

ADEQ MINOR SOURCE AIR PERMIT

Permit #: 0635-AR-8

IS ISSUED TO:

Porocel Corporation
10300 Arch Street Pike
Little Rock, AR 72206
Pulaski County
AFIN: 60-00004

THIS PERMIT IS POROCEL CORPORATION'S AUTHORITY TO CONSTRUCT, MODIFY, OPERATE, AND/OR MAINTAIN THE EQUIPMENT AND/OR FACILITY IN THE MANNER AS SET FORTH IN THE DEPARTMENT'S MINOR SOURCE AIR PERMIT AND THE APPLICATION. THIS PERMIT IS ISSUED PURSUANT TO THE PROVISIONS OF THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT (ARK. CODE ANN. SEC. 8-4-101 ET SEQ.) AND THE REGULATIONS PROMULGATED THEREUNDER, AND IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:

Mike Bates
Chief, Air Division

Date

Table of Contents

Section I: FACILITY INFORMATION	3
Section II: INTRODUCTION	4
<i>Summary</i>	4
<i>Process Description</i>	4
<i>Regulations</i>	7
Section III: PERMIT HISTORY	8
Section IV: EMISSION UNIT INFORMATION	10
<i>Specific Conditions</i>	10
<i>NSPS Requirements</i>	19
Section V: INSIGNIFICANT ACTIVITIES	20
Section VI: GENERAL CONDITIONS	21

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Section I: FACILITY INFORMATION

PERMITTEE: Porocel Corporation

AFIN: 60-00004

PERMIT NUMBER: 0635-AR-8

FACILITY ADDRESS: 10300 Arch Street Pike
Little Rock, AR 72206

COUNTY: Pulaski

CONTACT POSITION: Gerald Ashford – Plant Manager

TELEPHONE NUMBER: (501) 888-1357

REVIEWING ENGINEER: Joseph Hurt

UTM North-South (Y) Zone 15 (3834.7 km)

UTM East-West (X): Zone 15 (563.3 km)

Section II: INTRODUCTION

Summary

Porocel Corporation (Porocel) owns and operates a facility at 10300 Arch Street Pike, Little Rock, which processes various nonmetallic minerals and product materials (these include bauxite ore and montmorillonite clay - NAICS Codes 333131 and 327992). Porocel would like to process a non-HAP material, Monoethanolamine (MEA), through Calciner #3 (A-14), which will increase their current VOC emission rates. With this de minimis modification application, Porocel requested an increase of non-HAP VOC emissions of 40.0 lbs/hr and 13.4 tpy for Calciner #3 (A-14).

Process Description

Mineral product processing involves a variety of changing complexities during production. Regardless of whether material is processed in the Active Plant or the Bauxite Plant, there are some operations and emission sources common to both plants. The following process descriptions will address the common sources, the Bauxite Plant and ancillary operations, and the Active Plant and ancillary operations.

Plantwide Sources

The first emission sources to discuss are the various raw material stockpiles (PW-01). The primary raw materials are bauxite ore which is transported by truck to the facility from land which Porocel owns and alumina hydrate which is brought in by truck from barges and railcars.

From the staging areas, coarse bauxite or hydrate is next fed into the inlet hopper (PW-02), processed through a precrusher (PW-03) and then fed into Dryer No. 1 (PW-04). Dryer No. 1 is controlled by a baghouse. After exiting Dryer No. 1, the material will be processed in the Bauxite Plant (bauxite), Toll Processing Material or the Active Plant (hydrate).

Bauxite Plant

Upon exiting Dryer No. 1 (PW-04), bauxite is discharged into a drag conveyor and pulled to a bucket elevator. The elevator then picks up the ore and feeds it to a hammer screen where the product is screened out and discharges into the Mill Product Tank. The larger size discharges to a hammermill for crushing. Material will then return to the bucket elevator and hammer until it is sized for product. The drag belt, conveyor, elevator, and tanks are all controlled by a complex aspiration system that is exhausted through a baghouse (PW-04).

Material is withdrawn from the Mill Product Tank into bags. The material is next introduced into Calciner No.2. Particulate emissions from the kiln are controlled by a baghouse (B-02). The collected fines from this baghouse and Calciners No. 1 and No. 2 are loaded into bags (B-05). Calciner No. 2 then discharges onto a conveyor, bucket elevators, and cooling tube before taking the material to screens for various sizing steps and eventually to storage for product loadout (B-05). The fines are then bagged in supersacks for shipment (B-05).

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Loadouts and shipping (B-05) can occur in multiple locations throughout the Bauxite Plant. Porocel seeks to simplify the recordkeeping and emissions tracking of loading by “bubbling” all shipping for the Bauxite Plant under one source number (B-05).

There are three (3) ancillary or side products operations that can also occur in the Bauxite Plant; dedusting, specialty milling (Elliott Mill) and permanganate manufacturing.

