

## STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1177-AOP-R8

**1. PERMITTING AUTHORITY:**

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

**2. APPLICANT:**

Georgia-Pacific Chemicals LLC  
Highway 82 and Paper Mill Road  
Crossett, Arkansas 71635

**3. PERMIT WRITER:** Kimberly O'Guinn

**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: February 9, 2006, May 22, 2006, June 9, 2006, June 23, 2006, September 5, 2006, September 14, 2006, October 12, 2006, November 1, 2006, December 1, 2006, January 1, 2007**

**6. REVIEWER'S NOTES:**

Georgia-Pacific Chemicals LLC, formerly Georgia-Pacific Resins Inc., located on Highway 82 & Papermill Road, Crossett, Arkansas 71635 submitted an application to renew the facility existing permit. Subsequently, additional applications were submitted requesting the following modifications to the existing permit:

- The addition of a stand-by railcar containing approximately 180,000 lbs of diethylenetriamine (DETA) to the insignificant activity list.
- The temporary storage of Phenol in Storage Tank M-5 (SN-60) and Storage Tank M-6 (Insignificant Activity).
- The temporary storage of Cresylic Acid / Secondary Butylphenol in Storage Tank SN-61.
- The temporary removal from service of the Phenol Storage Tank (SN-62) for repairs.
- The addition of a new emulsifier soap formulation on the facility's spray dry system (SN-03).
- The installation of a new Hot Melt Holding Tank (SN-126).
- The removal of the Package Boiler (SN-130).

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- The incorporation of limits to the Pitch Boiler (SN-05) to comply with the health based compliance alternative associated with 40 CFR 63 Subpart DDDDD.
- The facility name change from Georgia-Pacific Resins, Inc. to Georgia Pacific Chemicals LLS, effective December 31, 2006.
- The addition of 40 CFR 61, Subpart FF (the BENWASTE rule) as an applicable regulation. The only requirement for the facility is to submit an initial report quantifying the TAB amount and must recalculate TAB only if it changes its process in a way that could cause the TAB amount to exceed 1 Mg/year. The initial report was due in April 1993, however after reviewing internal files, the facility did not find a copy of any report submitted to the Department in 1993.

Other changes in permitted emissions were due to updated AP-42 factors. The existing SO<sub>2</sub> permitted emission rates for SN-05 were incorrectly calculated in the original Title V application. Therefore SN-05 emission rates were changed to the correct emission rates. There are no physical changes and/or change in operation associated with the permitted emission changes at SN-05. With this modification permitted PM/PM<sub>10</sub>, VOC, CO, NO<sub>x</sub>, O-Cresol, and Phenol will decrease by 60.9 tons/year (tpy), 4.9 tpy, 28.0 tpy 31.6 tpy 0.39 tpy and 6.4 tpy, respectively. Permitted SO<sub>2</sub>, Total Iodine, Formaldehyde, Arsenic Compounds, Lead Compounds, Cadmium and Manganese will increase by 45.9 tpy, 0.70 tpy, 0.70 tpy, 0.40 tpy, 0.40 tpy, 0.40 tpy and 1.05 tpy, respectively.

## 7. COMPLIANCE STATUS:

There are currently no enforcement issue or actions against the facility at this time.

## 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?	Y/N	Y	
≥ 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**

<b>Source</b>	<b>Pollutant</b>	<b>Regulation [NSPS, NESHAP (Part 61 &amp; Part 63), or PSD only]</b>
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-05	Manganese	40 CFR Part 63 Subpart DDDDD

**9. EMISSION CHANGES:**

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

<b>Plant Wide Permitted Emissions (ton/yr)</b>			
<b>Pollutant</b>	<b>Air Permit 1177-AOP-R6</b>	<b>Air Permit 1177-AOP-R7</b>	<b>Change</b>
PM/PM <sub>10</sub>	294.9	234.0	-60.9
SO <sub>2</sub>	61.9	108.0	+46.1
VOC	176.1	168.8	-7.3
CO	87.6	99.1	+11.8
NO <sub>x</sub>	132.6	132.6	0
Hydrogen Sulfide	1.30	1.30	0
Sulfuric Acid	0.40	0.40	0
Phenol	20.70	17.50	-3.20
Formaldehyde	45.90	46.35	+0.15
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	2.50	3.75	+1.25
Nonylphenol	0.13	0.13	0
Formic Acid	0.44	0.44	0
Arsenic Compounds	0	0.4	+0.4
Lead Compounds	0	0.4	+0.4
Cadium	0	0.4	+0.4
Manganese	0	1.05	+1.05

