

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Vesuvius USA
Attn: John Herring
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, 1995
<u>Subject:</u> Ceramic Manufacturing	
<u>Date Issued:</u> May 28, 2002	<u>Expiration Date:</u> May 28, 2007
<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 see Attachment B 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., volatile organic material (VOM) to less than 100 tons/year). 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.
2. The emissions of Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act shall be less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP), and Section 112(G) of the Clean Air Act.
3. 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, 8,760 hours of operation and the information provided in the permit application. Compliance with annual limits shall be determined from a running total of 12 months of data.

4. 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 AP-42 emission factors and the information provided in the permit application. Compliance with annual limits shall be determined from a running total of 12 months of data.

5. 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.
6. Pursuant to 35 Ill. Adm. Code 215.301, the Permittee shall not cause or allow the discharge of more than 8 lb/hr of organic material into the atmosphere from any emission source.
- 7a. The 6 Fume Incinerators/Afterburners, 6 Baghouses, and 2 Furfural Recovery units shall be in operation at all times when the associated emission units are in operation and emitting air contaminants.
 - b.
 - i. Fume incinerator (FI-3) combustion chamber shall be preheated to at least the manufacturer's recommended temperature but no less than 1200°F as demonstrated in the most recent compliance testing. The other 5 Fume incinerators combustion chamber shall be preheated to at least the manufacturer's recommended temperature but no less than 1400°F in the absence of a compliance test.
 - ii. The 6 fume incinerators/afterburners shall be equipped with a continuous temperature indicator and strip chart recorder or disk

storage for the 6 fume incinerators/afterburners combustion chamber temperature. The Permittee shall retain all records of equipment operation and strip charts or disk storage for at least two years from the date of occurrence. These records shall be available for inspection by the Illinois EPA.

- c. The 6 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.
- d. The Permittee shall collect and record the following information each day for each Fume Incinerator/Afterburner:
 - i. Incinerator/Afterburner combustion chamber monitoring data;
 - ii. A log of operating time for the capture system, incinerator/afterburner, and monitoring device and the associated emission unit.
 - iii. 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.
- 8a. Within 90 days of a written request from the Illinois EPA, the volatile organic material (VOM) from any or all 6 fume incinerators/afterburners shall be measured during conditions which are representative of maximum emissions.
- b. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix B for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Volatile Organic Material	USEPA Method 25, 25A if outlet concentration >50 ppmv as C non CH ₄
- c. The test shall be designed to measure both the destruction efficiency across the afterburner and the overall control efficiency provided by the combination of the capture system and afterburner.
- 9. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Compliance Section of the Division of Air Pollution Control for review. This plan shall describe the specific procedures for testing, including as a minimum:

- a. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - b. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.
 - c. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations.
 - d. The specific sampling, analytical and quality control procedures which will be used, with an identification of the standard methods upon which they are based.
 - e. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
 - f. Any proposed use of an alternative test method, with detailed justification.
 - g. The format and content of the Source Test Report.
10. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.
11. Thirty (30) days after completion of sampling, the Final Report shall include as a minimum:
- a. A summary of results;
 - b. General information and
 - c. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
 - d. Detailed description of test conditions, including:
 - i. Process information, i.e., mode(s) of operation, process rate, e.g. fuel or raw material consumption;
 - ii. Control equipment information, i.e., equipment condition and operating parameters during testing; and
 - iii. A discussion of any preparatory actions taken, i.e., inspections, maintenance and repair.
 - e. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

- f. An explanation of any discrepancies among individual tests or anomalous data.
 - g. The results of all quality control evaluation, including a copy of all quality control data.
12. The Permittee shall maintain the following records:
- a. Natural gas usage (mmscf/month and mmscf/year);
 - b. Composition of materials loaded into the mixers (lb/batch);
 - c. Number of batches produced per day and per year; and
 - d. VOM and HAP emissions from the facility (lb/day and tons/year).
13. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three 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.
14. If there is an exceedance of 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. 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 violation and efforts to reduce emissions and future occurrences.
15. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system 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

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16. The Permittee shall submit the following additional information with the Annual Emissions Report, due May 1st of each year:
 - a. Natural gas usage; and
 - b. Volatile organic material usage.

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

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:EEJ:psj

cc: Illinois EPA, FOS Region 3
Illinois EPA, Compliance Section
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. Limiting natural gas usage to 1,000 mmscf/year, production capacity and continual use of control equipment. The resulting maximum emissions are well below the levels, e.g., 100 tons of Volatile Organic Material (VOM) per year 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.

1. The emissions of Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act shall be less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP), and Section 112(G) of the Clean Air Act.

2. Emissions and operation of ceramic manufacturing process shall not exceed the following limits:

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		VOM	98	3.40	14.89
Eirich Mixer with Dust Collection, Condenser, & Afterburner (EM-1)	3.65	PM	99	0.04	0.18
		VOM	98	0.11	0.46
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		VOM	98	4.56	19.97

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Purge Air Exhaust Value (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
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4. 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.

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Attachment B - Equipment List

Advance Oven (AO-1)
6 Baghouse (BH-1, BH-2, BH-3, BH-5, BH-6, BH-7)
4 Fume Incinerators (FI-3-6)
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-3)
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 Weight 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)

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