

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1016-AOP-R0

1. PERMITTING AUTHORITY:

Arkansas Department Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. APPLICANT:

Reynolds Metals Company - Gum Springs Plant
500 East Reynolds Road
Arkadelphia, Arkansas 71923

3. PERMIT WRITER:

Thomas Rheume, P.E.

4. PROCESS DESCRIPTION AND SIC CODE:

SIC Description: Refuse Systems
SIC Code: 4953

5. SUBMITTALS: February 10, 1997

6. REVIEWER'S NOTES:

In this permit, the allowable potliner blend ratio is increased from 35 to 40%, the allowable kiln feed rate is increased from 24 to 30 tons per hour, and landfill leachate is included as an acceptable waste feed by direct injection. The facility already conducted a trial burn test at the higher rate, so an initial test was not required by this permit. Other throughputs were updated as necessary for this increased feed rate.

Allowable feedrates of CN and Flourides were increased due to testing that indicated facility can comply with emission rates with the new feedrates.

Ammonia emissions are generated by the reaction of potliner with general moisture in the air. There are no limits/compliance mechanisms (emissions were measured by draeger tube testing).

Many HAP pollutants are Deminimis based on lb/hr and RT. Not listed in this air permit.

References to 'brown sand' were changed to 'sand'. The facility is still required to do analysis

of raw materials, including sand..

7. COMPLIANCE STATUS: The following summarizes the current compliance status of the facility including active/pending enforcement actions and recent compliance activities and issues

There is an active CAO allowing Reynolds to use landfill leachate in the unit. The use of leachate is incorporated into this Title V permit.

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera) (Y/N) N
 Has this facility underwent PSD review in the past (Y/N) N Permit # _____
 Is this facility categorized as a major source for PSD? (Y/N) N
 \$ 100 tpy and on the list of 28 (100 tpy)? (Y/N) N
 \$ 250 tpy all other (Y/N) N

B. PSD Netting

Was netting performed to avoid PSD review in this permit? (Y/N) N
 If so, indicate increases and decreases used in netting for PSD purposes only.

NETTING TABLE							
Emission Source	Pollutant Emission Rate (TPY)						
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	Pb
Totals							

NETTING TABLE							
Emission Source	Pollutant Emission Rate (TPY)						
	PM	PM ₁₀	SO ₂	VOC	CO	NO _x	Pb
Significant Emission Rate	25	15	40	40	100	40	0.6
Subject to PSD?							

C. Source and Pollutant Specific Regulatory Applicability

Not Applicable

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1016-AR-2	Air Permit 1016-AOP-R0	Change
PM/PM ₁₀	43	46.86	3.86
SO ₂	1.75	2.0	0.25
VOC	31.8	32.37	0.57
CO	101.1	101.13	0.03
NO _x	159.8	205	45.2
Lead	0.02	.021	0.001
Beryllium Cmpds	0.01	.01	0
Cyanides	0.07	0	-0.07
Flourides	6.48	6.48	0
HCl	8.76	8.76	0
Antimony	0	3.0	3

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Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1016-AR-2	Air Permit 1016-AOP-R0	Change
Arsenic	0	.083	0.083
Cadmium	0	.080	0.08
Chromium	0	3.1	3.1
Cl	0	0.2	0.2
Ammonia	0	66.65	66.65
Polynuclear Aromatic Hydrocarbons (PAH)	2.98	2.98	0

10. MODELING:

A. Criteria Pollutants

Examination of the source type, location, plot plan, land use, emission parameters, and other available information indicate that modeling is not warranted at this time.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
PM ₁₀ *		50	Annual	1.564	3%
		150	24-hour	61.062	41%
SO ₂		80	Annual	n/a	0%
		1,300	3-hour	n/a	0%
		365	24-hour	n/a	0%
NO _x		100	Annual	0.1324	0%
VOC		0.12	1-hour (ppm)	n/a	0%
CO		10,000	8-hour	2.084	0%

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Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
		40,000	1-hour	4.784	0%

* used 1st high value from model results

11. 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 PAER was deemed by the Department 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) = $0.11 * \text{TLV}$	Proposed lb/hr	Pass?
Pb ¹	0.05	0.0055	0.004	Y
HCl ²	7.45	0.8195	2.0	N
Sb	0.5	0.055	0.9	N
As	0.01	0.0011	0.019	N
Be	0.002	0.00022	0.002	N
Cd ³	0.002	0.00022	0.019	N
Cr ⁴	0.01	0.0011	0.711	N
PAH ⁵		0	0.681	Y
Cl	0.5	0.055	0.1	N
F ⁶	1.55	0.1705	1.48	N
Ammonia	17.41	1.9151	15.26	N

1 - Assumed inorganic, elemental (lowest TLV of Pb compounds listed)

2 - No TLV, used a ceiling limit value

3 - Respirable fraction TLV

4 - As insoluble Cr VI

5 - No TLV data exists. PAHs are a combination of compounds. RMC conducted a Risk

Assessment for Hazardous Waste for all compounds including PAHs
 6 - As Flourine

2nd Tier Screening (PAIL)

