

## SYNTHETIC MINOR DETERMINATION

PTI 15-01344

### KOCH GLITSCH, INC.

- A. **Source Description:** This facility, Koch Glitsch, Inc. (Koch) was established in 1997 when part of an existing facility, Stark Ceramics 15 76 06 0004, was purchased. Two emissions units P002 (P001 at Stark Ceramics) and P003 (P018 at Stark Ceramics) were formerly part of Stark Ceramics and now are part of Koch. In 1997 Koch installed the following four emissions units: P001, P004, P005 & P006. PTI 15-1284 was issued for P001 on May 28, 1997. This PTI will replace PTI 15-1284. No PTIs were issued for P004, P005 or P006. P002 and P003 are included in this PTI so that federally enforceable limits can be established for both SO<sub>2</sub> and HF for all six emissions units. This facility is trying to avoid Title V. The facility's calculation of the PTE of HF from the entire facility is 21.8 TPY, which is more than the 10 TPY Title V significance limit for an individual HAP. The facility has calculated the SO<sub>2</sub> PTE from the facility to be 57.43 TPY based on the fact that the clay they are using has a limited percentage of sulfur. A more conservative approach would be to use the SO<sub>2</sub> allowable established by OAC rule 3745-18-06(E)(1). Using this approach, the SO<sub>2</sub> PTE from the facility would be 361.44 tons SO<sub>2</sub>/yr which is more than the 100 TPY Title V significance threshold.
- B. **New Source Emissions:** The facility is establishing in this PTI a facility-wide limit of 9.8 tons per year of HF, based upon a rolling, 12-month summation of the monthly emissions. The facility is also establishing in this PTI a limit for the combined emissions from emissions units P001-P003 of 20.93 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions and also a limit for the combined emissions from emissions units P004-P006 of 6.8 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions. The two limits add up to a limit of 27.73 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions.
- C. **Conclusion:** The PTE of HF will be reduced to less than 10 TPY and the PTE of SO<sub>2</sub> will be reduced to less than 100 TPY; thus, Koch will avoid Title V.



State of Ohio Environmental Protection Agency

Street Address:

Mailing Address:

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

Lazarus Gov. Center

**RE: DRAFT PERMIT TO INSTALL  
STARK COUNTY**

**CERTIFIED MAIL**

**Application No: 15-01344**

**DATE: 10/17/2000**

Koch-Glitsch, Inc. - Knight Division  
Allen Smalley  
P.O. Box 30070 5385 Orchardview Drive, S.E.  
East Canton, OH

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed of final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$3200** will be due. Please do not submit any payment now.

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. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Very truly yours,

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

CC: USEPA  
WV

Canton LAA  
PA

Stark Cty Area Trans Study



**Permit To Install  
Terms and Conditions**

**Issue Date: To be entered upon final issuance  
Effective Date: To be entered upon final issuance**

**DRAFT PERMIT TO INSTALL 15-01344**

Application Number: 15-01344  
APS Premise Number: 1576001851  
Permit Fee: **To be entered upon final issuance**  
Name of Facility: Koch-Glitsch, Inc. - Knight Division  
Person to Contact: Allen Smalley  
Address: P.O. Box 30070 5385 Orchardview Drive, S.E.  
East Canton, OH 44730

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**5385 Orchardview Drive  
East Canton, Ohio**

Description of proposed emissions unit(s):  
**Establishing a Synthetic Minor PTI for three shuttle kilns.**

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

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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 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.

**Koch-Glitsch, Inc. - Knight Division**  
**PTI Application: 15-01344**  
**Issued: To be entered upon final issuance**

**Facility ID: 1576001851**

Koch

PTI /

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

**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**

<b><u>Pollutant</u></b>	<b><u>Tons Per Year</u></b>
NO <sub>x</sub>	11.43*
CO	11.91*
Particulates	1.97*
SO <sub>2</sub>	27.73
HF	9.8

\*These totals do not include allowable emissions from emissions units P002 & P003.

Koch

PTI

Emissions Unit ID: P001

Issued: To be entered upon final issuance

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P001 - 1,750 lbs/hr, 12.1 MMBtu/hr, natural gas-fired tunnel kiln for ceramic packing sintering; Company ID: No. 3 Tunnel Kiln	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)(1)
	OAC rule 3745-17-11
	OAC rule 3745-18-06(E)(1)
	OAC rule 3745-35-07(B)

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**PTI**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

Applicable Emissions  
Limitations/Control Measures

Nitrogen oxide emissions shall not exceed 1.21 pounds/hour and 5.3 tons/year.

Carbon monoxide emissions shall not exceed 1.02 pounds/hour and 4.47 tons/year.

Particulate emissions shall not exceed 0.32 pound/hour and 1.4 tons/year.

Sulfur dioxide emissions shall not exceed 2.72 pounds/hour (as a 30-day average) and 11.91 tons/year.

Hydrogen fluoride emissions shall not exceed 1.11 pounds/hour (as a 30-day average) and 4.86 tons/year.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1).

**Synthetic Minor Limits**

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  
See section A.2.a. below.

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.b. below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

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

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

## 2. Additional Terms and Conditions

- 2.a.** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b.** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.c.** The only fuel to be used in this emissions unit shall be natural gas.

## B. Operational Restrictions

1. The hydrogen fluoride emissions from this emissions unit shall not show an exceedence of the maximum 30 day average ground level concentration of 0.5 micrograms/m<sup>3</sup>. This is an Ohio EPA Modeling Policy. Compliance with this limit was demonstrated based on the SCREEN 3 model. The following stack parameters were used in this successful model run:

Emission rate	0.137 gram/second (30-day average)
Stack height	25.7 meters
Stack inside diameter	0.76 meter
Stack exit velocity	10.4034 meters/second
Stack gas exit temp.	444 degrees Kelvin

The following summarizes the results of the modeling:

Maximum concentration was 2.775 ug/m<sup>3</sup> at a distance of 326 meters. Multiplying by a conversion factor of 0.18, the result was 0.4995 ug/m<sup>3</sup>, which is less than the 0.5 ug/m<sup>3</sup> limit.

