

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0378-AR-15 AFIN: 04-00111

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Gates Corporation
1801 North Lincoln
Siloam Springs, Arkansas 72761

3. PERMIT WRITER:

Adam McDaniel

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Rubber Product Manufacturing for Mechanical Use
NAICS Code: 326291

5. SUBMITTALS:

8/12/2013

6. REVIEWER'S NOTES:

Gates Corporation of 1801 North Lincoln Street, Siloam Springs, Benton County, Arkansas owns and operates a rubber belt manufacturing facility. The facility submitted a de minimis application to modify their permit to install additional rubber autoclaves (SN-09), additional belt and flat grinders (SN-11), and a 29.2 MMBtu Natural Gas Boiler (SN-15). For SN-09 and SN-11, the hourly and annual throughput limits will not be changed and the HAP emissions were updated. Also, the facility submitted a modification application to include the fire pump diesel engine (SN-16) and the emergency generator (SN-17) as permitted sources instead of insignificant activities. Boilers #1 and #2 (SN-01 and SN-02 respectively) had their HAP emissions were added to the permit. The total annual permitted emission rate limit changes associated with this modification includes: +1.3 tpy PM/PM₁₀, +0.3 tpy SO₂, +1.0 tpy VOC, +11.7 tpy CO, +14.5 tpy NO_x, and a small increase in most HAPs.

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 April 12, 2012 which revealed no violations.

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? N
- Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list, or
 - CO_2e potential to emit $\geq 100,000$ tpy and ≥ 100 tpy/ ≥ 250 tpy of combined GHGs?

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

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) |
|--------|-----------|------------------------------------|
| 15 | N/A | NSPS 40 CFR Part 60 Subpart Dc |
| 16, 17 | HAPs | NESHAP 40 CFR Part 63 Subpart ZZZZ |

SN-01, SN-02, and SN-15 are not subject to NESHAP 40 CFR Part 63 Subpart JJJJJ because they meet the definition of gas-fired boilers due to Specific Conditions #6 and #17.

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:

Pursuant to Act 1302 of the Regular Session of the 89th General Assembly of the State of Arkansas, no dispersion modeling was performed by ADEQ because it was not voluntarily proposed and agreed to by the facility. The facility has submitted other information to support NAAQS compliance that was evaluated by the Department and found acceptable. A summary of that information follows.

The facility is a minor source with lead emissions of less than 0.5 tpy. The ADEQ flowchart indicates that this type of application does not require an analysis of NAAQS impacts.

b) 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/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

In the permit modification #0378-AR-15, the facility added a new boiler (SN-15) and updated the HAP emissions for boilers #1 and #2 (SN-01 and SN-02 respectively) that had 5 (five) reportable HAPs which included Benzene, Hexane, Toluene, Cadmium Compounds, and Nickel. These were the only HAPs evaluated because they were the only increased reportable HAPs. The HAPs for the emergency generators were not included because of the intermittent usage. Carbonyl Sulfide and 4-Methyl-2-Pentanone were also included in the PAER table since they were not previously listed. The rest of the table was not updated.

| Pollutant | TLV (mg/m ³) | PAER (lb/hr) = 0.11 × TLV | Proposed lb/hr | Pass? |
|--|--------------------------|---------------------------|----------------|-------|
| Acetophenone | 49.14 | 5.406 | 12.301 | No |
| Acrolein | 0.23 | 0.025 | 0.06838 | No |
| Aniline | 7.62 | 0.838 | 0.132 | Yes |
| Benzene | 1.60 | 0.176 | 0.3232281 | No |
| 1,3-Butadiene | 4.42 | 0.487 | 0.358 | Yes |
| Carbon Disulfide | 3.11 | 0.34255 | 28.38 | No |
| Cumene | 245.79 | 27.03661 | 0.239 | Yes |
| DEHP (Bis(2-ethylhexyl) phthalate) | 5.00 | 0.55000 | 0.56614 | No |
| Isooctane (2,2,4-Trimethylpentane) | 1400.27 | 154.030 | 0.121 | Yes |
| Methylene Chloride (dichloromethane) | 173.68 | 19.105 | 0.838 | Yes |
| 4-Methyl-2-Pentanone (Methyl Isobutyl Ketone) | 81.93 | 9.01 | 1.05 | Yes |
| Hexane | 176.24 | 19.386 | 0.9105 | Yes |
| Phenol | 19.25 | 2.117 | 0.1252 | Yes |
| Propylene oxide | 1.42 | 0.156 | 0.872 | No |
| Styrene | 85.20 | 9.372 | 0.0289 | Yes |
| Tetrachloroethylene | 169.53 | 18.648 | 1.4587 | Yes |
| Toluene | 188.40 | 20.725 | 7.7806693 | Yes |
| 2-Chloro-1,3-Butadiene (chloroprene) | 36.21 | 3.983 | 0.832 | Yes |
| Nickel | 1.50 | 0.165 | 0.0934281 | Yes |
| m-Xylene + p-Xylene | 434.19 | 47.761 | 1.0929 | Yes |
| Cadmium Compounds | 0.002 | 0.00022 | 0.0015495 | No |
| Lead | 0.05 | 0.006 | 0.0162 | No |
| Carbonyl Sulfide | 12.28 | 1.35 | 3.3229 | No |

