

## STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1527-AOP-R15 AFIN: 63-00010

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Almatis, Inc.  
4701 Alcoa Road  
Bauxite, Arkansas 72011

3. PERMIT WRITER:

Adam McDaniel

4. NAICS DESCRIPTION AND CODE:

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

5. SUBMITTALS:

7/24/2013

6. REVIEWER'S NOTES:

Almatis, Inc. located at 4701 Alcoa Road in Bauxite, AR is a manufacturer of various forms of alumina. Almatis submitted a minor modification application to replace two (2) electrostatic precipitators for Converter/Dryers #11, #12, #13, and #14 (426EP06 and 426EP07) with four (4) baghouses designated as 426BH06 and 426BH07. Also, a spray dryer (143FHE01) was removed since the facility abandoned the process associated with the source. The total permitted annual emission rate limits decreased by 96.2 tpy for PM/PM<sub>10</sub> and 9.5 tpy for VOC. Formaldehyde was removed due the hourly emission rate being below reportable levels.

7. COMPLIANCE STATUS:

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

The facility was last inspected on June 13, 2013 which revealed that Plantwide Condition #5 was violated by failing to maintain emissions control equipment (SN-426EP07) in good working condition resulting in excess emissions.

This permit modification will correct this problem.

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? Y
  - Single pollutant  $\geq 100$  tpy and on the list of 28 or single pollutant  $\geq 250$  tpy and not on list, or
  - $CO_2$ e potential to emit  $\geq 100,000$  tpy and  $\geq 100$  tpy/ $\geq 250$  tpy of combined GHGs?

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

There was only a reduction in emissions which did not trigger an evaluation.

9. GHG MAJOR SOURCE (TITLE V):

Indicate one:

- Facility is classified as a major source for GHG and the permit includes this designation
- Facility does not have the physical potential to be a major GHG source
- Facility has restrictions on GHG or throughput rates that limit facility to a minor GHG source. Describe these restrictions: \_\_\_\_\_

10. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
426BH3314, 405BH0134, 405BH0136, 420BH07, 405BH0233, 426BH06, 426BH07, 400BH09, 420BH07, 415BH0001 - 415BH0018	PM & Opacity	40 CFR Part 60 Subpart LL

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. NAAQS EVALUATIONS AND NON-CRITERIA POLLUTANTS:

a) NAAQS:

This permitting action does not involve a significant modification as defined in 40 CFR 52.21. Criteria pollutants were not evaluated for impacts on the NAAQS.

b) Non-Criteria Pollutants:

1<sup>st</sup> 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).

Non-criteria pollutant emissions did not change in this permit modification (1527-AOP-R15). So, no additional PAER/PAIL analysis was performed.

Pollutant	TLV (mg/m <sup>3</sup> )	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Hydrogen Fluoride	2.45	0.27	58.1	N
Diethanolamine	1	0.11	0.4	N

2<sup>nd</sup> 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 (µg/m <sup>3</sup> ) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m <sup>3</sup> )	Pass?
Diethanolamine	10	2.5	Y

Pollutant	Average Period	CA OEHHA REL (µg/m <sup>3</sup> )	Modeled Concentration (µg/m <sup>3</sup> )	Pass?
Hydrogen Fluoride	1 Hour	240	101.7	Y
	Annual	14	1.87	Y

13. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
All Baghouses		PM=0.064799 grams/grain			
All Natural Gas Fired Sources	AP-42	$\frac{\text{Lb}}{10^6 \text{ ft}^3}$ PM=7.6 SO <sub>2</sub> =0.6 VOC=5.5 CO=84 NO <sub>x</sub> =100			
405BH0133	Grain Load Testing AP-42*1.25 Testing*2 AP-42	PM= 0.064799 grams/grain NO <sub>x</sub> =19.6 lb/hr CO=84 lb/10 <sup>6</sup> ft <sup>3</sup> *1.25 SO <sub>2</sub> = 1 lb/hr VOC= 5.5 lb/10 <sup>6</sup> ft <sup>3</sup>	Baghouse	PM=98%	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
405BH0233	Old Limit Testing AP-42*1.25 Testing*2 AP-42	PM/PM <sub>10</sub> = (30 mg/m <sup>3</sup> )* (1 lb/453,600 mg)* (36,200 ft <sup>3</sup> /min)* (60min/1hr)* (1 m <sup>3</sup> /35 ft <sup>3</sup> ) = 4.11 lb/hr =18.0 tpy <u>Current Permit Limit</u> NO <sub>x</sub> =19.6 lb/hr CO=84 lb/10 <sup>6</sup> ft <sup>3</sup> *1.25 SO <sub>2</sub> = 1 lb/hr VOC= 5.5 lb/10 <sup>6</sup> ft <sup>3</sup>	Baghouse	PM=99%	Baghouse Parameters: Blower capacity= 36,200 ft <sup>3</sup> /min Dust emissions= 30 mg/m <sup>3</sup>
HF Emissions from 405BH0133 and 405BH0233	Stack Testing	915 lb HF per ton of Aluminum Fluoride	N/A	None	The emission factor, 915 lb HF per ton of Aluminum Fluoride, is from the stack test conducted in January and February 2001. Emission rates are based on the aluminum fluoride feed rate of 127 lb/hr and 478,688 lb/yr. Estimated emissions rates are: (127 lb A1F3/hr)(1 ton/ 2000 lb)(915 lb HF/ton)= 58.06 =58.1 lb/hr (478,688 lb A1F3/yr)(1 ton/ 2000 lb)(915 lb HF/ton)(1 ton/ 2000 lb) = 109.49 =109.5 tpy
425EP04	AP-42 PM Testing	lb/10 <sup>6</sup> ft <sup>3</sup> SO <sub>2</sub> =0.6 VOC=5.5 CO=84 NO <sub>x</sub> =100 PM=23 lb/hr	ESP	PM=99%	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
426BH06 & 426BH07	Stack Test for NO <sub>x</sub> & CO NSPS LL	36.81 lb/hr * 1.1(SF)  Blower capacity 35,000 ft <sup>3</sup> /min each PM/PM <sub>10</sub> = 0.02 grains/dscf	Baghouses	99%	Based on the Stack Test Results of the Samples from May 2008

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
405BH0133, 405BH0233, 425EP04, 426BH06, 426BH07	PM/PM <sub>10</sub> CO NO <sub>x</sub>	5 or 201A 7E 10	Annual or Bi-Annual	Department Guidance
405BH0133, 405BH0233	HF	26	Annual or Bi-Annual	Department Guidance
426BH3314, 405BH0134, 405BH0136, 420BH07, 405BH0233, 426BH06, 426BH07, 400BH09, 420BH07, 415BH0001 - 415BH0018	Opacity  PM if Stack Emission	9  5 or 17	Within 180 Days of Startup	NSPS 40 CFR Part 60 Subpart LL
Stack Tests	<p>Stack testing being performed on one source in each of the follow groups:                      Test 1: 415BH02, 415BH03, 415BH04, and 415BH05                      Test 2: 415BH01, 415BH06, 415BH07, 415BH09, 415BH11, 415BH12, 415BH13, and 415BH14                      Test 3: 415BH08 &amp; 415BH10                      Test 4: 415BH15                      Test 5: 415BH16, 415BH17, and 415BH18</p> <p>The performance tests for the emissions from SN-426BH3314 were performed on December 7, 2006 and August 5, 2010.                      Initial stack testing was performed on SN-046BL01 on July 2, 2010.                      Initial stack testing was performed on SN-405BH0133 on July 1, 2010.                      The performance tests for the emissions from SN-426EP06 and 426EP07 were performed on June 29, 2010 and June 30, 2010, respectively.                      The performance test for the emissions from SN-451BH015 was performed on July 18, 2002.</p>			

