

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1177-AOP-R5

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Georgia-Pacific Resins, Inc.
Highway 82 and Paper Mill Road
Crossett, Arkansas 71635

3. PERMIT WRITER: Charles Hurt

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Code	NAICS Description
325211	Plastics Materials, Synthetic and Resins, and Nonvulcanizable Elastomers
325191	Gum and Wood Chemicals
325998	All Other Basic Organic Chemical Manufacturing

5. SUBMITTALS: May 28, 2004

6. REVIEWER'S NOTES:

Georgia Pacific Resins, Inc. located on Highway 82 & Papermill Road, Crossett, Arkansas 71635 submitted an application requesting to allow an increase in production of a resin, Lytor 105k. Lytor 105k production will be increased to 100 batches per year. The gas from the production of Lytor 105k is sent to the Pitch Boiler (SN-05) to be combusted. GPRI also requested the hourly permitted iodine limit for SN-05 to be a batch average and to include Iodine compounds. As a result of the increased production of the resin, total iodine emissions from SN-05 will increase by 0.47 lb/hr (batch average) and 2.0 tpy.

7. COMPLIANCE STATUS:

There is a CAO pending for excess emissions which were reported by GPRI. GPRI blocked the transmission of VOCs from a source to a control device as part of maintenance activities. When the maintenance was completed, they initiated operations without removing the isolating device. An estimated 4.26 tons of VOC was released to the atmosphere.

8. APPLICABLE REGULATIONS:

PSD Applicability

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

PSD Netting

Was netting performed to avoid PSD review in this permit?	Y/N	N
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Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation [NSPS, NESHAP (Part 61 & Part 63), or PSD only]
See Table in Plantwide Condition #18	Record keeping only	40 CFR Part 60, Subpart Kb
SN-11 and equipment in formaldehyde production	HAP	40 CFR Part 63, Subparts F, G, and H (HON Rule)
SN-11 and equipment in wet strength resin production	HAP	40 CFR Part 63, Subpart W
SN-11 and equipment in Amino/Phenolic Resin Production	HAP	40 CFR Part 63, Subparts OOO, SS, UU, and WW
SN-130	Fuel Usage Records only	40 CFR Part 60, Subpart Dc

9. EMISSION CHANGES:

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

Plant Wide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1177-AOP-R4	Air Permit1177-AOP-R5	Change
PM/PM ₁₀	294.9	294.9	0
SO ₂	61.9	61.9	0
VOC	175.7	175.7	0
CO	87.6	87.6	0
NO _x	132.6	132.6	0

Plant Wide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1177-AOP-R4	Air Permit1177-AOP-R5	Change
Hydrogen Sulfide	1.30	1.30	0
Sulfuric Acid	0.40	0.40	0
Phenol	20.70	20.70	0
Formaldehyde	44.25	44.25	0
Methanol	33.90	33.90	0
Epichlorohydrin	0.40	0.40	0
O-Cresol	0.40	0.40	0
Maleic Anhydride	2.50	2.50	0
Total Iodine	1.00	2.50	1.50
Nonylphenol	0.13	0.13	0
Formic Acid	0.44	0.44	0

10. MODELING:

Criteria Pollutants

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	89.5	50	Annual	31.8	64%
		150	24-hour	82.4	55%
SO ₂	34.9	80	Annual	19	24%
		1,300	3-hour	306.4	24%
		365	24-hour	103.7	28%
VOC*	52.3	0.12 (ppm)	1-hour (ppm)	0.01514	12.7%
NO _x	35.0	100	Annual	23.1	23%
CO	23.0	10,000	8-hour	6217.8	62%
		40,000	1-hour	85465	21%

* Scheffe Method

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 Department deemed 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	0.1650	11.0	N
Phenol	19.3	2.1230	5.4	N
Methanol	262.1	28.8310	7.7	Y
Epichlorohydrin	1.89	0.2079	0.1	Y
O-Cresol	22.1	2.431	0.2	Y
Maleic Anhydride	0.4	0.044	7.4	N

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	(PAIL, µg/m ³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m ³)	Pass?
Formaldehyde	15	2.95	Y
Phenol	192	17.6	Y
Maleic Anhydride	10	8.6	Y

Hydrogen Iodide and Iodine Screening

ISCST3 air dispersion modeling was performed on the estimated hydrogen iodide (HI) and iodine (I₂) hourly emissions from data recorded during typical batch production of Lytor 105k, the source of HI and I₂ emissions.

The ACGIH does not list a TWA for I₂, but it lists a TLV-C of 0.1 ppm.

There are currently no proposed or established long term exposure limits for HI in IARC, NIOSH, NTP, MAK, ACGIH, OSHA, or EPA databases for hazardous chemicals. There are currently no established short term HI exposure limits established in the aforementioned databases, either. However, there is a proposed Acute Exposure Guideline Level proposed for the AEGL Program. The information listed for HI under the AEGL Program states there is insufficient information for HI and the proposed exposure limits are based on Hydrogen Bromide (HBr). The AEGL Program can be accessed through the EPA website.