Elliott Mill

The Elliott Mill is an independent operation and can perform specialty milling or can be used in hydrate service. In hydrate service, the material will go to 28 Bin (B-07). There are two sources associated with using the Elliott Mill in the Bauxite Plant. The #2 Tank is filled and controlled by a bin vent (B-08). Material is then drawn down from the tank and fed to the Elliott Mill. The mill is controlled by the same baghouse used to control the 28 Bin (B-07). For non-hydrate service, the material can either be loaded out as a finished product (B-05) or flash calcined on Flash Calciner #1, which is controlled by a baghouse (B-11).

Elliott Mill No. 4

The second process involves the Elliott Mill No. 4. Hydrate unloaded from the railcar and toll processing materials from Dryer No. 1 (PW-04) are blown into #2 Bin. This material is controlled by a baghouse (B-08). From the #2 Bin, hydrate is then introduced into the Elliott Mill No. 4. Material from the mill is then received into the 27 Bin. This process step is controlled by a baghouse (B-10) which discharges to atmosphere. From the 27 Bin, hydrate is then fed into Flash Calciner #1, which is controlled by a baghouse (B-11). The purpose of the calciner is to burn off molecular water in the hydrate, converting it from aluminum tri-hydrate to aluminum oxide. The calcined material is then fed into either the #4 or #5 Tanks (B-12), the #1 Tank (B-20), or Tub No. 5 (B-17) and then to the #4 or #5 Tanks. Tub 4 is used only in hydrate mode and is equipped with a baghouse. Flashed hydrate that enters Tub No. 5 (B-17) is formed into spheres and loaded into supersacks.

Currently, the #5 Tank is controlled both by the baghouse and an individual bin vent.

Dedust Process

For the dedusting process, spheres are introduced into a feed hopper (B-14). From the feed hopper belt and bucket elevator, the spheres enter Calciner No. 1. Particulate emissions from the kiln are controlled by a baghouse (B-15). The collected fines from this baghouse are routed to bagging (B-05). Calciner No. 1 then discharges onto a belt conveyor which takes the material to screens for various sizing steps and eventually to product loadout (B-05) into supersacks.

Active Plant

Hydrate enters the active plant via a pneumatic transfer line at the railcar unloading system. The transfer line discharges into the unground hydrate storage bin (UGSB) which is controlled by a baghouse (A-01).

The hydrate is then fed to the two (2) Elliott Mills (A-02 & A-03). Each of these mills is controlled by a baghouse. Powder is next transferred to the Flash Calciner #2 Feed Tank (A-06). This tank is equipped with a bin vent filter. From this tank, material is metered into Flash Calciner #2 (A-07).

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Particulate emissions from the calciner are controlled by a baghouse. The calciner is used to convert the hydrate to aluminum oxide and to storage bins FCA 1, 2, 3 & 4 with bin vent (A-32).

From the storage bins, the calcined powder is conveyed to a feeder that empties into a tub powder feed stream and then on to the Tub No. 1 and Tub No. 2. This is controlled by a bagfilter (A-08). The tub feed stream enters the tub feed accumulator via air flow. There is pneumatic control (A-09) as the powder enters the rotating tub where it is combined with water or a water and promoter solution. The tub forms the powder into spheres of varying sizes. These spheres then discharge from the tub via a discharge chute which allows them to fall onto the curing belt.

The curing belt is a covered slow-moving belt that maintains an atmosphere of warm, moist air at approximately 180 °F. Additional heat is provided by a heat exchanger. The curing belt discharges the spheres to the belt activator. The activator generates temperatures up to 1000 °F, but typically will run no higher than 850 °F to remove any moisture gained in the tub. Emissions from the activator are controlled by a baghouse (A-10). The spheres are then sent to an elevator which takes them to the Sweco screen, depending on the final product desired. Spherical materials of the proper size and type are loaded into supersacks or drums as product. The screening, crushing, and loading operations are controlled by a baghouse (A-11).

One special type of processing that takes place in the Active Plant is impregnation. This process involves the mixing of catalyst carrier materials, typically alumina based, with liquid solutions of varying compositions and concentrations. These compositions depend on customer specifications and may include hazardous air pollutants (HAPs). Feed material may enter in the form of powders, granules, spheres, or extrudates. Essentially, feed is introduced into the Munson mixer (A-12) and sprayed with the catalyst of choice. This is performed in a closed system, similar in nature to a washing machine. The spheres are then caught in a supersack. If necessary, the spheres could be routed directly into the Activator No. 3 (A-13).

It should be noted that the spheres absorb a significant volume of liquid and exit the system with a high enough moisture content so as to not be a dust source. The primary emission from this source is steam.

Calciner No. 3 (A-14) is used for specialty or toll processing, which includes the processing of Monoethanolamine (MEA). The two (2) Calciner No. 3 Feed Tanks (A-20) are controlled by a common bin vent. The calciner is natural gas fired and processes a variety of materials. However, the majority are alumina-based materials. Product exiting this calciner is stored in the Calciner No. 3 Product Tanks (A-19). These tanks are controlled by bin vents and a bagfilter.