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15. 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)
None				

16. 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)
Hydrate Section	Silane Coated Alumina Trihydrate Production	8.4 Million Lbs	Monthly	Y
143FHE01	VOC Formaldehyde Silane	9.5 0.02 2 Million Lbs	Monthly	Y
405BH0133, 405BH0233	Aluminum Fluoride Feed Rate	127 lb/hr & 109.5 tpy HF emissions	Daily & Monthly	Y
425AUC01	Alumina Load-out	20,000 tons per 12 months	Monthly	Y
415BH0001- 415BH0018	Initial Performance Tests	None	Initial	Y

17. OPACITY:

Appendix A of the Permit has a list of all the opacity limits.

18. DELETED CONDITIONS:

Former SC	Justification for removal
None	

19. GROUP A INSIGNIFICANT ACTIVITIES:

20. Source Name	Group A Category	Emissions (tpy)						
		PM/PM <sub>10</sub>	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs	
							Single	Total
Dump Chute, east side of Building 400	A-13							
Dump Chute, middle tank on north side of Building 400	A-13							
Clean-Out Chute, southwest corner of Building 410	A-13							
Clean-Out Chutes (3), west end of Building 451	A-13							

20. Source Name	Group A Category	Emissions (tpy)						
		PM/PM <sub>10</sub>	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs	
							Single	Total
Clean-Out Chute from auger screw, northwest end of Building 451	A-13							
Clean-Out Chute to dumpster on ground, west end of Building 55	A-13							
Dump Chute, 5 from bins to ground along east side of Building 415	A-13							
Dump Chute, upper floors to dumpster in dock area on south end of Building 415	A-13							
Dump Chute, Building 415 railcars loading station to ground	A-13							
Dump Chute from second floor to ground, north side of Building 420A	A-13							
Clean-Out Chute on northeast corner of Building 425	A-13							
Dump Chute to dumpster, east end of dock area on north side of Building 425	A-13							
Dump Chute to contained area, west end of dock area on north side of Building 425	A-13							
Dump Chute from fourth floor, north side of Building 425	A-13							
Dump Chute to contained area on northeast corner of Building 426 to converter wing	A-13							
Dump Chute to under bulk loading belt, south side of Building 426 in dock area	A-13							

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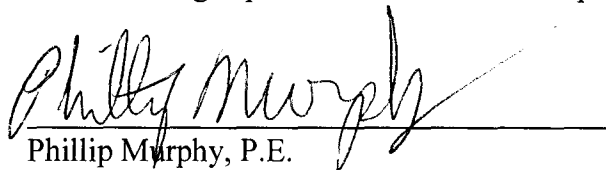
21. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1527-AOP-R14

22. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

  
Phillip Murphy, P.E.



APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

## Fee Calculation for Major Source

Revised 08-26-13

Facility Name: Almatris, Inc.  
 Permit Number: 1527-AOP-R15  
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\$/ton factor	23.42	Annual Chargeable Emissions (tpy)	1141.5
Permit Type	Minor Mod	Permit Fee \$	500

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	-105.7
Initial Title V Permit Fee Chargeable Emissions (tpy)	

*HAPs not included in VOC or PM: Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride*

*Air Contaminants: All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensable PM, H2S in TRS, etc.)*

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		630.9	534.7	-96.2		
PM <sub>10</sub>		630.9	534.7	-96.2	-96.2	534.7
SO <sub>2</sub>		22	22	0	0	22
VOC		24.1	14.6	-9.5	-9.5	14.6
CO		235.5	235.5	0		
NO <sub>x</sub>		570.2	570.2	0	0	570.2
Formaldehyde	<input type="checkbox"/>	0.02	0	-0.02		
Diethanolamine	<input type="checkbox"/>	1.5	1.5	0		
Hydrogen Fluoride	<input type="checkbox"/>	109.5	109.5	0		