AEGL 8-Hour Limits (ppm)			
Chemical	Level 1 Non-disabling	Level 2 Disabling	Level 3 Lethality
HF	1.0	12	22
HCl	1.8	11	26
HBr*	1.0	11	31

AEGL 8-Hour Limits (ppm)			
Chemical	Level 1 Non-disabling	Level 2 Disabling	Level 3 Lethality
HI*	1.0	11	31

* **Proposed**

AEGL Level 1 was developed for both HF and HCl using human volunteers. The limit for HF was adjusted for uncertainty and sensitive individuals. HCl limit study included individuals diagnosed with asthma. Since the study already included sensitive individuals, the limit was not adjusted. The HF and HCl limits were based on 6 hour for HF and 45 min for HCl. Since mild irritancy is considered a threshold effect and generally does not vary greatly over time, the AEGL Program assumes prolonged exposure will not result in an enhanced effect. Therefore, there should be no noticeable difference in effect from 45 minutes of being exposed to 1.0 ppm HI than 8 hours of being exposed to 1.0 ppm HI.

Using mild irritancy as the threshold effect (HI), TLV-C (I₂), and applying the same assumptions used by PAIL the modeled concentration for HI and I₂ were evaluated.

Pollutant	1/100 of Threshold Limit Value (µg/m³)	Modeled Concentration (µg/m³)	Pass?
Hydrogen Iodide	52.323	2.4978	Y
Iodine	10.381	0.0722	Y

Both HI and I₂ pass modeling. Based on the modeling and available information the permitted emission rates for HI and I₂ do appear to comply with the Non-Criteria control strategy.

Hydrogen Sulfide Odor Screening

The facility is subject to Hydrogen Sulfide Emissions, A.C.A §8-3-103. H₂S modeling indicates ambient concentrations of H₂S are below the limits established in A.C.A §8-3-103 (a). Compliance with A.C.A §8-3-103 (a)(2) was determined using a 1-hour average period due to limitations of the model and the availability of metdata in 1-hour increments.

12. CALCULATIONS:

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)
All uncontrolled tanks	Tanks 4.0	Varied	N/A	N/A	
05	Mass Balance and Testing	Varied	The boiler itself is the final step in a VOC control chain and it follows a scrubber and condenser.	98%	
10 and 11	Testing	Varied	Thermal Oxidizers	Minimum 95% required	
129	Mass balance and AP-42	Varied	SN-129 is a control device used to operate when SN-05 is shut down.		
130	AP-42 and testing verified	Varied	None	N/A	

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)
All Baghouses	Grain loadings for PM emissions Any VOC emissions calculated from Tanks 4 or testing	Varied			
12	Testing	Varied	Scrubber	99.0	
40	Tanks 4.0	0.1 lb VOC/hr	None	N/A	Uncontrolled
132, 133	Mass Balance	0.08 lb VOC/hr	None	N/A	Uncontrolled
134	Mass Balance	1.02 lbVOC/hr	None	N/A	Uncontrolled

13. TESTING REQUIREMENTS:

This permit does not require any stack testing.

14. MONITORING OR CEMS

The permittee must monitor the following parameters with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and the need for records 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)**
10, 11	Firebox Temperature	Temperature Monitoring Device	Continuous	Y
129	Temperature	Temperature Monitoring Device	Continuous	Y

* 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)**
All Kb Tanks	Dimensions	N/A		N
10	Firebox Temperature	1600 °F	Continuous	Y
11	Firebox Temperature	1250 °F	Continuous	Y
11	Transfer rack design analysis and throughput	None	Annual	Y
11 and Subpart OOO processes	Leak Detection Requirements	None	Varied	Y
129	Temperature	1500 °F	Daily	N
130	Fuel Usage	536.67 MMscf	Monthly	Y
114	Throughput	500,000 gal	Monthly	Y
Facility	Production Rates	See Plantwide Conditions #14 and #27	Monthly	Y
12	Hours of Operation	4,400	Monthly	Y
70	Throughput	500,000 gal	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)
3, 6, 9,13, 18, and 19	5	Department Guidance	Weekly Observations
5	20/40	Department Guidance – see administrative agreement in appendix of permit.	Weekly and per batch observations

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
10, 11	5	Department Guidance	Natural Gas Combustion
129	20	Department Guidance	Weekly Observations
130	5	Department Guidance	Natural Gas Combustion

17. DELETED CONDITIONS:

No specific conditions were deleted in this revision.

18. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

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

Permit #
1177-AOP-R4

19. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Phillip Murphy, P.E.
Engineering Supervisor, Air Division