Lastly, there is a Feed Blender (A-21). This is simply a stainless steel tub. The vessel is opened, powders and other materials are poured in, the lid closed, and then the dry mixture is “blended”. Emissions are expected from this source only when the tub/blender is filled.

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Regulations

The facility is subject to Arkansas Air Pollution Control Code (Regulation 18) and Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation 19). The facility is also subject to NSPS Subpart UUU - *Standards of Performance for Calciners and Dryers in Mineral Industries*.

NSPS Subpart OOO - *Standards of Performance for Nonmetallic Mineral Processing Plants*, does not apply to this facility as the cumulative rate of all crushers is less than 25 tons per hour. NSPS Subpart LL - *Standards of Performance for Metallic Mineral Processing Plants*, does not apply to this facility as Porocel does not produce metallic mineral products or metallic concentrates.

The following table is a summary of the facility's total emissions.

Table 1 - Total Allowable Emissions

Total Allowable Emissions		
Pollutant	Emissions Rates	
	lb/hr	tpy
PM	41.2	131.7
PM ₁₀	27.6	87.0
SO ₂	1.3	1.4
VOC	51.5	26.9
CO	12.0	58.3
NO _x	93.7	95.0
Total HAPs	10.0	9.5

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Section III: PERMIT HISTORY

Porocel was issued its first air permit on September 11, 1970. This was permit number 0006-A. It allowed for 39.4 lb/hr of PM emissions.

Air permit #635-A was issued on November 21, 1980. It was a SIP that allowed for a reduction to 30 lb/hr of PM emissions.

Air permit #635-AR-1 was issued on November 20, 1981. It also was a SIP that allowed for 9 lb/hr of PM emissions.

Air permit #0635-AR-2 was issued on October 17, 1990. It was a SIP that allowed for 14 lb/hr of PM emissions.

Air permit #635-AR-3 was issued on September 7, 1993. It was a modification which allowed for the addition of emissions from natural gas combustion and installation of a pneumatic unloading/transfer system (SN-29 to SN-32). Emission limits set in this permit were 16.78 tpy NO_x, 4.44 tpy CO, and 79.83 tpy PM.

Air permit #635-AR-4 was issued on August 15, 1994. It added a pneumatic conveyor for the product mill feed, increased the permitted hours for some of the facility's equipment and corrected errors in the emission rate calculations.

Air permit #635-AOP-R0 was issued on November 16, 1998, and was the first permit for this facility under Regulation #26. PM/PM₁₀ emissions were allowed at 100.6 tpy. HAPs were reported at 1.57 tpy. NO_x emissions, primarily from the calciners and auxiliary equipment, were limited to 209.5 tpy.

Air permit #635-AOP-R1 was issued on February 4, 2002. It was issued as a result of inconsistency with the regulatory applicability of an NSPS subpart that was eventually found inapplicable, variations in operating conditions and unpermitted emission sources. A small thermal oxidizer for scavenging trace amounts of phenol and formaldehyde was added as an insignificant source of emissions.

Air Permit #635-AR-5 was issued on November 5, 2003. Four new sources were added: a New Mill designated as A-24; an auxiliary Feed Tank (A-25), an additional Calciner 18" (A-26) that increased capacity in the Toll Processing area and a 2.5 MMBtu/hr natural gas-fired hot water heater (A-27). One source (Pellet Forming) was removed from service. A second Baghouse associated with the afterburner at source A-14 was relocated to the existing Utility Activator (A-13). The facility was reclassified as a minor source under Regulation 19.

Air Permit #635-AR-6 was issued on April 6, 2005. The facility's air permit was modified to allow for the following changes:

- The addition of a bin vent to the Munson Mixer (Source A-12);

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

- The addition of a cure drum (A-28) which consists of a 290,000 btu/hr natural gas fired burner and material handling equipment;
- The addition of railcar unloading station (A-29) which consists of conveying equipment ;
- The addition of a 1.5 MMbtu/hr burner to Activator No. 3 (A-13) ;
- The addition of a 1.0 MMbtu/hr burner to Tub No. 5 (B-17);
- The addition of a new tub forming system (B-21) to provide feed to Activator No. 3. This new system will include a feed tank and bin vent filter; and
- The replacement of the current Raymond Mill (B-09) with like-kind equipment entitled Elliot Mill #6.

The changes resulted in an increase of Particulate Matter of 2.1 tons/yr. The addition of burners at Activator No. 3 (A-13) and Tub No. 5 (B-17) required these sources to be subject to NSPS Subpart UUU-Standards of Performance for Calciners and Dryers in Mineral Industries.

Air Permit #0635-AR-7 was issued on November 15, 2005. Permit modified to allow for the addition of three previously unpermitted sources: Container Unloading Station (A-30), Mixer & Screening Operations (A-31), and Material Handling (A-32); and the deletion of a source, the Fines Piles (B-04). Plantwide nitrogen oxide (NO_x) emissions were limited to 95 tons/year. The NO_x emissions result from the combustion of natural gas and the use of a new activated hydrate at source A-14, resulting in an increase of 1.7 tons/year of particulate matter and 25.6 tons/yr for NO_x.