**Koch**

**PTI**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

Any change to the emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of the maximum 30-day average ground level concentration of 0.5 microgram/m<sup>3</sup> may be deemed a "modification" to the emissions unit, and, as such, prior notification to and approval from the Canton local air agency will be required, including the possible issuance of modifications to PTI 15-01344 and the operating permit.

2. The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P001-P003; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
3. This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
4. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall keep daily records of the amount of clay fired in this kiln.
2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-P003.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation

**Issue**

Emissions Unit ID: **P001**

will be used to determine compliance with the limits for fluorine content of 0.06 %.

6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.0775 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P003.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P003.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P003.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P003.
14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001-P003;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P003;

**Koch**

**PTI**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

- d. all exceedances of the limit of 0.0775 % sulfur content in the clay employed in emissions units P001-P003; and
- e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

- 2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
- 3. The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001-P003. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

- 1. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following methods(s):
  - a. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 1.21 pounds/hour.  
  
Applicable Compliance Method:  
Multiply 12.1 MMBtu/hr times 0.1 lb NO<sub>x</sub>/MMBtu (mfg. documentation), which equals 1.21 lbs NO<sub>x</sub>/hr.
  - b. Emission Limitation:  
Particulate emissions shall not exceed 0.32 pound/hour.  
  
Applicable Compliance Method:  
Multiply 0.875 ton/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97), which equals 0.32 lb particulates/hr.
  - c. Emission Limitation:  
Carbon monoxide emissions shall not exceed 1.02 pounds/hour.  
  
Applicable Compliance Method:  
Multiply 12.1 MMBtu/hr times 0.084 lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98), which equals 1.02 lbs CO/hr

Issue

Emissions Unit ID: P001

- d. Emission Limitation:  
Sulfur dioxide emissions shall not exceed 2.72 pounds/hour (as a 30-day average).  
  
Applicable Compliance Method:  
The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.
- e. Emission Limitation:  
Hydrogen fluoride emissions shall not exceed 1.11 pounds/hour (as a 30-day average).  
  
Applicable Compliance Method:  
The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.
- f. Emission Limitation:  
5.3 tons NO<sub>x</sub>/yr  
4.47 tons CO/yr  
1.4 tons particulates/yr  
  
Applicable Compliance Method:  
Multiply the hourly emission limitation times 8,760 hrs/yr and then divide by 2000 lbs/ton.
- g. Emission Limitation:  
11.91 tons SO<sub>2</sub>/yr  
  
Applicable Compliance Method:  
The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.
- h. Emission Limitation:  
4.84 tons HF/yr  
  
Applicable Compliance Method:  
The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.
- i. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

**Koch**

**PTI**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.14.

j. Emission Limitation:

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.13.

k. Emission Limitation:

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

l. Emission Limitation:

The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.9.

m. Emission Limitation:

This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775% sulfur content.

Applicable Compliance Method:

See Section A.2.b above for the method of determining the weighted average sulfur content.

n. Emission Limitation:

This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

**Koch**

**PTI /**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

Applicable Compliance Method:

See Section A.2.a above for the method of determining the weighted average fluorine content.

**Koch**

**PTI /**

Emissions Unit ID: **P001**

**Issued: To be entered upon final issuance**

**F. Miscellaneous Requirements**

1. This permit to install (PTI) supercedes PTI 15-1284 issued on May 28, 1997 for P001.
2. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P002 - 2,500 lbs/hr, 21 MMBtu/hr, natural gas-fired tunnel kiln for ceramic packing sintering; Company ID: No. 1 Tunnel Kiln (Formerly P001 Stark Ceramics) (Existing Emissions Unit)	OAC rule 3745-35-07(B)
	OAC rule 3745-17-07(A)(1)
	OAC rule 3745-17-11
	OAC rule 3745-18-06(E)(1)

**Koch**

**PTI**

**Issued: To be entered upon final issuance**

Emissions Unit ID: **P002**

Applicable Emissions  
Limitations/Control Measures

Synthetic Minor Limits

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.a. below.

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.b. below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Particulate emissions shall not exceed 4.76 pounds/hour (based on a maximum PWR of 2,500 lbs/hr).

Sulfur dioxide emissions shall not exceed 23.23 pounds/hour (based on a maximum PWR of 2,500 lbs/hr).

**2. Additional Terms and Conditions**

**Issued: To be entered upon final issuance**

- 2.a** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

**B. Operational Restrictions**

1. The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P001-P003; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
2. This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
3. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall keep daily records of the amount of clay fired in this kiln.

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2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-P003.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation will be used to determine compliance with the limits for fluorine content of 0.06 %.
6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.0775 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P003.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P003.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P003.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P003.
14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

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#### **D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001-P003;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P003;
  - d. all exceedances of the limit of 0.0775 % sulfur content in the clay employed in emissions units P001-P003; and
  - e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
3. The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001-P003. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following methods(s):
  - a. Emission Limitation:  
Particulate emissions shall not exceed 4.76 pounds/hour (based on a maximum PWR of 2,500 lbs/hr).

Applicable Compliance Method:  
Multiply 1.25 ton/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from

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AP-42, Table 11.3-2, 8/97), which equals 0.46 lb particulates/hr.

- b. Emission Limitation:  
Sulfur dioxide emissions shall not exceed 23.23 pounds/hour (based on a maximum PWR of 2,500 lbs/hr).

Applicable Compliance Method:

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

- c. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.14.

- d. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.13.

- e. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

- f. Emission Limitation:  
The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Monthly record keeping as required in Section C.9.

- g. **Emission Limitation:**  
This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775% sulfur content.

**Applicable Compliance Method:**

See Section A.2.b above for the method of determining the weighted average sulfur content.

- h. **Emission Limitation:**  
This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

**Applicable Compliance Method:**

See Section A.2.a above for the method of determining the weighted average fluorine content.

