

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 2168-AR-7 AFIN: 60-00005

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

AluChem of Little Rock, LLC
10500 Arch Street Pike
Little Rock, Arkansas 72206

3. PERMIT WRITER:

Derrick Brown

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Alumina Refining and Primary Aluminum Production
NAICS Code: 331313

5. ALL SUBMITTALS:

Date of Application	Type of Application (New, Renewal, Modification, De Minimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
9/13/2017	De Minimis	Addition of hot oil dryer (SN-15), new product bin (SN-14), and additional baghouse at the Wash Plant Silo (SN-12), and a storage tank to the insignificant activities list.

6. REVIEWER'S NOTES:

AluChem of Little Rock, LLC (60-00005) operates an alumina refining facility located at 10500 Arch Pike Street, Little Rock, Pulaski County, Arkansas. This permit action allows the addition of a hot oil dryer (SN-15), new product bin (SN-14), an additional baghouse at the Wash Plant Silo (SN-12); and a storage tank and eight (8) process water heaters to the insignificant activities list. This request includes emission increases of 9.4

tpy of PM₁₀, 14.4 tpy of PM, 0.1 tpy of VOC, 2.9 tpy of CO, 3.4 tpy of NO_x, and 0.07 tpy of total HAPs.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

There are no current/pending enforcement action for this facility.

8. PSD APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b) Is the facility categorized as a major source for PSD? N

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes, explain why this permit modification is not PSD.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
03	PM & Opacity	NSPS Subpart UUU
13	HAPs	NESHAP Subpart ZZZZ
13	HAPs	NSPS Subpart JJJJ

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) Reserved.

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants are below thresholds of concern.

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
HF	0.409	0.044	2.26	No

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
HF	4.0	3.6 ^A	Yes

^A Modelled for Permit #2168-A, no change in HF emissions.

c) H₂S Modeling: N/A

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	AP-42, 11.24.1	1.1 lb/ton	Bin Vent Filter	99%	131,400 tpy at SN-01 or SN-02
02	AP-42, 11.24.1	1.1 lb/ton	Bin Vent Filter with Baghouse	99%	131,400 tpy at SN-01 or SN-02
03	AP-42, 11.24.1 & Natural Gas Section for Combustion; HF control with NaHCO ₃ spray	<u>Drying Emissions</u> (lb/ton) PM: 19.7 PM ₁₀ : 12.0 <u>Special</u>	Cyclone & Baghouse for PM; H ₂ O spray with NaHCO ₃ for HF	99% for (Drying Emissions) Particulate; 90% for Hydrogen	NaHCO ₃ = Sodium bicarbonate

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	based on chemistry.	<u>Emissions (HF)</u> 9.5 tpy <u>Combustion</u> (lb/10 ⁶ ft ³) PM ₁₀ : 7.6 SO ₂ : 0.6 NO _x : 100 CO: 84 VOC=5.5		Fluoride	
04	AP-42, 11.24.1	2.4 lb PM/ton 0.31 lb PM ₁₀ /ton	Fabric Collector	99%	
05	AP-42, 11.24.1	0.01 lb PM/ton 0.004 lb PM ₁₀ /ton	None	N/A	None
06	AP-42, 11.24.1	1.1 lb PM/ton	Bin Vent Filter & Bag House	99%	
09	AP-42, 11.24-2	1.1 lb PM/ton	Bag House	99%	Bag House
11	AP-42, 11.24-2	1.1 lb PM/ton	Baghouse	99%	15 tph 131,400 tpy
12	AP-42, 11.24-2	1.1 lb PM/ton	(2) Bin Vent Filters	99% (each)	15 tph 131,400 tpy
13	¹ AP-42 Table 3.2-3 (7/00) ² Engine Manufacturer	PM = PM ₁₀ = filterable + condensable: ¹ PM: 9.50-03 ¹ PM ₁₀ : 1.94-02 ¹ SO ₂ : 5.88-04 = 8.33-04 lb/hr ² VOC: 1 g/hp-hr ² CO: 4 g/hp-hr ² NO _x : 2 g/hp-hr	None	None	Emergency Generator SI 4SRB NSCR Certified stationary 155 HP New 500 hrs/yr
14	AP-42, 11.24-2	1.1 lb PM/ton	Bin Vent Filter	99%	15 tph 131,400 tpy
15	AP-42, 11.24-2	19.7 lb PM/ton	Baghouse Combustion (lb/10 ⁶ ft ³) PM ₁₀ : 7.6 SO ₂ : 0.6 NO _x : 100 CO: 84	99%	15 tph 131,400 tpy 7922 scf nat. gas/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
			VOC: 5.5		

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
03, 15	Particulate Opacity Hydrogen Fluoride	Method 5 Method 9 Approved Method	Initial Initial & Daily Initial & Every 5 years	§60.736(b)(1) §60.736(b)(2) Department

14. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
13	Hours	Hour Meter	Hourly	N

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01 & 02	Product received	131,400 tons per year	Monthly	No
03	Opacity	10%	Daily	No
03	Sodium Bicarbonate Spray use	437 lbs	Continuously	No
10	Hours of Operation (emergency and non-emergency)	100 hours per year	Monthly	No
13	Hours of Operation (emergency and non-emergency)	500 hours per year	Monthly	No

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 02, 04-06, 13	5%	Reg.18.501 and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311	Inspector Observation
03	10%	Reg.19.304 and § 60.734	Certified Method 9
11, 12, 14, 15	20%	Reg.19.503 and Ark. Code Ann. § 8-4-203 as referenced by Ark. Code Ann. §§ 8-4-304 and 8-4-311	Inspector Observation

17. DELETED CONDITIONS:

Former SC	Justification for removal
10	SN-10 removed this permit action.

18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	Group A Cat.	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
500 Gallon Diesel Storage Tank	A-3	-	-	0.01	-	-	-	-
500 Gallon Diesel Storage Tank	A-3	-	-	0.01	-	-	-	-
Eight (8) 0.38 MMBtu/hr each process water heaters	A-1	-	0.10	0.01	0.07	1.10	1.31	0.02
CO ₂ Tank	A-13	<0.01	-	-	-	-	-	-

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
2168-AR-6

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