Section IV: EMISSION UNIT INFORMATION

Specific Conditions

1. The permittee will not exceed the emission rates set forth in the following table. [§19.501 et seq. of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control, effective December 19, 2004 (Regulation 19) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 2 - Criteria Pollutants

SN	Description	Pollutant	lb/hr	Tpy
PW-01	Ore Piles	PM ₁₀	0.1	0.1
PW-02	Inlet Hopper	PM ₁₀	0.1	0.1
PW-03	Precrusher	PM ₁₀	0.2	0.5
PW-04	Dryer #1 (16.0 MMBtu/hr) + Baghouse	PM ₁₀	2.0	6.5
		SO ₂	0.1	0.1
		VOC	0.1	0.4
		CO	1.3	5.9
		NO _x	1.6	*
PW-05	Plantwide NO _x Emissions for Natural Gas Fired Gas Combustion	NO _x	**	95.0
B-01	Bauxite Mill House + Baghouse	PM ₁₀	0.1	0.2
B-02	Calciner No. 2 (30.0 MMBtu/hr) + Baghouse	PM ₁₀	2.1	7.0
		SO ₂	0.1	0.1
		VOC	0.2	0.7
		CO	2.5	11.0
		NO _x	3.0	*
B-03	Receiver Tank	PM ₁₀	0.2	0.6
B-04	Source Deleted			
B-05	Shipping/Loading	PM ₁₀	0.8	2.8
B-06	#2 Tank + Bin Vent	PM ₁₀	0.2	0.6
B-07	Elliot Mill #3/28 Bin	PM ₁₀	0.3	1.2
B-08	#2 Bin + Baghouse	PM ₁₀	0.2	0.6
B-09	Elliot Mill #4 + Baghouse	PM ₁₀	0.2	0.6
B-10	27 Bin + Baghouse	PM ₁₀	0.2	0.6
		PM ₁₀	2.0	6.5

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

SN	Description	Pollutant	lb/hr	Tpy
B-11	Flash Calciner #1 (16.0 MMBtu/hr) + Baghouse	SO ₂	0.1	0.1
		VOC	0.1	0.4
		CO	1.3	5.9
		NO _x	1.6	*
B-12	#4 and #5 Tanks	PM ₁₀	0.2	0.6
B-14	Feed Hopper	PM ₁₀	0.1	0.2
B-15	Calciner #1 (30 MMBtu/hr)	PM ₁₀	2.1	7.0
		SO ₂	0.1	0.1
		VOC	0.2	0.7
		CO	2.5	11.0
		NO _x	3.0	*
B-16	Dedust belt Conveyor	PM ₁₀	0.1	0.2
B-17	Tub 5 (Baghouse and Bin Vent – 1.0 MMBtu/hr)	PM ₁₀	0.3	0.7
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.1	0.4
		NO _x	0.1	*
B-18	Rail Unloading for Hydrate	PM ₁₀	0.1	0.1
B-19	Convey Point (Bin 26 to Railcar)	PM ₁₀	0.1	0.2
B-20	#1 Tank	PM ₁₀	0.2	0.6
B-21	Tub No. 4	PM ₁₀	0.2	0.6
A-01	Hydrate Transfer to Bins + Baghouse	PM ₁₀	0.2	0.6
A-02	Elliott Mills #1 and #2+ Baghouse	PM ₁₀	0.2	0.6
A-03		PM ₁₀	0.2	0.6
A-04	Reserved			
A-05	Reserved			
A-06	Flash Calciner #2 Feed Tank + Bin Vent Filter	PM ₁₀	0.2	0.6
A-07	Flash Calciner #2 (16.0 MMBtu/hr) + Baghouse	PM ₁₀	2.0	6.5
		SO ₂	0.1	0.1
		VOC	0.1	0.4
		CO	1.3	5.9
		NO _x	1.6	*
A-08	Tub #1 and Tub #2 + Baghouse	PM ₁₀	0.2	0.6
A-09	Tub Stand	PM ₁₀	0.1	0.2
A-10	Activator #1 (5.5 MMBtu/hr) + Baghouse	PM ₁₀	1.9	6.4
		SO ₂	0.1	0.1
		VOC	0.1	0.1