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**F. Miscellaneous Requirements**

1. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-18-06(E)(1)
P003 - 3,125 lbs/hr, 34.9 MMBtu/hr, natural gas-fired tunnel kiln for ceramic packing sintering; Company ID: No. 2 Tunnel Kiln (Formerly P018 Stark Ceramics) (Existing Emissions Unit)	OAC rule 3745-35-07(B)	
	OAC rule 3745-17-07(A)(1)	
	OAC rule 3745-17-11	

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Applicable Emissions

Limitations/Control Measures

#### Synthetic Minor Limits

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.a below.

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.b below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Particulate emissions shall not exceed 5.53 pounds/hour (based on a maximum PWR of 3,125 lbs/hr).

Sulfur dioxide emissions shall not exceed 26.97 pounds/hour (based on a maximum PWR of 3,125 lbs/hr).

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- 2.a** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

**B. Operational Restrictions**

- 1. The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P001-P003; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
- 2. This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
- 3. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

- 1. The permittee shall keep daily records of the amount of clay fired in this kiln.
- 2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay

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delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.

3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P001-P003.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation will be used to determine compliance with the limits for fluorine content of 0.06 %.
6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.0775 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P003.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P003.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P001-P003.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P001-P003.
14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P001-P003;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P001-P003;
  - d. all exceedances of the limit of 0.0775 % sulfur content in the clay employed in emissions units P001-P003; and
  - e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
3. The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P001-P003. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following methods(s):
  - a. Emission Limitation:  
Particulate emissions shall not exceed 5.53 pounds/hour (based on a maximum PWR of 3,125 lbs/hr).

Applicable Compliance Method:  
Multiply 1.56 tons/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97), which equals 0.58 lb particulates/hr.

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- b. Emission Limitation:  
Sulfur dioxide emissions shall not exceed 26.97 pounds/hour (based on a maximum PWR of 2,500 lbs/hr).
- Applicable Compliance Method:  
The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.
- c. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:  
Compliance shall be based on the recordkeeping found in Section C.14.
- d. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:  
Compliance shall be based on the recordkeeping found in Section C.13.
- e. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
- Applicable Compliance Method:  
Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
- f. Emission Limitation:  
The maximum annual combined clay usage for emissions units P001-P003 shall not exceed 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures.
- Applicable Compliance Method:  
Monthly record keeping as required in Section C.9.

- g. **Emission Limitation:**  
This facility shall not use any clay in emissions units P001-P003 that contains more than a weighted average of 0.0775% sulfur content.

**Applicable Compliance Method:**

See Section A.2.b above for the method of determining the weighted average sulfur content.

- h. **Emission Limitation:**  
This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

**Applicable Compliance Method:**

See Section A.2.a above for the method of determining the weighted average fluorine content.

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**F. Miscellaneous Requirements**

1. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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Emissions Unit ID: P004

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**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P004 - 150 lbs/hr, 4.32 MMBtu/hr, natural gas-fired shuttle kiln for ceramic packing sintering; Company ID: No. 5 Shuttle Kiln	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)(1)
	OAC rule 3745-17-11
	OAC rule 3745-18-06(E)(1)
	OAC rule 3745-35-07(B)

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Applicable Emissions  
Limitations/Control Measures

Nitrogen oxide emissions shall not exceed 0.3 pound/hour and 1.31 tons/year.

Carbon monoxide emissions shall not exceed 0.36 pound/hour and 1.58 tons/year.

Particulate emissions shall not exceed 0.03 pound/hour and 0.13 ton/year.

Sulfur dioxide emissions shall not exceed 1.14 pounds/hour (as a 30-day average) and 1.6 tons/year.

Hydrogen fluoride emissions shall not exceed 0.21 pound/hour (as a 30-day average) and 0.3 ton/year.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1).

**Synthetic Minor Limits**

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  
See section A.2.a. below.

The total emissions of sulfur

dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.b below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

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

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

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## 2. Additional Terms and Conditions

- 2.a** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.c** The only fuel to be used in this emissions unit shall be natural gas.

## B. Operational Restrictions

1. The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P004-P006; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
2. This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
3. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall keep daily records of the amount of clay fired in this kiln.
2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P004-P006.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation will be used to determine compliance with the limits for fluorine content of 0.06 %.
6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.17 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P004-P006.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P004-P006.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P004-P006.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined

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sulfur dioxide emissions from emissions units P004-P006.

14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P004-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P004-P006;
  - d. all exceedances of the limit of 0.17 % sulfur content in the clay employed in emissions units P004-P006; and
  - e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

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2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
3. The permittee shall submit annual reports which specify the total combined SO2 emissions for emissions units P004-P006. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following methods(s):
  - a. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 0.3 pound/hour.  
  
Applicable Compliance Method:  
Multiply 0.07 lb NOx/MMBtu (mfg. documentation low NOx) times 4.32 MMBtu/hr equals 0.3 lb NOx/hr.
  - b. Emission Limitation:  
Particulate emissions shall not exceed 0.03 pound/hour.  
  
Applicable Compliance Method:  
Multiply 0.075 ton/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97), which equals 0.03 lb particulates/hr.
  - c. Emission Limitation:  
Carbon monoxide emissions shall not exceed 0.36 pound/hour.  
  
Applicable Compliance Method:  
Multiply 4.32 MMBtu/hr times 0.084 lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98), which equals 0.36 lb CO/hr
  - d. Emission Limitation:  
Sulfur dioxide emissions shall not exceed 1.14 pounds/hour (as a 30-day average).  
  
Applicable Compliance Method:  
The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.
  - e. Emission Limitation:  
Hydrogen fluoride emissions shall not exceed 0.21 pound/hour (as a 30-day average).

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Applicable Compliance Method:

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

- f. Emission Limitation:  
1.31 tons NO<sub>x</sub>/yr  
1.58 tons CO/yr  
0.13 ton particulates/yr

Applicable Compliance Method:

Multiply the hourly emission limitation times 8,760 hrs/yr and then divide by 2000 lbs/ton.

- g. Emission Limitation:  
1.6 tons SO<sub>2</sub>/yr

Applicable Compliance Method:

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

- h. Emission Limitation:  
0.3 ton HF/yr

Applicable Compliance Method:

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

- i. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.14.

