capture efficiency from utilization of same capture system used for PE)

*The 95% removal efficiency for PE is based on the removal efficiency between the inlet and outlet of the baghouse only. The inlet to the continuous aluminum silicate feed system shall not be used as the inlet to the control system for purposes of determining removal efficiency.

2.b The emission limitation specified by this rule is less stringent that the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

2.c Magnesium Refining Technologies Inc. is not located within an "Appendix A" area as identified in OAC rule 3745-17-08. Therefore, pursuant to OAC rule 3745-17-08(A), this emissions unit is exempt from the requirements of OAC rule 3745-17-08(B)(1).

B. Operational Restrictions

1. The pressure drop across the baghouse, in inches of water, shall be maintained within the range established during the most recent emission test that demonstrated that the emissions unit was in compliance.

2. The feed rate of aluminum silicate, in pounds per hour, to the baghouse control system shall be maintained within the range established during the most recent emission test that demonstrated that the emissions unit was in compliance.

C. Monitoring and/or Recordkeeping Requirements

1. The permit to install for emissions units P903 and P904 was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emissions unit exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by the emissions units using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

   Pollutant: hydrogen chloride

   TLV (ug/m3): 3,685

   Maximum Hourly Emission Rate (lbs/hr): 0.40

   Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.00

   MAGLC (ug/m3): 87.74

   Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be still satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

   a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;

   b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

   c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased

exhaust flow, changes in stack height, changes in stack diameter, etc.).

2. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

   The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

   a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

   b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

   c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

3. For purposes of determining the aluminum silicate feed rate to the baghouse control system, the permittee shall collect and record the following information each time the baghouse control system is replenished with aluminum silicate:

   a. The amount of aluminum silicate placed into the system feed hopper, in pounds.

   b. The total number of hours of operation of the baghouse control system since the aluminum silicate feed hopper was last filled.

   c. The average hourly aluminum silicate feed rate to the baghouse control system i.e., (C.2.a)/(C.2.b), in pounds per hour (average)

4. The permittee shall properly install, operate and maintain equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse on a once per day basis.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify any and all exceedances of the following:

a. All periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified above.

b. All periods of time during which the aluminum silicate feed rate to the baghouse control system did not comply with the level specified above.

The permittee shall submit these deviation reports in accordance with the general terms and conditions of this permit.

E. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

   a. The emission testing shall be conducted no later than 180 days following start-up of this emissions unit.

   b. The emission testing shall be conducted to demonstrate compliance with the hourly allowable emission rates for HCl, and particulate emissions (PE).

   c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:

      i. For HF, Methods 1 - 4 and Method 26/Method 26A of 40 CFR Part 60, Appendix A

      ii. For PE, Methods 1 - 5 of 40 CFR Part 60, Appendix A

   The tests shall be conducted while the emissions unit is operating at its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

   Not later than 30 days prior to the proposed test dates, the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the tests, and the person(s) who will be conducting the tests. Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission tests.

   Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

   A comprehensive written report on the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the tests.

2. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following method(s):

a. Emission Limitation:
0.08 lb PE/hr (Stack)

Applicable Compliance Method:
The emission limitation was developed by multiplying an uncontrolled emission factor of 0.355 lb PE/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit) and a maximum furnace capacity of 1.5 tons/hr and applying an overall control efficiency of 85.5 %. The permittee shall demonstrate compliance with hourly emission limitation through the emission testing required in section E.1.

b. Emission Limitation:
0.35 ton PE/year (Stack)

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

c. Emission Limitation:
0.23 tons PE/yr (Fugitive)

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an uncontrolled emission factor of 0.355 lb PE/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit), a maximum furnace capacity of 13,140 tons/yr, applying a capture efficiency of 90% and dividing by 2000 lbs/ton.

d. Emission Limitation:
0.06 lb HCl/hr (Stack)

Applicable Compliance Method:
The emission limitation was developed by multiplying an uncontrolled emission factor of 0.3074 lb HCl/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit) and a maximum furnace capacity of 1.5 tons/hr and applying an overall control efficiency of 87.3 %. The permittee shall demonstrate compliance with hourly emission limitation through the emission testing required in section E.1.

e. Emission Limitation:
0.26 ton HCl/year (Stack)

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

f. Emission Limitation:
0.05 ton HCl/yr (Fugitive)

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an uncontrolled emission factor of 0.3074 lb HCl/ton of magnesium produced (based on an 11-2-99 stack test of an identical unit), a maximum furnace capacity of 13,140 tons/hr, applying a capture efficiency of 90% and dividing by 2000 lbs/ton.

g. Emission Limitation:
Baghouse emissions shall not exceed 3 percent opacity as a six-minute average

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 9 of 40 CFR Part 60, Appendix A.

h. Emission Limitation:
Building roof vent emissions shall not exceed 6 percent opacity as a six-minute average

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 9 of 40 CFR Part 60, Appendix A.

i. Emission Limitation:
No visible emissions from any other building opening, including doors, windows, air intake vents, etc. other than the baghouse stack and building roof vent emissions

Applicable Compliance Method:
If required, the permittee shall demonstrate compliance in accordance with USEPA Reference Method 22 of 40 CFR Part 60, Appendix A.

j. Emission Limitation:
3.75 lbs NOx/hr

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an emission factor of 2.5 lbs NOx/ton of magnesium produced (FIRE 6.23 Data System, released October 2000 - SCC Code 304000601) by a maximum furnace capacity of 1.5 tons/hr . If required the permittee shall demonstrate compliance by emission testing using 40 CFR Part 60, Appendix A, Methods 1-4 and Method 7.

k. Emission Limitation:
16.42 tons NOx/yr

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

l. Emission Limitation:
2.1 lbs CO/hr

Applicable Compliance Method:
The permittee shall demonstrate compliance by multiplying an emission factor of 1.4 lbs NOx/ton of magnesium produced (Table 4.1-3 from Background Report for AP-42 Section 12.12, 11/94) by a maximum furnace capacity of 1.5 tons/hr . If required the permittee shall demonstrate compliance by emission testing using 40 CFR Part 60, Appendix A, Methods 1-4 and Method 10.

m. Emission Limitation:
9.2 tons CO/yr

Applicable Compliance Method:
The ton per year limitation was developed by multiplying the lb/hr limitation by a maximum operating schedule of 8,760 hours per year and dividing by 2000 lbs/ton. Therefore provided compliance is shown with the hourly limitation, compliance will also be shown with the annual limitation.

F. Miscellaneous Requirements

None