SN	Description	Pollutant	lb/hr	Tpy
		CO	0.5	2.2
		NO _x	0.6	*
A-11	Activator #1 Screening & Product Tanks + Baghouse	PM ₁₀	0.1	0.2
A-12	Munson Mixer with Bin Vent	PM ₁₀	0.1	0.2
A-13	Activator No. 3 (4.5 MMBtu/hr) + Baghouse	PM ₁₀	1.9	6.2
		SO ₂	0.1	0.2
		VOC	0.1	0.1
		CO	0.4	1.7
		NO _x	0.5	*
A-14	Calciner #3 60", Afterburner and Tub Feeder (15.0 MMBtu/hr) + Baghouse	PM ₁₀	2.0	6.5
		SO ₂	0.1	0.1
		VOC	40.1 ¹	13.8 ¹
		CO	1.3	5.6
		NO _x	79.2	*
A-15	Tub #3	PM ₁₀	0.2	0.6
A-17	Activator #2 (5.5 MMBtu/hr) + Baghouse	PM ₁₀	1.9	6.4
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.5	2.2
		NO _x	0.6	*
A-18	Activator #2 Screening, Crushing, and Product Tanks	PM ₁₀	0.1	0.2
A-19	Calciner #5 Product Tanks + Bin Vent + Baghouse	PM ₁₀	0.2	0.6
A-20	Calciner #5 Feed Tanks + Bin Vent	PM ₁₀	0.2	0.6
A-22	Calciner No. 3 Feed Tank	PM ₁₀	0.2	0.6
A-23	Calciner No. 3 Product Tanks	PM ₁₀	0.2	0.6
A-24	Hicom Mill & Baghouse	PM ₁₀	0.2	0.6
A-25	Hicom Feed Tank	PM ₁₀	0.2	0.6
A-26	Calciner # 4 18" (16.0 MMBtu/hr) + Baghouse	PM ₁₀	2.0	6.5
		SO ₂	0.1	0.1
		VOC	0.1 ¹	0.4 ¹

SN	Description	Pollutant	lb/hr	Tpy
		CO	1.3	5.5
		NO _x	1.5	*
A-27	Quickwater Boiler (2.5 MMBtu/hr)	PM ₁₀	0.1	0.1
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.2	0.9
		NO _x	0.3	*
A-28	Cure Drum 0.290 MMBtu/hr	PM ₁₀	0.2	0.3
		SO ₂	0.1	0.1
		VOC	0.1	0.1
		CO	0.1	0.1
		NO _x	0.1	*
A-29	Railcar Unloading	PM ₁₀	0.2	0.6
A-30	Container Unloading Station	PM ₁₀	0.2	0.6
A-31	Mixer & Screening Operations	PM ₁₀	0.1	0.2
A-32	Material Handling (4 Tanks)	PM ₁₀	0.2	0.6

*Subject to a plantwide limit of 95 tons/year for NO_x as specified at PW-05.

**See individual source listings for lb/hr limits for NO_x.

¹ Subject to a Plantwide VOC limit due to HAP emissions of 10.0 lb/hr and 9.5 ton/yr.

2. The permittee will not exceed the emission rates set forth in the following table. [§18.801 of the Arkansas Air Pollution Control Code, effective February 15, 1999 (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 3 - Non-Criteria Pollutants

SN	Description	Pollutant	lb/hr	Tpy
PW-01	Ore Piles	PM	0.1	0.2
PW-02	Inlet Hopper	PM	0.1	0.1
PW-03	Precrusher	PM	0.3	1.0
PW-04	Dryer #1 (16.0 MMBtu/hr) + Baghouse	PM	3.2	10.4
B-01	Bauxite Mill House + Baghouse	PM	0.4	1.2
B-02	Calciner #2 (30.0 MMBtu/hr) + Baghouse	PM	3.3	10.9
B-03	Receiver Tank	PM	0.2	0.6
B-04	Source Deleted			

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

SN	Description	Pollutant	lb/hr	Tpy
B-05	Shipping/Loading	PM	0.8	2.8
B-06	#2 Tank + Bin Vent	PM	0.2	0.6
B-07	Elliot Mill #3/28 Bin	PM	0.3	1.2
B-08	#2 Bin + Baghouse	PM	0.2	0.6
B-09	Elliot Mill #4 + Baghouse	PM	0.2	0.6
B-10	27 Bin + Baghouse	PM	0.2	0.6
B-11	Flash Calciner #1 (16.0 MMBtu/hr) + Baghouse	PM	3.2	10.4
B-12	#4 and #5 Tanks	PM	0.2	0.6
B-14	Feed Hopper	PM	0.2	0.5
B-15	Calciner #1 (30 MMBtu/hr)	PM	3.3	10.9
B-16	Dedust Belt Conveyor	PM	0.2	0.5
B-17	Tub 5 (Baghouse and Bin Vent – 1.0 MMBtu/hr)	PM	0.3	0.7
B-18	Rail Unloading for Hydrate	PM	0.1	0.1
B-19	Convey Point (Bin 26 to Railcar)	PM	0.2	0.5
B-20	#1 Tank	PM	0.2	0.6
B-21	Tub No. 4	PM	0.2	0.6
A-01	Hydrate Transfer to Bins + Baghouse	PM	0.2	0.6
A-02	Elliott Mills #1 and #2+ Baghouse	PM	0.2	0.6
A-03		PM	0.2	0.6
A-04	Reserved			
A-05	Reserved			
A-06	Flash Calciner #2 Feed Tank + Bin Vent Filter	PM	0.2	0.6
A-07	Flash Calciner #2 (16.0 MMBtu/hr) + Baghouse	PM	3.2	10.4
A-08	Tub #1 & #2 + Baghouse	PM	0.2	0.6
A-09	Tub Stand	PM	0.2	0.5
A-10	Activator #1 (5.5 MMBtu/hr)	PM	3.1	10.3