- j. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.13.

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- k. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack

**Issue**

Emissions Unit ID: **P004**

servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

- l. Emission Limitation:  
The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:  
Monthly record keeping as required in Section C.9.

- m. Emission Limitation:  
This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17% sulfur content.

Applicable Compliance Method:  
See Section A.2.b above for the method of determining the weighted average sulfur content.

- n. Emission Limitation:  
This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

Applicable Compliance Method:  
See Section A.2.a above for the method of determining the weighted average fluorine content.

**F. Miscellaneous Requirements**

- 1. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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PTI

Emissions Unit ID: P005

Issued: To be entered upon final issuance

**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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P005 - 272 lbs/hr, 7.92 MMBtu/hr, natural gas-fired shuttle kiln for ceramic packing sintering; Company ID: No. 6 Shuttle Kiln	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)(1)
	OAC rule 3745-17-11
	OAC rule 3745-18-06(E)(1)
	OAC rule 3745-35-07(B)

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**Issued: To be entered upon final issuance**

Emissions Unit ID: **P005**

Applicable Emissions  
Limitations/Control Measures

Nitrogen oxide emissions shall not exceed 0.55 pound/hour and 2.41 tons/year.

Carbon monoxide emissions shall not exceed 0.67 pound/hour and 2.93 tons/year.

Particulate emissions shall not exceed 0.05 pound/hour and 0.22 ton/year.

Sulfur dioxide emissions shall not exceed 2.08 pounds/hour (as a 30-day average) and 2.92 tons/year.

Hydrogen fluoride emissions shall not exceed 0.39 pound/hour (as a 30-day average) and 0.54 ton/year.

**Synthetic Minor Limits**

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  
See section A.2.a. below.

The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the

monthly emissions.  
See section A.2.b. below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

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

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

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**2. Additional Terms and Conditions**

- 2.a** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.c** The only fuel to be used in this emissions unit shall be natural gas.

**B. Operational Restrictions**

- 1. The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P004-P006; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
- 2. This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
- 3. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall keep daily records of the amount of clay fired in this kiln.
2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P004-P006.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation will be used to determine compliance with the limits for fluorine content of 0.06 %.
6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.17 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P004-P006.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P004-P006.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P004-P006.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined

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Emissions Unit ID: **P005**

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sulfur dioxide emissions from emissions units P004-P006.

14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

#### **D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P004-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P004-P006;
  - d. all exceedances of the limit of 0.17 % sulfur content in the clay employed in emissions units P004-P006; and
  - e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
3. The permittee shall submit annual reports which specify the total combined SO<sub>2</sub> emissions for emissions units P004-P006. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in section A.1. of these terms and conditions shall be determined in accordance with the following methods(s):
  - a. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 0.55 pound/hour.

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Emissions Unit ID: P005

Applicable Compliance Method:

Multiply 0.07 lb NO<sub>x</sub>/MMBtu (mfg. documentation low NO<sub>x</sub>) times 7.92 MMBtu/hr equals 0.55 lb NO<sub>x</sub>/hour.

b. Emission Limitation:

Particulate emissions shall not exceed 0.05 pound/hour.

Applicable Compliance Method:

Multiply 0.136 ton/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97) equals 0.05 lb particulates/hr.

c. Emission Limitation:

Carbon monoxide emissions shall not exceed 0.67 pound/hour.

Applicable Compliance Method:

Multiply 7.92 MMBtu/hr times 0.084 lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98) equals 0.67 lb CO/hr

d. Emission Limitation:

Sulfur dioxide emissions shall not exceed 2.08 lbs/hr (as a 30-day average).

Applicable Compliance Method:

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

e. Emission Limitation:

Hydrogen fluoride emissions shall not exceed 0.39 lb/hr (as a 30-day average).

Applicable Compliance Method:

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluoride times 20/19.

f. Emission Limitation:

2.41 tons NO<sub>x</sub>/yr  
2.93 tons CO/yr  
0.22 ton particulates/yr

Applicable Compliance Method:

Multiply the hourly emission limitation times 8,760 hrs/yr and then divide by 2000 lbs/ton.

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- g. Emission Limitation:  
2.92 tons SO<sub>2</sub>/yr
- Applicable Compliance Method:  
The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.
- h. Emission Limitation:  
0.54 ton HF/yr
- Applicable Compliance Method:  
The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.
- i. Emission Limitation:  
The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:  
Compliance shall be based on the recordkeeping found in Section C.14.
- j. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.
- Applicable Compliance Method:  
Compliance shall be based on the recordkeeping found in Section C.13.
- k. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
- Applicable Compliance Method:  
Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
- l. Emission Limitation:

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The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Monthly record keeping as required in Section C.9.

m. Emission Limitation:

This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17% sulfur content.

Applicable Compliance Method:

See Section A.2.b above for the method of determining the weighted average sulfur content.

n. Emission Limitation:

This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

Applicable Compliance Method:

See Section A.2.a above for the method of determining the weighted average fluorine content.

**F. Miscellaneous Requirements**

1. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

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Emissions Unit ID: P006

Issued: To be entered upon final issuance

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

**A. Applicable Emissions Limitations and/or Control Requirements**

- 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>
P006 - 272 lbs/hr, 7.92 MMBtu/hr, natural gas-fired shuttle kiln for ceramic packing sintering; Company ID: No. 7 Shuttle Kiln	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)(1)
	OAC rule 3745-17-11
	OAC rule 3745-18-06(E)(1)
	OAC rule 3745-35-07(B)

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Applicable Emissions  
Limitations/Control Measures

Nitrogen oxide emissions shall not exceed 0.55 pound/hour and 2.41 tons/year.

Carbon monoxide emissions shall not exceed 0.67 pound/hour and 2.93 tons/year.

Particulate emissions shall not exceed 0.05 pound/hour and 0.22 ton/year.

Sulfur dioxide emissions shall not exceed 2.08 pounds/hour (as a 30-day average) and 2.92 tons/year.