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.

In the permit modification #0378-AR-15, Benzene and Cadmium were the only HAPs modeled since they were the only ones out of the group of increased HAPs that failed the PAER analysis. Carbonyl Sulfide was also included and modeled since it didn't pass the PAER. The 2nd highest concentration was taken because five years of meteorological data was used in the analysis.

| Pollutant | PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value | Modeled Concentration ($\mu\text{g}/\text{m}^3$) | Pass? |
|------------------------------------|--|--|-------|
| Acetophenone | 491.4 | 81.67 | Yes |
| Acrolein | 2.292843 | 0.41 | Yes |
| Benzene | 15.97342 | 1.86 | Yes |
| DEHP (Bis(2-ethylhexyl) phthalate) | 50.0 | 3.36 | Yes |
| Carbon Disulfide* | 175 | 169.10 | Yes |
| Propylene Oxide | 14.2 | 4.77 | Yes |
| Cadmium Compounds | 0.02 | 0.0105 | Yes |
| Lead | 0.5 | 0.149 | Yes |
| Carbonyl Sulfide | 122.8 | 18.13 | Yes |

*The PAIL for Carbon Disulfide is based on an 1/4th of the RFC Value (which is 700 $\mu\text{g}/\text{m}^3$). 1/4th of the RFC = 175 $\mu\text{g}/\text{m}^3$. The Pail (in this instance is compared to the annual concentration – which is equal to 169.10 $\mu\text{g}/\text{m}^3$).

13. CALCULATIONS:

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.) | Control Equipment | Control Equipment Efficiency | Comments |
|--------|---|--|-------------------|------------------------------|---------------|
| 01, 02 | AP-42 1.4 (Natural Gas) | NO _x = 100 lb/MMscf CO= 84 lb/MMscf PM10= 7.6 lb/MMscf SO ₂ = 0.6 lb/MMscf VOC= 5.5 lb/MMscf | None | NA | 40.8 MMBtu/hr |
| 01, 02 | AP-42 1.3 (#2 Fuel Oil) | NO _x = 20 lb/kgal CO= 5 lb/kgal PM/PM ₁₀ = 3.3 lb/kgal SO ₂ = 71 lb/kgal VOC= 0.252 lb/kgal | None | NA | 40.8 MMBtu/hr |

| SN | Emission Factor Source (AP-42, testing, etc.) | Emission Factor (lb/ton, lb/hr, etc.) | Control Equipment | Control Equipment Efficiency | Comments |
|----|---|--|-------------------|------------------------------|---|
| 08 | Material balance | - | - | - | - |
| 09 | AP-42 Table 4.12-9 | Listed in excel spreadsheet on EPA website. Worst Case factors were used. | None | NA | |
| 10 | AP-42 Table 4.12-10 | VOC – 2.94E-03 HAPS – Listed in excel spreadsheet on EPA website. | None | NA | Units are lbs/lb rubber processed |
| 11 | AP-42 Table 4.12-12 | Listed in excel spreadsheet on EPA website. | Cyclones + ESP | 99% | |
| 15 | AP-42 1.4 (Natural Gas) | NO _x = 100 lb/MMscf CO= 84 lb/MMscf PM10= 7.6 lb/MMscf SO ₂ = 0.6 lb/MMscf VOC= 5.5 lb/MMscf | None | | 29.2 MMBtu/hr |
| 16 | AP-42 3.2-3 | PM ₁₀ = 1.94E-2 lb/MMbtu SO ₂ = 5.88E-4 lb/MMbtu VOC= 0.36 lb/MMbtu CO= 3.51 lb/MMbtu NO _x = 100 lb/MMbtu 1,3-Butadiene= 6.63E-4 lb/MMbtu Acrolein= 2.63E-3 lb/MMbtu Benzene= 1.58E-3 lb/MMbtu Methylene Chloride= 4.12E-5 lb/MMbtu | None | | 112 bhp 4S-RB SI Emergency Generator (Installed 2002) |
| 17 | AP-42 3.3-1 3.3-2 | PM ₁₀ = 2.2E-3 lb/hp-hr SO ₂ = 2.05E-3 lb/hp-hr VOC= 2.514E-3 lb/hp-hr CO= 6.68E-3 lb/hp-hr NO _x = 0.031 lb/hp-hr 1,3-Butadiene= 3.91E-5 lb/MMbtu Acrolein= 9.25E-5 lb/MMbtu Benzene= 9.33E-4 lb/MMbtu Toluene= 4.09E-4 lb/MMbtu | None | | 185 bhp CI Emergency Fire Pump Diesel Engine (Installed 1978) |