SN	Description	Pollutant	lb/hr	Tpy
	+ Baghouse			
A-11	Screening & Crushing + Baghouse	PM	0.4	1.2
A-12	Munson Mixer	PM	0.2	0.5
A-13	Activator #3 (4.5 MMBtu/hr) + Baghouse	PM	3.1	10.1
A-14	Calciner #3 60", Afterburner and Tub Feeder (15.0 MMBtu/hr) + Baghouse	PM HAP	3.1 10.0*	10.4 9.5*
A-15	Tub #3	PM	0.2	0.6
A-17	Activator #2 (5.5 MMBtu/hr) + Baghouse	PM	3.1	10.3
A-18	Activator #2 Screening, Crushing, and Product Tanks	PM	0.4	1.2
A-19	Calciner #5 Product Tanks + Bin Vent + Baghouse	PM	0.2	0.6
A-20	Calciner #5 Feed Tanks + Bin Vent	PM	0.2	0.6
A-22	Calciner No. 3 Feed Tank	PM	0.2	0.6
A-23	Calciner No. 3 Product Tanks	PM	0.2	0.6
A-24	Hicom Mill & Baghouse	PM	0.2	0.6
A-25	Hicom Feed Tank	PM	0.2	0.6
A-26	Calciner #4 18" (16.0 MMBtu/hr) + Baghouse	PM HAP	3.2 10.0*	10.4 9.5*
A-27	Quickwater Boiler (2.5 MMBtu/hr)	PM	0.1	0.1
A-28	Cure Drum 0.290 MMBtu/hr	PM	0.3	0.6
A-29	Railcar Unloading	PM	0.2	0.6

SN	Description	Pollutant	lb/hr	Tpy
A-30	Container Unloading Station	PM	0.2	0.6
A-31	Mixer & Screening Operation	PM	0.2	0.5
A-32	Material Handling (4 Tanks)	PM	0.2	0.6

*HAPs are solvents and additives used in manufacturing specialty toll products.

- Visible emissions will not exceed the limits specified in the following table of this permit as measured by EPA Reference Method 9. [A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 4 - Visible Emissions

SN	Limit	Regulatory Citation
PW-02 and PW-03 Inlet Hopper and Precrusher	10%	§18.501
PW-04 A-01, A-02, A-03, A-04, A-05, A-06, A-07, A-08, A-09, A-10, A-11, A-12, A-13, A-14, A-17, A-18, A-20, A-21, A-26, A-27, A-28, A-29 B-01, B-02, B- 03, B-06, B-07, B-08, B-09, B-10, B- 14, B-17, B-21, B-24, B-15, B-17, B- 19, B-20	5%	§18.501

- The permittee will not cause or permit the emission of air contaminants, including odors or water vapor and including an air contaminant whose emission is not otherwise prohibited by Regulation #18, if the emission of the air contaminant constitutes air pollution within the meaning of A.C.A. §8-4-303. [§18.801 of Regulation 18, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-31]
- The permittee will not conduct operations in such a manner as to unnecessarily cause air contaminants and other pollutants to become airborne. [§18.901 of Regulation 18, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Facility-Wide Conditions

6. The permittee will not process more than 100,000 tons of product at the facility per consecutive 12-month period. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
7. The permittee will use only pipeline quality natural gas as fuel. Natural gas usage will not exceed 680 MMSCF of natural gas at the facility per consecutive 12-month period. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
8. The permittee will maintain monthly records which demonstrate compliance with Specific Conditions 6 and 7. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. The permittee will keep the records onsite, and make the records available to Department personnel upon request. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311.
9. The permittee shall be limited to 95.0 tons of NO_x at the facility per consecutive 12-month period. NO_x emissions from the facility will be limited to the combustion of natural gas plant-wide and process NO_x generated at source A-14. A mass balance using the test results required by Specific Condition 16 will be used to calculate the process NO_x generated emissions. Natural gas combustion NO_x emissions will be calculated using an emissions factor of 100 lb NO_x per 10⁶ standard cubic feet of natural gas and added with the process generated NO_x to obtain the plantwide NO_x emissions. [Regulation No. 19 §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]
10. The permittee will maintain monthly records of NO_x emissions from the combustion of natural gas and the process generated NO_x which demonstrates compliance with Specific Condition 9. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. The permittee will keep the records onsite, and make the records available to Department personnel upon request. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