Hydrogen fluoride emissions shall not exceed 0.39 pound/hour (as a 30-day average) and 0.54 ton/year.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1).

**Synthetic Minor Limits**

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.  
See section A.2.a. below.

The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

See section A.2.b. below.

Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

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

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

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## 2. Additional Terms and Conditions

- 2.a** The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted-average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.b** The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.
- 2.c** The only fuel to be used in this emissions unit shall be natural gas.

## B. Operational Restrictions

1. The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures. The permittee has maintained monthly records over the last two years that show compliance with the annual combined clay usage limitation for emissions units P004-P006; therefore, compliance with the annual usage limitation expressed in this permit through rolling, 12-month summations shall begin immediately upon issuance of this permit.
2. This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17 % sulfur content. See section A.2.b above for the method of determining the weighted average sulfur content.
3. This facility shall not use any clay in emissions units P001-P006 which contains more than a weighted average of 0.06% fluorine content. See section A.2.a above for the method of determining the weighted average fluorine content.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall keep daily records of the amount of clay fired in this kiln.
2. The permittee shall conduct testing for both the fluorine and sulfur content of each different clay delivered. This testing shall be conducted at a minimum of once for every 1,000 tons of each different clay delivered.
3. The permittee shall determine the monthly weighted average of fluorine content by multiplying the monthly sum of the products of clay employed in kilns P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in kilns P001-P006.
4. The permittee shall determine the monthly weighted average of sulfur content by multiplying the monthly sum of the products of clay employed in kilns P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in kilns P004-P006.
5. The permittee shall calculate the weighted average fluorine content using the average of each monthly weighted average of fluorine content over the previous twelve months. This calculation will be used to determine compliance with the limits for fluorine content of 0.06 %.

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6. The permittee shall calculate the weighted average sulfur contents using the average of each monthly weighted average of sulfur content over the previous twelve months. This calculation will be used to determine compliance with the limits for sulfur content of 0.17 %.
7. The permittee shall keep monthly records of the total amount of clay fired in kilns P004-P006.
8. The permittee shall keep monthly records of the total amount of clay fired in kilns P001-P006.
9. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P004-P006.
10. The permittee shall keep monthly records of rolling, 12-month summation of the tons of clay used in emissions units P001-P006.
11. The permittee shall keep monthly records of the combined sulfur dioxide emissions from emissions units P004-P006.
12. The permittee shall keep monthly records of the combined HF emissions from emissions units P001-P006.
13. The permittee shall keep monthly records of the rolling, 12-month summation of the combined sulfur dioxide emissions from emissions units P004-P006.
14. The permittee shall keep monthly records of the rolling, 12-month summation of the combined HF emissions from emissions units P001-P006.

**D. Reporting Requirements**

1. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
  - a. all exceedances of the rolling, 12-month clay combined usage limitation for emissions units P004-P006;
  - b. all exceedances of the rolling, 12-month combined emission limitation for HF from emissions units P001-P006;
  - c. all exceedances of the rolling, 12-month combined emission limitations for SO<sub>2</sub> from emissions units P004-P006;
  - d. all exceedances of the limit of 0.17 % sulfur content in the clay employed in emissions

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units P004-P006; and

- e. all exceedances of the limit of 0.06 % fluorine content in the clay employed in emissions units P001-P006.

These quarterly reports shall be submitted in accordance with Part I - General Terms and Conditions No. 3.

- 2. The permittee shall submit annual reports which specify the total combined HF emissions for emissions units P001-P006. These reports shall be submitted by January 31 of each year.
- 3. The permittee shall submit annual reports which specify the total combined SO2 emissions for emissions units P004-P006. These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

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

- a. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 0.55 pound/hour.

Applicable Compliance Method:  
Multiply 0.07 lb NOx/MMBtu (mfg. documentation low NOx) times 7.92 MMBtu/hr equals 0.55 lb NOx/hour.

- b. Emission Limitation:  
Particulate emissions shall not exceed 0.05 pound/hour.

Applicable Compliance Method:  
Multiply 0.136 ton/hr (max. PWR) times 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97) equals 0.05 lb particulates/hr.

- c. Emission Limitation:  
Carbon monoxide emissions shall not exceed 0.67 pound/hour.

Applicable Compliance Method:  
Multiply 7.92 MMBtu/hr times 0.084 lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98) equals 0.67 lb CO/hr

- d. Emission Limitation:

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Emissions Unit ID: **P006**

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Sulfur dioxide emissions shall not exceed 2.08 lbs/hr (as a 30-day average).

Applicable Compliance Method:

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

e. Emission Limitation:

Hydrogen fluoride emissions shall not exceed 0.39 lb/hr (as a 30-day average).

Applicable Compliance Method:

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluoride times 20/19.

f. Emission Limitation:

2.41 tons NO<sub>x</sub>/yr

2.93 tons CO/yr

0.22 ton particulates/yr

Applicable Compliance Method:

Multiply the hourly emission limitation times 8,760 hrs/yr and then divide by 2000 lbs/ton.

g. Emission Limitation:

2.92 tons SO<sub>2</sub>/yr

Applicable Compliance Method:

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

h. Emission Limitation:

0.54 ton HF/yr

Applicable Compliance Method:

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

i. Emission Limitation:

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

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Compliance shall be based on the recordkeeping found in Section C.14.

- j. Emission Limitation:  
The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

Compliance shall be based on the recordkeeping found in Section C.13.

- k. Emission Limitation:  
Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

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Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with procedures specified in OAC rule 3745-17-03 (B)(1) using the methods and procedures specified in USEPA Reference Method 9. Visible particulate emissions from the stack servicing this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

l. Emission Limitation:

The maximum annual combined clay usage for emissions units P004-P006 shall not exceed 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures.

Applicable Compliance Method:

Monthly record keeping as required in Section C.9.

m. Emission Limitation:

This facility shall not use any clay in emissions units P004-P006 that contains more than a weighted average of 0.17% sulfur content.

Applicable Compliance Method:

See Section A.2.b above for the method of determining the weighted average sulfur content.

n. Emission Limitation:

This facility shall not use any clay in emissions units P001-P006 that contains more than a weighted average of 0.06% fluorine content.