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

| SN | Pollutants | Test Method | Test Interval | Justification |
|------|------------|-------------|---------------|---------------|
| None | | | | |

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) |
|----------|-------------------------|-------------------------------|---------------|--------------|
| 01, 02 | Fuel Oil Usage | 869,760 gallons per 12 months | Monthly | N |
| 01, 02 | Fuel Oil Sulfur Content | 0.5 % sulfur | Each Shipment | N |
| 08 | VOC Usage | 24 tpy | Monthly | N |
| 08 | Toluene Usage | 3.7 tpy | Monthly | N |
| 09 | Rubber Processed | 29,000 lb/hr | Monthly | N |
| 11 | Rubber Processed | 30,000 lb/hr | Monthly | N |
| Facility | Rubber Throughput | 10,000,000 lb/yr | Monthly | N |

17. OPACITY:

| SN | Opacity | Justification for limit | Compliance Mechanism |
|--------------------------|---------|-------------------------|-----------------------|
| 01, 02, 15 (Natural Gas) | 5% | §18.501 | Fuel used |
| 01, 02 (#2 Fuel Oil) | 20% | §19.503 | Inspector Observation |
| 11 | 10% | §18.501 | Inspector Observation |
| 16, 17 | 20% | §19.503 | Inspector Observation |

18. DELETED CONDITIONS:

| Former SC | Justification for removal |
|-----------|---------------------------|
| None | |

19. GROUP A INSIGNIFICANT ACTIVITIES:

| Source Name | Group A Category | Emissions (tpy) | | | | | | |
|--------------|------------------|---------------------|-----------------|------|----|-----------------|--------|-------|
| | | PM/PM ₁₀ | SO ₂ | VOC | CO | NO _x | HAPs | |
| | | | | | | | Single | Total |
| Oil Demister | A-5 | | | <0.1 | | | | |

| Source Name | Group A Category | Emissions (tpy) | | | | | | |
|---------------------------------|------------------|---------------------|-----------------|----------------|----|-----------------|--------|-------|
| | | PM/PM ₁₀ | SO ₂ | VOC | CO | NO _x | HAPs | |
| | | | | | | | Single | Total |
| Grinding Wheel Cleaning | A-13 | | | <0.1 | | | | |
| Cooling Towers | A-13 | | | <0.1 | | | | |
| Mobile Printers | A-13 | | | <0.1 | | | | |
| Dust Collectors Venting Indoors | A-13 | <0.01 | | | | | | |
| TOTAL | A-13 | <0.01 | | <0.4 | | | | |

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

| |
|------------|
| Permit # |
| 0378-AR-14 |

21. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.



Phillip Murphy, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Minor Source

Revised 08-26-13

Facility Name: Gates Corporation
 Permit Number: 0378-AR-15
 AFIN: 04-00111

| | | | | |
|-----------------------------------|--------------------------|--|------------|------------|
| | | | Old Permit | New Permit |
| \$/ton factor | 23.42 | Permit Predominant Air Contaminant | 43.7 | 58.2 |
| Minimum Fee \$ | 400 | Net Predominant Air Contaminant Increase | 14.5 | |
| Minimum Initial Fee \$ | 500 | | | |
| Check if Administrative Amendment | <input type="checkbox"/> | Permit Fee \$ | 400 | |
| | | Annual Chargeable Emissions (tpy) | 58.2 | |