SN-A-14 Conditions

11. The permittee shall not use solvents and additives containing HAPs or other air contaminants in the Tub Feeder and Calciners A-14 and A-26, unless the daily usage in pounds is below $0.11 * TLV \text{ in } \text{mg}/\text{m}^3 * 24 \text{ hrs.}$ [§18.801 of Regulation 18 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
12. The permittee shall not exceed the total HAPs emission limit from Toll Processing of 9.5 tpy per 12 consecutive months. [§18.801 Regulation 18 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
13. The permittee will maintain daily records which demonstrate compliance with Specific Conditions 11 and 12. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. The permittee will keep the records onsite, and make the records available to Department personnel upon request. [§18.1004 of Regulation 18 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
14. The permittee shall be limited to 300 tons of Monoethanolamine (MEA) through the 60” Calciner (A-14) per consecutive 12-month period. [Regulation No. 19 §19.705, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and CFR Part 52, Subpart E]
15. The permittee will maintain monthly records of Monoethanolamine (MEA) usage through the 60” Calciner (A-14) which demonstrates compliance with Specific Condition #14. The permittee will update the records by the fifteenth day of the month following the month to which the records pertain. The permittee will keep the records onsite, and make the records available to Department personnel upon request. [§19.705 of Regulation 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
16. The permittee shall conduct stack emissions testing for NO_x on Calciner no. 3 (A-14) using US EPA Reference Test Method 7E as published in 40 CFR Part 60 Appendix A. [§19.702 of Regulation 19 and 40 CFR Part 52 Subpart E]

The facility shall perform this testing every 5 years from the date of the last successful test. If at any time the facility fails one of the 5-year tests, or the facility conducts additional modifications to the calciner, then the facility must conduct two successive annual tests. If both of these annual tests are successful, then the facility may return to the five-year testing schedule.

All tests shall be conducted with the calciner operating at 90% or greater of capacity. Failure to test at or above this level shall limit the permittee to operating within 10% above the tested rate. The ADEQ Air Division Compliance Inspector Supervisor shall be notified at least 15 days prior to the testing. The first test shall be within 90 days of permit issuance. Results of the testing will be submitted in accordance with General Condition 6 of this permit.

NSPS Requirements

17. The permittee shall conduct an initial performance test for Tub No. 5 (B-17), Activator No. 1 (A-10), Activator No. 2 (A-17), and Activator No. 3 (A-13) in accordance with 40 CFR 60.736. Emissions from the dryers shall not contain particulate matter in excess of 0.057 grams per dry standard cubic foot (g/dscm). Compliance with the particulate matter standard shall be determined by using EPA Reference Method 5. The sampling time and volume for each test run shall be at least 2 hours and 1.70 dscm. EPA Reference Method 9 shall be used to determine the opacity from stack emissions. The performance testing may be waived with written permission from the EPA. [§19.304 of Regulation 19 and 40 CFR Part 60 Subpart UUU – *Standards of Performance for Calciners and Dryers in Mineral Industries*].

18. The permittee will operate the following kilns and dryers with dry control equipment at all times: PW-04, B-02, B-11, B-15, B-17, A-07, A-13, A-14 and A-26. The discharged gas from the associated baghouses shall not contain particulates in excess of 0.057 grams per dry standard cubic meter (g/dscm). Compliance with NSPS Subpart UUU shall be demonstrated by the initial performance test §60.732 or has been demonstrated by reports dated July 19, 1999 and September 7, 2000. [§19.0303 of Regulation 19, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, 40 CFR 60 Subpart UUU – *Standards of performance for Calciners and Dryers in Mineral Industries*, §60.732(a) and §60.734(c)].

Section V: INSIGNIFICANT ACTIVITIES

The Department deems the following types of activities or emissions as insignificant on the basis of size, emission rate, production rate, or activity in accordance with Group A of the Insignificant Activities list found in Regulation 18 and 19 Appendix A. Insignificant activity emission determinations rely upon the information submitted by the permittee in an application dated May 25, 2005.

Table 5 - Insignificant Activities

Description	Category
Bench-Scale Research & Development includes a small burner (less than 0.5 MMBtu/hr) and an Activator	A-5
INCINI-Cone Afterburner (3.6 MMBtu/hr)	A-1
Feed Blender	A-13

Section VI: GENERAL CONDITIONS

1. Any terms or conditions included in this permit that specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq.*) as the sole origin of and authority for the terms or conditions are not required under the Clean Air Act or any of its applicable requirements, and are not federally enforceable under the Clean Air Act. Arkansas Pollution Control & Ecology Commission Regulation 18 was adopted pursuant to the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq.*). Any terms or conditions included in this permit that specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq.*) as the origin of and authority for the terms or conditions are enforceable under this Arkansas statute.
2. This permit does not relieve the owner or operator of the equipment and/or the facility from compliance with all applicable provisions of the Arkansas Water and Air Pollution Control Act and the regulations promulgated under the Act. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
3. The permittee will notify the Department in writing within thirty (30) days after commencement of construction, completion of construction, first operation of equipment and/or facility, and first attainment of the equipment and/or facility target production rate. [§19.704 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation 19) and/or A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
4. Construction or modification must commence within eighteen (18) months from the date of permit issuance. [§19.410(B) of Regulation 19 and/or §18.309(B) of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
5. The permittee must keep records for five years to enable the Department to determine compliance with the terms of this permit--such as hours of operation, throughput, upset conditions, and continuous monitoring data. The Department may use the records, at the discretion of the Department, to determine compliance with the conditions of the permit. [§19.705 of Regulation 19 and/or §18.1004 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
6. A responsible official must certify any reports required by any condition contained in this permit and submit any reports to the Department at the address below. [§19.705 of Regulation 19 and/or §18.1004 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