Applicable Compliance Method:

See Section A.2.a above for the method of determining the weighted average fluorine content.

**F. Miscellaneous Requirements**

1. By request of the applicant and pursuant to OAC rule 3745-35-07, the special terms and conditions of this PTI are federally enforceable requirements.

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344 Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

Emissions Unit ID: **P006**

SIC CODE 3135 SCC CODE 30500311 EMISSIONS UNIT ID P001

EMISSIONS UNIT DESCRIPTION #3 Tunnel Kiln

DATE INSTALLED May 1997

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
Particulates	Attainment			0.3 lbs/hr	1.4
PM <sub>10</sub>					
Sulfur Dioxide	Attainment			2.72 lbs/hr	11.91 20.93 (limit for P001-P003)
Organic Compounds					
Nitrogen Oxides	Attainment			1.21 lbs/hr	5.3
Carbon Monoxide	Attainment			1.02 lbs/hr	4.47
Lead					
Other: Air Toxics HF				1.11 lbs/hr	4.86 9.8 (limit for P001-P006)

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination No controls

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 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: \_\_\_\_\_

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344 Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

Emissions Unit ID: P006

SIC CODE 3135 SCC CODE 30500311 EMISSIONS UNIT ID P002

EMISSIONS UNIT DESCRIPTION No. 1 Tunnel Kiln

DATE INSTALLED ?

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
Particulates	Attainment			4.76 lbs/hr	
PM <sub>10</sub>					
Sulfur Dioxide	Attainment			23.23 lbs/hr	20.93 (limit for P001-P003)
Organic Compounds					
Nitrogen Oxides	Attainment				
Carbon Monoxide	Attainment				
Lead					
Other: Air Toxics HF					9.8 (limit for P001-P006)

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination No controls

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 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:

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344 Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

Emissions Unit ID: P006

SIC CODE 3135 SCC CODE 30500311 EMISSIONS UNIT ID P003

EMISSIONS UNIT DESCRIPTION No. 2 Tunnel Kiln

DATE INSTALLED ?

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
Particulates	Attainment			5.53 lbs/hr	
PM <sub>10</sub>					
Sulfur Dioxide	Attainment			26.97 lbs/hr	20.93 (limit for P001-P003)
Organic Compounds					
Nitrogen Oxides					
Carbon Monoxide					
Lead					
Other: Air Toxics HF					9.8 (limit for P001-P006)

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination No controls

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 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:

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344 Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

Emissions Unit ID: P006

SIC CODE 3135 SCC CODE 30500314 EMISSIONS UNIT ID P004

EMISSIONS UNIT DESCRIPTION No. 5 Shuttle Kiln

DATE INSTALLED June 1997

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
Particulates	Attainment			0.03 lb/hr	0.13
PM <sub>10</sub>					
Sulfur Dioxide	Attainment			1.14 lbs/hr	1.6 6.8 (limit for P004-P006)
Organic Compounds					
Nitrogen Oxides	Attainment			0.3 lb/hr	1.31
Carbon Monoxide	Attainment			0.36 lb/hr	1.58
Lead					
Other: Air Toxics HF				0.21 lb/hr	0.3 9.8 (limit for P001-P006)

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination

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 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:



**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344 Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

Emissions Unit ID: **P006**

SIC CODE 3135 SCC CODE 30500314 EMISSIONS UNIT ID P006

EMISSIONS UNIT DESCRIPTION No. 7 Shuttle Kiln

DATE INSTALLED June 1997

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
Particulates	Attainment			0.05 lb/hr	0.22
PM <sub>10</sub>					
Sulfur Dioxide	Attainment			2.08 lbs/hr	2.92 6.8 (limit for P004-P006)
Organic Compounds					
Nitrogen Oxides	Attainment			0.55 lb/hr	2.41
Carbon Monoxide	Attainment			0.67 lb/hr	2.93
Lead					
Other: Air Toxics HF				0.39 lb/hr	0.54 9.8 (limit for P001-P006)

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? OFFSET POLICY?

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

Enter Determination No controls

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 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: \_\_\_\_\_

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344

Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

Emissions Unit ID: P006

+++++Please describe any hard copy information is being submitted with this recommendation (Please send hard copy information to Pam McGraner, DAPC Central Office - Air Quality Modeling and Planning):

**PTI Application, PTI 15-1284**

**Please provide any additional permit specific notes as you deem necessary:**

Calculations

PTE for SO2 based on OAC rule 3745-18-06(E)(1)

Formula =  $AER = 20 (P)^{0.67}$

P = PWR in tons/hr

AER = Allowable emission rate in lbs/hr

P001

$PWR = 1,750 \text{ lbs/hr} = 0.875 \text{ tons/hr}$

$AER = 20 (0.875)^{0.67} = 18.29 \text{ lbs SO}_2\text{/hr} \times 8760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 80.1 \text{ tons SO}_2\text{/yr}$

P002

$PWR = 2,500 \text{ lbs/hr} = 1.25 \text{ tons/hr}$

$AER = 20 (1.25)^{0.67} = 23.23 \text{ lbs SO}_2\text{/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 101.75 \text{ tons SO}_2\text{/yr}$

P003

$PWR = 3,125 \text{ lbs/hr} = 1.56 \text{ tons/hr}$

$AER = 20 (1.56)^{0.67} = 26.97 \text{ lbs SO}_2\text{/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 118.13 \text{ tons SO}_2\text{/yr}$

P004

$PWR = 150 \text{ lbs/hr} = 0.075 \text{ ton/hr}$

$AER = 20 (0.075)^{0.67} = 3.53 \text{ lbs SO}_2\text{/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 15.44 \text{ tons SO}_2\text{/yr}$

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton  
P005/P006

$$\text{PWR} = 272 \text{ lbs/hr} = 0.136 \text{ ton/hr}$$

$$\text{AER} = 20 (0.136)^{0.67} = 5.25 \text{ lbs SO}_2/\text{hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 23.01 \text{ tons SO}_2/\text{yr}$$

### Summary

P001	80.10
P002	101.75
P003	118.13
P004	15.44
P005	23.01
P006	23.01

Total 361.44 tons SO<sub>2</sub>/yr which is > 100 tons/yr

### HF PTE

Facility claims that the highest fluorine content of the clays they employ is 0.06 %. The facility claims that the maximum process weight rate for clay is 34,489 tons/yr.

$$34,489 \text{ tons/yr} \times 0.0006 \times 20/19 \text{ (conversion factor from fluorine to HF)} = 21.78 \text{ tons HF/yr which is } > 10 \text{ tons/yr.}$$

### Establishing Synthetic Minor Limits

The facility is accepting a combined maximum annual clay usage rate of 13,500 tons, based upon a rolling, 12-month summation of the clay usage figures for emissions units P001-P003.