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**10. MODELING:**

**Criteria Pollutants**

<b>Pollutant</b>	<b>Emission Rate (lb/hr)</b>	<b>NAAQS Standard (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Averaging Time</b>	<b>Highest Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>% of NAAQS</b>
PM <sub>10</sub>	131.4	50	Annual	15.9	32%
		150	24-hour	40.15	27%
SO <sub>2</sub>	25.1	80	Annual	1.17	1.5%
		1,300	3-hour	31.9	2.5%
		365	24-hour	8.54	2.3%
NO <sub>x</sub>	32.7	100	Annual	1.22	1.2%
CO	25.2	10,000	8-hour	16.478	0.1%
		40,000	1-hour	41.73	0.1%

**Non-Criteria Pollutant**

**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 ( $\text{mg}/\text{m}^3$ ), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

<b>Pollutant</b>	<b>TLV (<math>\text{mg}/\text{m}^3</math>)</b>	<b>PAER (lb/hr) = 0.11*TLV</b>	<b>Proposed lb/hr</b>	<b>Pass?</b>
Formaldehyde	1.5	0.1650	11.62	N
Phenol	19.3	2.1230	3.8	N
Methanol	262.1	28.8310	7.7	Y
Epichlorohydrin	1.89	0.2079	0.1	Y
O-Cresol	22.1	2.431	0.01	Y
Maleic Anhydride	0.4	0.044	7.4	N

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### 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.

<b>Pollutant</b>	<b>(PAIL, <math>\mu\text{g}/\text{m}^3</math>) = 1/100 of Threshold Limit Value</b>	<b>Modeled Concentration (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Pass?</b>
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 ( $\text{I}_2$ ) hourly emissions from data recorded during typical batch production of Lytor 105k, the source of HI and  $\text{I}_2$  emissions.

The ACGIH does not list a TWA for  $\text{I}_2$ , 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.

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

\* Proposed

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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 (I<sub>2</sub>), and applying the same assumptions used by PAIL the modeled concentration for HI and I<sub>2</sub> were evaluated.

<b>Pollutant</b>	<b>1/100 of Threshold Limit Value (µg/m<sup>3</sup>)</b>	<b>Modeled Concentration (µg/m<sup>3</sup>)</b>	<b>Pass?</b>
Hydrogen Iodide	52.323	2.4978	Y
Iodine	10.381	0.0722	Y

Both HI and I<sub>2</sub> pass modeling. Based on the modeling and available information the permitted emission rates for HI and I<sub>2</sub> 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. H<sub>2</sub>S modeling indicates ambient concentrations of H<sub>2</sub>S 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.

### 11. CALCULATIONS:

<b>SN</b>	<b>Emission Factor Source (AP-42, Testing, etc)</b>	<b>Emission Factor and units (lbs/ton, lbs/hr, etc)</b>	<b>Control Equipment Type (if any)</b>	<b>Control Equipment Efficiency</b>	<b>Comments (Emission factor controlled/ uncontrolled, etc)</b>
All uncontrolled tanks	Tanks 4.0	Varied	N/A	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)
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.		
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

**12. TESTING REQUIREMENTS:**

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
05, 129	SO <sub>2</sub> , VOC	EPA Approved	Initial	Department Guidance

**13. 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
05, 129	Temperature	Temperature Monitoring Device	Continuous	Y
12	pH, Liquid flow rate	Monitoring Device	Weekly	Y
03, 05, 09, 13, 18, 19	Pressure Drop	Visual Inspection	Weekly	N

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

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



#### 14. 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
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
12	pH	9.0 or greater	Weekly	Y
12	Liquid flow rate	80-120 gallons/min	Weekly	Y
70	Throughput	500,000 gal	Monthly	Y
05	Fuel Type Max. Heat Input Control Device Fuel Mix Max Emission Rate Max Stack Height Max Fuel Content	Liquid Fuel 89.4 Scrubber & Condenser 95% Liquid Fuel 0.24 lb/hr 15.85 0.00265lb/mmbtu	Annual	Y

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

\*\* Indicates whether the item needs to be included in reports.

**15. 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	Weekly and per batch observations
10, 11	5	Department Guidance	Natural Gas Combustion
129	20	Department Guidance	Weekly Observations

**16. DELETED CONDITIONS:**

Former SC	Justification for removal
39 thru 43	Removal of Package Boiler (SN-130) from facility

No specific conditions were deleted in this revision.

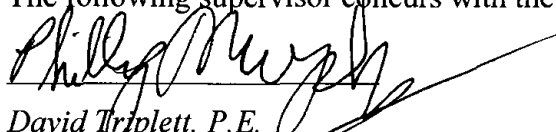
**17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS**

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

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**18. CONCURRENCE BY:**

The following supervisor concurs with the permitting decision:

  
 David Triplett, P.E.  
 Engineering Supervisor, Air Division