STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1527-AOP-R13 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. PROCESS DESCRIPTION AND NAICS CODE:

   NAICS Description: Alumina Refining
   NAICS Code: 331311

5. SUBMITTALS:

   3/2/2012

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 an electrostatic precipitator (405EP0233) with a new baghouse (405BH0233). The total permitted annual emission rate limit changes associated with this modification are a decrease of 91.5 tons per year (tpy) PM/PM_{10}.

7. COMPLIANCE STATUS:

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

   Currently, there is no pending enforcement action against 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? Y

      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)
451BH011, 451BH015	PM & Opacity	40 CFR Part 60 Subpart UUU
046BL01-046BL05	Fuel Recordkeeping	40 CFR Part 60 Subpart Dc
426BH3314, 405BH0134, 435BH0760, 420BH07, & 405BH0233	PM & Opacity	40 CFR Part 60 Subpart LL

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants:

PM_{10} emissions were reduced in this permit modification. So, no additional modeling was performed.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	206.4 is now	150	24-Hour	146.8 (110.8+36)	97.8
SO_2	8.6	80	Annual	3.6	4.5
		1300	3-Hour	38.4	3
		365	24-Hour	20.6	5.7
CO	73.1	10,000	8-Hour	147.6	1.5
		40,000	1-Hour	254.4	0.7
NO_x	152.8	100	Annual	12.6	12.6
Pb	N/A	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	N/A	N/A

Non-Criteria Pollutants:

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 × TLV	Proposed lb/hr	Pass?
Formaldehyde	1.5	0.17	0.03	Y
Hydrogen Fluoride	2.45	0.27	58.1	N
Diethanolamine	1	0.11	0.4	N

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 ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Diethanolamine	10	2.5	Y

Pollutant	Average Period	CA OEHHA REL ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Pass?
Hydrogen Fluoride	1 Hour	240	101.7	Y
	Annual	14	1.87	Y

12. 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	$Lb/10^6\ ft^3$ PM=7.6 SO_2=0.6 VOC=5.5 CO=84 NO_X=100			
143FHE011 & 451BH014	Testing	VOC=0.009452 lb VOC/lb silane Formaldehyde= 1.1905 E-6 lb HAP/lb silane	N/A	N/A	VOC emissions from SN-451BH011 & 451BH014 Combustion: (12000 ft^3/106 hr)(5.8 lb/ft^3) = 0.0696 lb/hr (0.0696 lb/hr)(8760 hr/yr)(1 ton/2000 lb)= 0.3 TPY Coating Process: (0.009452 lb VOC/lb product)(5500 lb product/hr) =51.986 lb/hr (0.009452 lb VOC/lb product)(8.4 MM lb product/yr)(1 ton /2000 lb)= 39.7 TPY TOTAL: 0.0697 + 51.986 = 52.05 =52.1 lb/hr 0.3 + 39.7= 40 TPY
Combustion Sources 451	AP-42	$Lb/10^6\ ft^3$ PM=7.6 SO_2=0.6 VOC=5.5 CO=84 NO_X=100			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
405BH0133	Grain Load Testing AP-42*1.25 Testing*2 AP-42	PM= 0.064799 grams/grain NO_X=19.6 lb/hr CO=84 lb/10^6 ft^3*1.25 SO_2= 1 lb/hr VOC= 5.5 lb/10^6 ft^3	Baghouse	PM=98%	
405BH0233	Old Limit Testing AP-42*1.25 Testing*2 AP-42	PM/PM_{10}= (30 mg/m^3)* (1 lb/453,600 mg)* (36,200 ft^3/min)* (60min/1hr)* (1 m^3/35 ft^3) = 4.11 lb/hr =18.0 tpy Current Permit Limit NO_X=19.6 lb/hr CO=84 lb/10^6 ft^3*1.25 SO_2= 1 lb/hr VOC= 5.5 lb/10^6 ft^3	Baghouse	PM=99%	Baghouse Parameters: Blower capacity= 36,200 ft^3/min Dust emissions= 30 mg/m^3
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

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
425EP04	AP-42 PM Testing	$\frac{Lb}{10^6 ft^3}$ SO_2=0.6 VOC=5.5 CO=84 NO_X=100 PM=23 lb/hr	ESP	PM=99%	
426EP06 & 426EP07	Stack Test for NO_X	36.81 lb/hr * 1.1(SF)	ESP	99%	Based on the Stack Test Results of the Samples from May 2008

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
046BL01-05	CO NO_X	7E 10	5 Years	Department Guidance
415BH011, 415BH015	PM	5	Initial	NSPS 40 CFR Part 60 Subpart UUU
405BH0133, 405BH0233, 425EP04, 426EP06, 426EP07	PM/PM_{10} CO NO_X	5 or 201A 7E 10	Annual or Bi-Annual	Department Guidance
405BH0133, 405BH0233	HF	26	Annual or Bi-Annual	Department Guidance
426BH3314, 405BH0136, 451BH014, 451BH0760, 400BH09, 420BH07	PM	5 or 17	Within 180 Days of Startup	NSPS 40 CFR Part 60 Subpart LL
415BH0001-415BH0018	PM	5 or 17	Within 180 Days of Startup	NSPS 40 CFR Part 60 Subpart LL

SN	Pollutants	Test Method	Test Interval	Justification
Stack Tests	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 & 415BH10 Test 4: 415BH15 Test 5: 415BH16, 415BH17, and 415BH18 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.			

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)
None				

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)
046BL01-046BL05	NSPS 40 CFR Part 60 Subpart Dc	None	Monthly	Y
415BH015, 415BH011	Initial Tests	None	Initial	Y
415BH011, 415BH014	Silane Coated Alumina Trihydrate	8.4 MM lb/12 month rolling total (Combined for 415BH011 & 415BH014	Monthly	Y
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

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
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

16. OPACITY:

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

17. DELETED CONDITIONS:

Former SC	Justification for removal
None	

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Open Tanks (2), Building 45C Tanks, filtrate and Beta Product	A-4							
Causticization Reactor	A-4							
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 comer of Building 410	A-13							
Clean-Out Chutes (3), west end of Building 451	A-13							
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							

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
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 comer 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 comer 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							

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1527-AOP-R12

20. 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 08-30-11

Facility Name: Almatic Inc
Permit Number: 1527-AOP-R13
AFIN: 63-00010

$/ton factor	22.65	Annual Chargeable Emissions (tpy)	1590.7
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	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	-91.5
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 condensible 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	☑	798.2	706.7	-91.5	-91.5	706.7
PM_{10}	☐	791.3	699.8	-91.5		
SO_2	☑	35.8	35.8	0	0	35.8
VOC	☑	69.6	69.6	0	0	69.6
CO	☐	318.8	318.8	0		
NO_X	☑	669.1	669.1	0	0	669.1
Formaldehyde	☐	0.07	0.07	0		
Diethanolamine	☐	1.5	1.5	0		
Hydrogen Fluoride	☑	109.5	109.5	0	0	109.5