The facility is accepting a combined maximum annual clay usage rate of 2,000 tons, based upon a rolling, 12-month summation of the clay usage figures for emissions units P004-P006.

The facility is accepting a limit on the maximum sulfur content of the clay used in emissions units P001-P003 of 0.0775% as a monthly weighted average.

The facility is accepting a limit on the maximum sulfur content of the clay used in emissions units P004-P006 of 0.17% as a monthly weighted average.

The facility is accepting a limit on the maximum fluorine content of the clay used in P001-P006 of 0.06%, as a monthly weighted average.

These limits will result in limiting the combined sulfur dioxide emissions from P001-P003 to no more than 20.93 tons/yr (see calculations below).

$$13,500 \text{ tons clay/yr} \times 0.000775 \times 2 \text{ (conversion of S to SO}_2\text{)} = 20.93 \text{ tons SO}_2\text{/yr}$$

These limits will result in limiting the combined sulfur dioxide emissions from P004-P006 to no more than 6.8 tons/yr (see calculations below).

$$2,000 \text{ tons clay/yr} \times 0.0017 \times 2 \text{ (conversion of S to SO}_2\text{)} = 6.8 \text{ tons SO}_2\text{/yr}$$

These limits will result in limiting the total sulfur dioxide emissions from P001-P006 to no more than 27.73 tons SO<sub>2</sub>/yr.

$$20.93 \text{ tons SO}_2\text{/yr} + 6.8 \text{ tons SO}_2\text{/yr} = 27.73 \text{ tons SO}_2\text{/yr}$$

These limits will result in limiting the HF emissions from P001-P006 to no more than 9.8 tons/yr (see calculations below).

$$15,500 \text{ tons clay/yr} \times 0.0006 \times 20/19 \text{ (conversion of F to HF)} = 9.8 \text{ tons HF/yr}$$

#### P001 Emissions

##### Nitrogen oxide emissions

$$12.1 \text{ MMBtu/hr} \times 0.1 \text{ lb NO}_x\text{/MMBtu (mfg. documentation)} = 1.21 \text{ NO}_x \text{ lbs/hr}$$

$$1.21 \text{ hrs NO}_x\text{/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton/2,000 lbs} = 5.3 \text{ tons NO}_x\text{/yr}$$

##### Particulate emissions

$$0.875 \text{ ton/hr (max. PWR)} \times 0.37 \text{ lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97)} = 0.32 \text{ lb}$$

$$\text{particulates/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton/2,000 lbs} = 1.4 \text{ tons particulates/yr}$$

##### Carbon monoxide emissions

$$12.1 \text{ MMBtu/hr} \times 0.084 \text{ lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98)} = 1.02 \text{ lbs CO/hr}$$

$$1.02 \text{ lbs CO/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton/2,000 lbs} = 4.47 \text{ tons CO/yr}$$

##### Sulfur dioxide emissions

2.72 pounds/hour (as a 30-day average)

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted

**70 NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344

Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

Emissions Unit ID: **P006**

average of sulfur times 2.

$$2.72 \text{ lbs SO}_2/\text{hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 11.91 \text{ tons SO}_2/\text{yr}$$

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

### Hydrogen fluoride

1.11 pounds/hour (as a 30-day average).

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

### **P002 Emissions (Existing Emissions Unit)**

#### HF emissions

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A

**7 NEW SC**

PTI Num

FACILITY

Emissions Unit ID: **P006** \_\_\_\_\_

FACILITY DESCRIPTION Ceramic Mfg. CITY/TWP East Canton

fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

SO2 emissions

Allowable based on 18-06 PWR = 1.25 tons/hr

23.23 lbs SO<sub>2</sub>/hr

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

Particulate emissions

Allowable based on 17-11 PWR = 2,500 lbs/hr = 4.76 lbs/hr

1.25 tons/hr (max. PWR) x 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97) = 0.46 lb particulates/hr

**P003 Emissions (Existing Emissions Unit)**

HF emissions

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

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PTI Number: 15-01344

Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

Emissions Unit ID: **P006**SO<sub>2</sub> emissions

Allowable based on 18-06 PWR = 3,125 lbs/hr

26.97 lbs SO<sub>2</sub>/hr

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

The total emissions of sulfur dioxide from emissions units P001-P003 shall not exceed 20.93 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P001-P003 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

## Particulate emissions

Allowable based on 17-11, PWR = 3,125 lbs/hr, Allowable = 5.53 lbs PM/hr

1.56 tons/hr (max. PWR) x 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97) = 0.58 lb particulates/hr

**P004 Emissions**NO<sub>x</sub> emissions

0.07 lb NO<sub>x</sub>/MMBtu (mfg. documentation low NO<sub>x</sub>) x 4.32 MMBtu/hr = 0.3 lb NO<sub>x</sub>/hour

0.3 lb NO<sub>x</sub>/hr x 8,760 hrs/yr x 1 ton/2,000 = 1.31 tons NO<sub>x</sub>/yr

## Particulate emissions

0.075 ton/hr (max. PWR) x 0.37 lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97) = 0.03 lb particulates/hr x 8,760 hrs/yr x 1 ton/2,000 lbs = 0.13 ton particulates/yr

## Carbon monoxide emissions

4.32 MMBtu/hr x 0.084 lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98) = 0.36 lb CO/hr

0.36 lb CO/hr x 8,760 hrs/yr x 1 ton/2,000 lbs = 1.58 tons CO/yr

Sulfur dioxide emissions

1.14 lbs/hr (as a 30-day average).