ISCST3 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 was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	TLV (mg/m³)	(PAIL, µg/m³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m³)	Pass?
HCl	7.45	74.5	0.08979	Y
Sb	0.5	5	0.04044	Y
As	0.01	0.1	0.00858	Y
Be	0.002	0.02	0.00061	Y
Cd	0.002	0.02	0.00015	Y
Cr	0.01	0.1	0.03214	Y
Cl	0.5	5	0.00449	Y
F	1.55	15.5	0.06645	Y
Ammonia	17.41	174.1	24.845	Y

12. CALCULATIONS:

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
01,02, 05, 06, 26, 27	Design Estimate	0.002 grains/dscf (Particulate)	Fabric Filters	Outlet emission rate assumed	lb/hr and tpy rates calculated with maximum cfm and 8760 hrs/yr operation
	Testing	lb/hr measured (Ammonia)	Fabric Filters	No affect on emissions	
	Mass Balance	1200 ppm in material (PAH)	Fabric Filters	Outlet emission rate assumed	Assumed emissions proportional to amount in material handled
07-18, 20-25	Design Estimate	0.005 grains/dscf (Particulate)	Fabric Filters	Outlet emission rate assumed	lb/hr and tpy rates calculated with maximum cfm and 8760 hrs/yr operation
	Testing	lb/hr measured (Ammonia)	Fabric Filters	No affect on emissions	
	Mass Balance	1200 ppm in material (PAH)	Fabric Filters	Outlet emission rate assumed	Assumed emissions proportional to amount in material handled
19	Testing	0.08 grains/dscf (particulate)	Cyclones, multiclones, quench tower, fabric filter baghouse and afterburner		
	Testing	0.6 lb/hr (SO2)			Tested rate increased to account for requested increase in feed rate and SPL % in feed

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
	Testing	52.0 lb/hr (NOx)			
	Design and Testing	20 ppm outlet (VOC)			
	Testing	0.004 lb/hr (lead)			
	RCRA limit and Testing	100 ppmv hourly rolling average			
	Testing	8.76 lb/hr HCl			
	Mass balance and testing	3.0 lb/hr Antimony Compounds			
		0.21 lb/hr Arsenic Compounds			
		0.20 lb/hr Beryllium Compounds			
		0.084 lb/hr Cadmium Compounds			
		0.78 lb/hr Chromium Compounds (Hexavalent)			

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
	Testing	0.07 lb/hr Cyanide Compounds			
	Mass balance and testing	2.98 lb/hr Polycyclic Aromatic Hydrocarbons			
	Testing	0.2 lb/hr Chlorine			
		6.48 lb/hr Flourides			
28	Tanks		None		Limit on annual throughput. Max lb/hr calculated based on filling losses assuming 1 hour fill time All HAPS are Deminimis
29	AP-42 Section 11-19	0.000016 lbs PM10/ton	None		x 2 safety factor Limit on annual throughput
30	AP-42 13.2.4 (1995 edition) and Table 18.19.1-1		None		Annual emissions limited by SPL processed.

13. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
Various	PM/PM10	5	once	To verify low emission rate in calculation for all fabric filters
19	criteria and HAPs	Various	every 5 years	

14. MONITORING OR CEMS

The following are parameters that must be monitored with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
19	O2, CO, THC	CEM	Continuous	Y
19	Interlocks/shutoffs	System Controls	Continuous w/daily reports	Y
19	kiln rotation, draft, temperature	System Controls	Continuous w/daily reports	
19	afterburner draft, temperature	System Controls	Continuous w/daily reports	
19	off-gas dust collector pressure drop	System Controls	Continuous w/daily reports	

* Indicate frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

** Indicates whether the parameter needs to be included in reports.

15. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be

included in any annual, semiannual or other reports.

SN	Recorded Item	Limit (as established in permit)	Frequency *	Report (Y/N)**
19	Process parameters and shutoffs	Various	Daily	n
29	Limestone	260,000 tons	monthly	y
28	Fuel (gasoline)	24,000gal/12 mth	monthly	y

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)
 ** Indicates whether the item needs to be included in reports

16. OPACITY

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
SN19	20	Reg 19 and previous permit	Daily

17. DELETED CONDITIONS:

The following Specific Conditions were included in the previous permit, but deleted for the current permitting action.

Former SC	Justification for removal
Various	Fugitive emission limits for process equipment replaced with a quarterly equipment inspection. Impossible to do a quantitative opacity measurement on fugitives. Condition was in previous permit to ensure maintenance of equipment and capture of all emissions.
13 (in permit AR-2)	Quench not used during test so condition modified to treat quench as an emergency event.
Table of Automatic Waste Feed Shutoff System Parameters, Devices, Cutoff Limits, Actions	The automatic shutoff requirement for certain system parameters were eliminated because they were redundant with other, equivalent, parameters.

18. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

List all active permits for this facility which are voided/superseded/subsumed by issuance of this permit.

Permit #
1016-AR-2

19. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Thomas Rheume, P.E.