

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - RENEWAL

PERMITTEE

Vesuvius USA
Attn: Joe Woodall
955 North 5th Street
Charleston, Illinois 61920

<u>Application No.:</u> 95120117	<u>I.D. No.:</u> 029010AAE
<u>Applicant's Designation:</u>	<u>Date Received:</u> December 7, 2006
<u>Subject:</u> Ceramic Manufacturing	
<u>Date Issued:</u>	<u>Expiration Date:</u>
<u>Location:</u> 955 North 5th Street, Charleston	

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Advance Oven (AO-1)
6 Baghouse (BH-1, BH-2, BH-3, BH-5, BH-6, BH-7)
3 Fume Incinerators (FI-4-6)
2 Bag Break Stations (BB-1 and 2) with Dust Collection (BH-1)
4 Scale Hoppers (SH-1 through 4) with Dust Collection (BH-1)
2 Barrel Tilters (BT-1 and 2) with Dust Collection (BH-2)
Batch Conveyor (BC-1) with Dust Collection (BH-1)
Belt Sander (BS-1) with Dust Collection (BH-2)
Bickley Kiln (BK-1) with Fume Incinerator (FI-5)
Big Blender (MB-1) with Dust Collection (BH-2)
Box Dumper (BD-1) with Dust Collection (BH-2)
Classifier/Hammer mill (CL-1) with Dust Collection (BH-1)
Collector Blender (CB-1) with Dust Collection (BH-1)
Electric Despatch Oven (DOE)
Drayton Kilns with Afterburners (DK-1 and 2)
5 Furfural Storage Tanks (ST-1)
18 Tote Bins (TB1-18) with Dust Collection (BH-1)
Keith Kiln (KK-1) with Fume incinerator (FI-4)
9 Econolift Elevator (EE-1-9) with Dust Collection (BH-1, BH-2, and BH-5)
Advanced Oven (AO-1)
2 Wisconsin Ovens with Integrated Afterburners (WO-1, WO-2)
Mixer (M-2) with Dust Collection (BH-1)
Tube Dryer (TD-2) with Cyclone, Baghouse, Furfural Recovery Unit, and Fume Incinerator (FI-6)
Eirich Mixer (EM-1) with Dust Collection (BH-5)
Tube Dryer (TD-3) Baghouse, Cyclone, Furfural Recovery Unit, Afterburner (FI-6)
3 Mold Presses
Dip Glaze (DG-1)
Flood Glaze (FG-1)

5 Grinding Stations (GR-1-5) with Dust Collection (BH-3)
Holding Bin (HB-1) with Dust Collection (BH-1)
8 Holding Hoppers (HH-1-8) with Dust Collection (BH-2)
Small Weighment Filling Station (SWFS) with Dust Collection (BH-7)
Small Blender (SB-1) with Dust Collection (BH-2)
5 Bulk Bag Stations (BB-1-5) with Dust Collection (BH-7)
Pneumatic Transporter (PT-1) with Dust Collection (BH-7)
Feedback Station (FS-1) with Dust Collection (BH-6)
15 Bulk Bagging Stations (BB-6-20) with Dust Collection (BH-6)
Traveling Skip (TSK-1) with Dust Collection (BH-6)
Carrier Conveyor (CC-1) with Dust Collection (BH-6)
Classifier (CL-3) with Dust Collection (BH-5)
2 Hammermills (HM-1-2) with Dust Collection (BH-5)
1 Glaze Mixer with Dust Collector
1 Makino Milling machine with dust collector
1 Antares Milling Machine with Dust Collector

pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., VOM to less than 100 tons/year, 10 tons/year for a single HAP and 25 tons/year of any combination of such HAPs). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permits issued for this location.
- 2a. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 Ill. Adm. Code 212.122, pursuant to 35 Ill. Adm. Code 212.123(a), except as allowed by 35 Ill. Adm. Code 212.123(b) and 212.124.
- b. No person shall cause or allow any visible emissions of fugitive particulate matter from any process, including any material handling or storage activity beyond the property line of the emission source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 Ill. Adm. Code 212.301 and 212.314.
- c. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds

the allowable emission rates specified in subsection (c) of 35 Ill. Adm. Code 212.321.

3. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to excess 2000 ppm.
- 4a. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 215.302, 215.303, and 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 215 Subpart K shall apply only to photochemically reactive material.
- b. Pursuant to 35 Ill. Adm. Code 215.302, emissions of organic material in excess of those permitted by 35 Ill. Adm. Code 215.301 are allowable if such emissions are controlled by one of the following methods:
 - i. Flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water; or
 - ii. Any other air pollution control equipment approved by the Illinois EPA capable of reducing by 85 percent or more the uncontrolled organic material that would be otherwise emitted to the atmosphere.
- 5a. The fume incinerators/afterburners, baghouses, and furfural recovery units shall be in operation at all times when the associated emission units are in operation and emitting air contaminants.
- b. The fume incinerators combustion chamber shall be preheated to at least the manufacturer's recommended temperature but not less than the temperature at which compliance was demonstrated in the most recent compliance test or 1400°F in the absence of a compliance test. This temperature shall be maintained during operation of the emission units associated with the fume incinerators.
- c. The Permittee shall follow good operating practices for all air pollution control equipment covered by this permit, including periodic inspection, routine maintenance and prompt repair of defects.
- 6a. Emissions and operation of ceramic manufacturing process shall not exceed the following limits:

<u>Equipment</u>	<u>Max PWR (Ton/Hr)</u>	<u>Pollutant</u>	<u>Overall Control Efficiency (%)</u>	<u>Emissions</u> (lb/Hr) (Ton/Yr)	
2 Wisconsin Ovens with Fume Incinerator (WO-1 and WO-2) (Total)	2	PM VOM	99	3.68 0.08	16.12 0.35
Mixer with Dust Collection (M2)*	3.35	PM VOM	98 0	0.07 5.28	0.32 23.13
Tube Dryer with Cyclone, Baghouse, Furfural Recovery Unit and Fume Incinerator (TD2)*	3.35	PM VOM	98 98	0.07 3.40	0.32 14.89
Eirich Mixer with Dust Collection, Condenser, & Afterburner (EM-1)	3.65	PM VOM	99 98	0.04 0.11	0.18 0.46
Tube Dryer with Dust Collection, Condenser & Afterburner (TD-3)	3.65	PM VOM	99 98	0.04 4.56	0.18 19.97
Purge Air Exhaust Valve (EV-1)	2.5	VOM	0	2.50	10.95
Bickley Kiln with Fume Incinerator (BK-1)	0.6	PM VOM	99	1.93 0.3	8.45 1.31
2 Drayton Kilns with Fume Incinerator (DK-1-2) (Total)*	0.65	PM VOM	97	2.01 1.2	8.80 5.26
Keith Kiln with Fume Incinerator (KK-1)	0.2	PM VOM	99	1.07 0.01	4.69 0.04
5 Furfural Storage Tanks (Total)		VOM		0.6	2.64

* Stack Tested

These limits are based on maximum process weight rates, stack test information and 8,760 hours of operation.

- b. Emissions and operation of natural gas combustion shall not exceed the following limits:

<u>Process</u>	<u>Natural Gas Usage</u>		<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>		<u>Factor</u>	<u>(lb/Mo)</u>	<u>(Ton/Yr)</u>
Natural Gas Combustion	100	1,000	NO _x	100	10,000	50.00
			CO	84	8,400	42.00
			TSP	7.6	760	3.80
			VOM	5.5	550	2.75
			SO ₂	0.6	60	0.30

These limits are based on standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998) and the maximum natural gas usage.

- c. This permit is issued based on negligible emissions of particulate matter (PM) from 2 Bag Break Stations with dust collection, 2 Barrel Tilters with dust collection, Batch Conveyor with dust collection, Belt Sander with dust collection, Big Blender with dust collection, Classifier/Hammermill with dust collection, 2 Collector Blenders with dust collection, Despatch Oven Glaze Mixer with dust collection, 5 Grinding Stations with dust collection, Holding Bin with dust collection, 8 Holding Hoppers with dust collection, 4 Scale Hoppers with dust collection, Small Blender with dust collection, 18 Tote Bins with Dust Collection, Small Weighment Filling Station with dust collection, 5 Bulk Bag Stations with dust collection, Pneumatic Transporter with dust collection, Feedback Station with dust collection, 15 Bulk Bagging Stations with dust collection, 9 Econolift Elevators with dust collection, Small Weighment Station with dust collection, Traveling Skip with dust collection, Carrier Conveyor with dust collection, Classifier with dust collection, 3 Mold Presses, and 2 Hammermills with dust collection. For this purpose emissions from each emission source, shall not exceed nominal emission rates of 0.05 lb/hr and 0.22 ton/yr.
- d. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- e. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 7a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

- i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.
 - b. Testing required by Condition 8 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
- 8a Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This Condition shall not apply to 35 Ill. Adm. Code 212.301.
- b. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged.
 - c. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm.

Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E.

- d. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4.
 - e. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
- 9a. The fume incinerators/afterburners shall be equipped with a continuous monitoring device, which is installed, calibrated, maintained and operated according to vendor's specifications at all times the incinerators/afterburners are in use. This device shall monitor the afterburner combustion chamber temperature.
- b. The fume incinerators/afterburners shall be equipped with a continuous temperature indicator and strip chart recorder or disk storage for the fume incinerators/afterburners combustion chamber temperature.
10. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR

63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

11. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 12a. Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. Records addressing use of good operating practices for the pollution control equipment covered under this permit:
 - A. Records for periodic inspection of the pollution control equipment covered under this permit with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. The Permittee shall collect and record the following information for each Fume Incinerator/Afterburner:
 - A. Daily monitoring data of the Incinerator/Afterburner combustion chamber temperature;
 - B. A monthly log of operating time for the capture system, incinerator/afterburner, and monitoring device and the associated emission unit.
 - C. A maintenance log for the capture system, afterburner, and monitoring device, detailing all routine and non-routine maintenance performed including dates and duration of any outages.
 - iii. Natural gas usage (mmscf/month and mmscf/year);
 - iv. Composition of materials loaded into the mixers (lb/batch, lb/month and tons/year);
 - v. Number of batches produced per month and per year; and
 - vi. Monthly and annual CO, NO_x, PM, SO₂, VOM and HAP emissions from the source, with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records

retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

13. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.
14. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
15. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

If you have any questions on this, please call German Barria at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

ECB:GB:jws

cc: Illinois EPA, FOS Region 3
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from ceramic manufacturing operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are well below the levels (e.g., 100 tons per year of Volatile Organic Material (VOM) 10 tons per year for a single HAP, and 25 tons per year for totaled HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)					Single	Total
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>	<u>HAP</u>	<u>HAPs</u>
2 Wisconsin Ovens (WO-1 and WO-2)			16.12		0.35		
Mixer (M2)			<u>0.32</u>		<u>23.13</u>		
Tube Dryer (TD2)*			<u>0.32</u>		<u>14.89</u>		
Eirich Mixer (EM-1)			<u>0.18</u>		<u>0.46</u>		
Tube Dryer (TD-3)			<u>0.18</u>		<u>19.97</u>		
Purge Air Exhaust Value (EV-1)					<u>10.95</u>		
Bickley Kiln (BK-1)			8.45		1.31		
2 Drayton Kilns (DK-1 & DK-2)			8.80		5.26		
Keith Kiln (KK-1)			4.69		0.04		
5 Furfural Storage Tanks					2.64		
2 Bag Break Stations			0.44				
2 Barrel Tilters			0.44				
Batch Conveyor			0.22				
Belt Sander			0.22				
Big Blender			0.22				
Classifier/Hammermill			0.22				
2 Collector Blenders			0.44				
Despatch Oven Glaze Mixer			0.22				
5 Grinding Stations			1.10				
Holding Bin			0.22				
8 Holding Hoppers			1.76				
4 Scale Hoppers			0.88				
Small Blender			0.22				
18 Tote Bins			3.96				
Small Weighment Filling Station			0.22				
5 Bulk Bag Stations			1.10				
Pneumatic Transporter			0.22				
Feedback Station			0.22				

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						Single <u>HAP</u>	Total <u>HAPs</u>
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>			
15 Bulk Bagging Stations			3.30					
9 Econolift Elevators Small Weighment Station			1.98					
Traveling Skip			0.22					
Carrier Conveyor			0.22					
Classifier			0.22					
3 Mold Presses			0.66					
2 Hammermills			0.44					
Fuel Combustion	<u>42.00</u>	<u>50.00</u>	<u>3.80</u>	<u>0.30</u>	<u>2.75</u>	--	--	
Totals	<u>42.00</u>	<u>50.00</u>	<u>62.44</u>	<u>0.30</u>	<u>81.75</u>	<u>9.0</u>	<u>22.5</u>	

GB:jws