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

1.6 tons/yr

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

Hydrogen fluoride emissions

0.21 lb/hr (as a 30-day average).

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

0.3 ton HF/yr

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

P005 & P006 Emissions

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344

Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

Emissions Unit ID: **P006**

## Nitrogen oxide emissions .

 $0.07 \text{ lb NO}_x/\text{MMBtu (mfg. documentation low NO}_x) \times 7.92 \text{ MMBtu/hr} = 0.55 \text{ lb NO}_x/\text{hour.}$  $0.55 \text{ lb NO}_x/\text{hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 2.41 \text{ tons NO}_x/\text{yr}$ 

## Particulate emissions

 $0.136 \text{ ton/hr (max. PWR)} \times 0.37 \text{ lb particulates/ton (emission factor from AP-42, Table 11.3-2, 8/97)} = 0.05 \text{ lb}$  $\text{particulates/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 0.22 \text{ ton particulates/yr}$ 

## Carbon monoxide emissions

 $7.92 \text{ MMBtu/hr} \times 0.084 \text{ lb CO/MMBtu (emission factor from AP-42, Chapter 1.4, 3/98)} = 0.67 \text{ lb CO/hr}$  $0.67 \text{ lb CO/hr} \times 8,760 \text{ hrs/yr} \times 1 \text{ ton}/2,000 \text{ lbs} = 2.93 \text{ tons CO/yr}$ 

## Sulfur dioxide emissions

2.08 lbs/hr (as a 30-day average)

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

2.92 tons SO<sub>2</sub>/yr

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2.

The total emissions of sulfur dioxide from emissions units P004-P006 shall not exceed 6.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of sulfur dioxide emissions shall be made by multiplying the amount of clay employed times the weighted average of sulfur times 2. The weighted average of sulfur content shall be the average of each monthly weighted average of sulfur content over the previous twelve months. The monthly weighted average of sulfur content shall be the monthly sum of the products of clay employed in emissions units P004-P006 times the monitored sulfur content of each clay, divided by the monthly amount of clay employed in these emissions units. A sulfur content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

## Hydrogen fluoride emissions

0.39 lb/hr (as a 30-day average)

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluoride times 20/19.

**NEW SOURCE REVIEW FORM B**

PTI Number: 15-01344

Facility ID: 1576001851

FACILITY NAME Koch-Glitsch, Inc. - Knight Division

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

Emissions Unit ID: **P006**

0.54 ton HF/yr

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19.

The total emissions of hydrogen fluoride from emissions units P001-P006 shall not exceed 9.8 tons per year, based upon a rolling, 12-month summation of the monthly emissions.

The calculation of hydrogen fluoride emissions shall be made by multiplying the amount of clay employed times the weighted average of fluorine times 20/19. The weighted average of fluorine content shall be the average of each monthly weighted average of fluorine content over the previous twelve months. The monthly weighted average of fluorine content shall be the monthly sum of the products of clay employed in emissions units P001-P006 times the monitored fluorine content of each clay, divided by the monthly amount of clay employed in these emissions units. A fluorine content test shall be conducted for each different clay at a minimum of once for every 1,000 tons of each different clay delivered.

## Permit To Install Synthetic Minor Write-Up

### SYNTHETIC MINOR DETERMINATION

**PTI 15-01344****KOCH GLITSCH, INC.**

- A. Source Description:** This facility, Koch Glitsch, Inc. (Koch) was established in 1997 when part of an existing facility, Stark Ceramics 15 76 06 0004, was purchased. Two emissions units P002 (P001 at Stark Ceramics) and P003 (P018 at Stark Ceramics) were formerly part of Stark Ceramics and now are part of Koch. In 1997 Koch installed the following four emissions units: P001, P004, P005 & P006. PTI 15-1284 was issued for P001 on May 28, 1997. This PTI will replace PTI 15-1284. No PTIs were issued for P004, P005 or P006. P002 and P003 are included in this PTI so that federally enforceable limits can be established for both SO<sub>2</sub> and HF for all six emissions units. This facility is trying to avoid Title V. The facility's calculation of the PTE of HF from the entire facility is 21.8 TPY, which is more than the 10 TPY Title V significance limit for an individual HAP. The facility has calculated the SO<sub>2</sub> PTE from the facility to be 57.43 TPY based on the fact that the clay they are using has a limited percentage of sulfur. A more conservative approach would be to use the SO<sub>2</sub> allowable established by OAC rule 3745-18-06(E)(1). Using this approach, the SO<sub>2</sub> PTE from the facility would be 361.44 tons SO<sub>2</sub>/yr which is more than the 100 TPY Title V significance threshold.
- B. New Source Emissions:** The facility is establishing in this PTI a facility-wide limit of 9.8 tons per year of HF, based upon a rolling, 12-month summation of the monthly emissions. The facility is also establishing in this PTI a limit for the combined emissions from emissions units P001-P003 of 20.93 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions and also a limit for the combined emissions from

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FACILITY

Emissions Unit ID: **P006** \_\_\_\_\_

FACILITY DESCRIPTION Ceramic Mfg.

CITY/TWP East Canton

emissions units P004-P006 of 6.8 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions. The two limits add up to a limit of 27.73 tons per year of SO<sub>2</sub>, based upon a rolling, 12-month summation of the monthly emissions.

- C. **Conclusion:** The PTE of HF will be reduced to less than 10 TPY and the PTE of SO<sub>2</sub> will be reduced to less than 100 TPY; thus, Koch will avoid Title V.

**Please fill in the following for this permit:**

**TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS**

<u>Pollutant</u>	<u>Tons Per Year</u>
NO <sub>x</sub>	11.43*
CO	11.91*
Particulates	1.97*
SO <sub>2</sub>	27.73
HF	9.8