| Pollutant (tpy) | Old Permit | New Permit | Change |
|-----------------------------|------------|------------|------------|
| PM | 8 | 9.3 | 1.3 |
| PM ₁₀ | 8 | 9.3 | 1.3 |
| SO ₂ | 31.2 | 31.5 | 0.3 |
| VOC | 40.5 | 41.5 | 1 |
| CO | 31.6 | 43.3 | 11.7 |
| NO _x | 43.7 | 58.2 | 14.5 |
| Total HAP | 16.16 | 16.548027 | 0.388027 |
| 1,3-Butadiene* | 0.13 | 0.1183057 | -0.0116943 |
| Acetophenone* | 2.15 | 2.1401 | -0.0099 |
| Aniline* | 0.04 | 0.031 | -0.009 |
| Benzene* | 0.062 | 0.062573 | 0.000573 |
| Carbon Disulfide* | 7.21 | 7.205 | -0.005 |
| Hexane* | 0.18 | 0.7116 | 0.5316 |
| Methylene Chloride | 0.16 | 0.1497089 | -0.0102911 |
| Toluene* | 3.83 | 3.816654 | -0.013346 |
| Styrene* | 0.01 | 0.00498 | -0.00502 |
| Acrolein* | 0.012 | 0.0120559 | 5.59E-05 |
| Phenol* | 0.04 | 0.02934 | -0.01066 |
| Propylene oxide* | 0.58 | 0.572 | -0.008 |
| Tetrachloroethylene* | 0.25 | 0.24367 | -0.00633 |
| 4-methyl-2-Pentanone* | 0.18 | 0.18 | 0 |
| bis(2-ethylhexyl)phthalate* | 0.112 | 0.10934 | -0.00266 |
| Carbonyl Sulfide* | 0.76 | 0.7511 | -0.0089 |
| Cumene* | 0.05 | 0.0495 | -0.0005 |
| Isooctane* | 0.03 | 0.0209 | -0.0091 |
| 2-Chloro-1,3-Butadiene* | 0.14 | 0.139 | -0.001 |
| Cadmium Compounds | 0.001 | 0.000569 | -0.000431 |
| Lead | 0.01 | 2.70E-03 | -0.0073 |
| m-Xylene + p-Xylene | 0.2 | 0.1945 | -0.0055 |
| Nickel | 0.02 | 0.016131 | -0.003869 |

Non-Criteria Pollutant Analysis

| CAS No. | Pollutant | Facility-Wide Emissions (lb/hr) | Facility-Wide Emissions x 4.4 | Relative Toxicity | Include in Permit (Y/N) | PAER | Modeling Required (Y/N) | PAIL (ug/m3) | Modeled Impact (ug/m3) |
|-----------|-------------------------|---------------------------------|-------------------------------|-------------------|-------------------------|-------|-------------------------|--------------|------------------------|
| 71-43-2 | Benzene | 0.32 | 1.42 | 0.2 | Y | 0.176 | Y | 16.00 | 2.58 |
| 25321-22- | Dichlorobenzene | 3.44E-05 | 1.51E-04 | 0.3 | N | N/A | N/A | N/A | N/A |
| 50-00-0 | Formaldehyde | 2.15E-03 | 9.45E-03 | 0.2 | N | N/A | N/A | N/A | N/A |
| 110-54-3 | Hexane | 0.76 | 3.35 | 1 | Y | 19.4 | N | N/A | N/A |
| 91-20-3 | Naphthalene | 0.06 | 0.26 | 1 | N | N/A | N/A | N/A | N/A |
| 108-88-3 | Toluene | 0.47 | 2.08 | 1 | Y | 8.29 | N | N/A | N/A |
| 7440-38-2 | Arsenic | 5.73E-06 | 2.52E-05 | 0.0005 | N | N/A | N/A | N/A | N/A |
| 7440-43-9 | Cadmium (Cd) Compounds | 1.46E-03 | 6.42E-03 | 0.001 | Y | 0.001 | Y | 0.10 | 0.01 |
| 7440-47-3 | Chromium (Cr) Compounds | 0.03 | 0.12 | 0.5 | N | N/A | N/A | N/A | N/A |
| 7440-48-4 | Cobalt (Co) Compounds | 2.40E-06 | 1.06E-05 | 0.01 | N | N/A | N/A | N/A | N/A |
| 7439-96-5 | Manganese | 1.09E-05 | 4.79E-05 | 0.08 | N | N/A | N/A | N/A | N/A |
| 7439-97-6 | Mercury | 7.44E-06 | 3.27E-05 | 0.001 | N | N/A | N/A | N/A | N/A |
| 7440-02-0 | Nickel (Ni) Compounds | 0.09 | 0.41 | 0.1 | Y | 0.165 | N | N/A | N/A |