Arkansas Department of Environmental Quality
Air Division
ATTN: Compliance Inspector Supervisor
Post Office Box 8913
Little Rock, AR 72219

7. The permittee will test any equipment scheduled for testing, unless stated in the Specific Conditions of this permit or by any federally regulated requirements, within the following time frames: (1) newly constructed or modified equipment within sixty (60) days of achieving the maximum production rate, but no later than 180 days after initial start-up of the permitted source or (2) existing equipment already operating according to the time frames set forth by the Department. The permittee must notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. The permittee must submit compliance test results to the Department within thirty (30) days after the completion of testing. [§19.702 of Regulation 19 and/or §18.1002 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
8. The permittee will provide: [§19.702 of Regulation 19 and/or §18.1002 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
 - a. Sampling ports adequate for applicable test methods
 - b. Safe sampling platforms
 - c. Safe access to sampling platforms
 - d. Utilities for sampling and testing equipment
9. The permittee will operate equipment, control apparatus and emission monitoring equipment within their design limitations. The permittee will maintain in good condition at all times equipment, control apparatus and emission monitoring equipment. [§19.303 of Regulation 19 and/or §18.1104 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
10. If the permittee exceeds an emission limit established by this permit, the permittee will be deemed in violation of said permit and will be subject to enforcement action. The Department may forego enforcement action for emissions exceeding any limits established by this permit provided the following requirements are met: [§19.601 of Regulation 19 and/or §18.1101 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
 - a. The permittee demonstrates to the satisfaction of the Department that the emissions resulted from an equipment malfunction or upset and are not the result of negligence or improper maintenance, and the permittee took all reasonable measures to immediately minimize or eliminate the excess emissions.
 - b. The permittee reports the occurrence or upset or breakdown of equipment (by telephone,

- facsimile, or overnight delivery) to the Department by the end of the next business day after the occurrence or the discovery of the occurrence.
- c. The permittee must submit to the Department, within five business days after the occurrence or the discovery of the occurrence, a full, written report of such occurrence, including a statement of all known causes and of the scheduling and nature of the actions to be taken to minimize or eliminate future occurrences, including, but not limited to, action to reduce the frequency of occurrence of such conditions, to minimize the amount by which said limits are exceeded, and to reduce the length of time for which said limits are exceeded. If the information is included in the initial report, the information need not be submitted again.
11. The permittee shall allow representatives of the Department upon the presentation of credentials: [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
 - a. To enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of this permit
 - b. To have access to and copy any records required to be kept under the terms and conditions of this permit, or the Act
 - c. To inspect any monitoring equipment or monitoring method required in this permit
 - d. To sample any emission of pollutants
 - e. To perform an operation and maintenance inspection of the permitted source
 12. The Department issued this permit in reliance upon the statements and presentations made in the permit application. The Department has no responsibility for the adequacy or proper functioning of the equipment or control apparatus. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
 13. The Department may revoke or modify this permit when, in the judgment of the Department, such revocation or modification is necessary to comply with the applicable provisions of the Arkansas Water and Air Pollution Control Act and the regulations promulgated the Arkansas Water and Air Pollution Control Act. [§19.410(A) of Regulation 19 and/or §18.309(A) of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
 14. This permit may be transferred. An applicant for a transfer must submit a written request for transfer of the permit on a form provided by the Department and submit the disclosure statement required by Arkansas Code Annotated §8-1-106 at least thirty (30) days in advance of the proposed transfer date. The permit will be automatically transferred to the new permittee unless the Department denies the request to transfer within thirty (30) days of the receipt of the disclosure statement. The Department may deny a transfer on the basis of the information revealed in the disclosure statement or other investigation or, deliberate falsification or omission of relevant information. [§19.407(B) of Regulation 19 and/or §18.307(B) of Regulation 18 and

Porocel Corporation
Permit #: 0635-AR-8
AFIN: 60-00004

A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

15. This permit shall be available for inspection on the premises where the control apparatus is located. [A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]
16. This permit authorizes only those pollutant emitting activities addressed herein. [A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
17. This permit supersedes and voids all previously issued air permits for this facility. [Regulation 18 and 19 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]
18. The permittee must pay all permit fees in accordance with the procedures established in Regulation No. 9. [A.C.A §8-1-105(c)]