

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 544-AOP-R3

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Baxter Healthcare Corporation
1900 N Hwy. 201
Mountain Home, Arkansas 72653

3. PERMIT WRITER:

Amanda Holloway

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Medial Equipment and Supplies Manufacturing
NAICS Code: 33911

5. SUBMITTALS: April 15, 2003

6. REVIEWER'S NOTES:

Baxter Healthcare Corporation (Baxter) operates a facility in Mountain Home, AR, which manufactures items used in the healthcare field. This minor modification to the air permit will allow Baxter an alternative evacuation process for the EtO Sterilization Chambers. This alternative evacuation method will allow Baxter the option of using vacuum pumps or steam ejectors to evacuate the chambers during the initial evacuation and the after gassing portion of the EtO Sterilization cycle. This modification will not change any permitted emission limits.

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 are no current or pending enforcement actions for this facility.

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit (i.e. BACT, Modeling, etc.)? N
 Has this facility undergone PSD review in the past? (Y/N) N Permit # : N/A
 Is this facility categorized as a major source? (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? N

C. Source and Pollutant Specific Regulatory Applicability

Source(s)	Pollutant	Regulation
11-15, 57, 76-83, 88, 94, 101	EtO	NESHAP 40 CFR Part 63, Subpart O

9. EMISSION CHANGES:

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

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 544-AOP-R2	Air Permit 544-AOP-R3	Change
PM/PM ₁₀	17.4	17.4	0
SO ₂	28.9	28.9	0
VOC	176.4	176.4	0
CO	14.8	14.8	0
NO _x	56.3	56.3	0
Oil Mist	0.1	0.1	0
Freon 113	2	2	0

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 544-AOP-R2	Air Permit 544-AOP-R3	Change
MeCl	1.65	1.65	0
HCl	0.44	0.44	0
Chlorine	0	0	0
HMXDI	0.1	0.1	0
Ethylene Oxide	1.63	1.63	0
DEHP	5.31	5.31	0
Chromium Compounds	0.018	0.018	0
Manganese Compounds	0.0018	0.0018	0
Ethylene Glycol	0.05	0.05	0
MEK	2.5	2.5	0
HAPs (RT<1)	60	60	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.

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 PAER was deemed by the Department 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).

Pollutant	TLV (mg/m³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
MEK	590	64.9	5.0	Pass

Pollutant	TLV (mg/m³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
HCl	7	0.77	0.1	Pass
Ethylene Oxide	1.8	0.198	13.33*	Fail
Ethylene Glycol	100	11	1.00	Pass
HMXDI	0.034	0.0037	0.08	Fail
DEHP	5	0.55	2.34	Fail
Maganese	0.2	0.022	0.0017	Pass
Chromium	0.5	0.055	0.017	Pass
Freon	7664	843.04	2.0	Pass

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/m³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m³)	Pass?
Ethylene Oxide	18	16.2*	Yes
HMXDI	0.34	0.02569	Yes
DEHP	50	40	Yes

*lb/hr is based on worst case scenario, which would be scenario one as listed above. All other emission rates are lower and therefore the concentrations would be lower.

EtO Emissions

Three different EtO emissions scenarios were modeled. The first is the interim period before the facility is in full compliance with the NESHAP, which will occur on or before December 6, 1999. Revised calculations show the facility could only charge the scrubber with 550 lbs of EtO per hour not 1000 lbs as previously estimated. Also per USEPA EtO NESHAP background documents, 2 percent of total EtO usage can be expected to exhaust from the rear chamber. In the permit application it was assumed a worst case maximum of 5 percent could be exhausted out the rear chamber exhaust. Furthermore, there will be no more than 3 vessels actively venting via the rear chamber at the same time. Using these assumptions the maximum 24-hour concentration observed was 16.2 Fg/m³ which is below the 1/100 the

TLV. The second operating scenario is the period after the facility is in full compliance with NESHAP. This is the primary scenario presented in the Title V application where the catalytic oxidizer controls the rear chamber and aeration room exhausts and the scrubber controls the sterilizer main exhaust. All emissions of EO are controlled. The maximum 24 hour concentration was less than 5 Fg/m³. The third operating scenario is the use of a larger scrubber that would replace SN-58. The larger scrubber would control the rear chamber exhaust and sterilizer main exhaust and the aeration rooms would be controlled by the oxidizer. The maximum 24 hour concentration was less than 16 Fg/m³.

HMXDI Emissions

In the permit application the emission rate for HMXDI was shown to be 0.1 pounds per hour. Referring to test data, the concentration of HMXDI in the exhaust stack was below the instrument detection limit of 0.15 ppm. Assuming then an HMXDI concentration of 0.15 ppm to be absolute worst case, it is calculated that the resultant worst case emission rate to be 0.00744 grams per second. Using this flow rate a maximum 24-hour concentration was found to be 0.0238 Fg/m³ which is lower than 1/100 the TLV of 0.34 Fg/m³.

DEHP Emissions

Sources SN-89 and SN-90 were revised to reflect a more accurate proposed maximum DEHP emission rate of 0.5 lbs/hr for each source. The maximum 24-hour concentration was 40 Fg/m³ which is lower than 1/100 the TLV of 50 Fg/m³.

11. CALCULATIONS:

SN	Emission Factor Source	Emission Factor and units	Control Equipment Type	Control Equipment Efficiency	Comments
04 Dynosolve 180	Records	1600 lb/yr VOC	N/A	N/A	usage - waste = total emissions
04 HMXDI	Modeled & Testing	< 0.15 ppm	N/A	N/A	>99.9% prepolymer remains in the product
97 MEK	Max Usage	5 lb/hr	N/A	N/A	assume all evaporates
102	Max Usage	0.37 gMeCl/tube 4 MM units/yr	N/A	N/A	assume all evaporates
104	Max Usage	80 g/unit 2000 units/hr	N/A	N/A	using stack test data of HMXDI (SN-04), it follows that HMDI emissions would be < 99.99%

12. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
16 & 17 (while burning NG)	CO NOx	10 7E	initial test only	Carry over from previous permit
16 & 17 (while burning No. 2 fuel oil)	CO NOx	10 7E	12 months	Carry over from previous permit
41	PM/PM ₁₀	1-5	initial test only	Carry over from previous permit

13. 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)**
94	oxidation temperature	temperature monitor	continuously	N
16&17	visible emissions	EPA Reference Method 9	weekly	Y
41	visible emissions	EPA Reference Method 9	weekly	Y

* 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.

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SN	Recorded Item	Limit (as established in permit)	Frequency*	Report (Y/N)**
03, 105	Preventive maintenance	change filters	semi-annual	N
04 (AS #2)	Dynasolve CU-6 throughput	2,000 lb/yr	monthly	Y
(AS #3)	Dynasolve 180 throughput	4,000 lb/yr	monthly	Y
07 (AS #1)	Freon 113 consumption	4,000 lb/yr	monthly	Y
07 (AS #2)	HFE-7100 consumption	4,000 lb/yr	monthly	Y
07 (AS #1)	replacement of activated carbon	as needed	as needed	N
09	Isopropyl alcohol usage, waste collected, and emissions	emission = 6.9 lb/hr	monthly	Y
11-15, 57	EtO usage	331,000 lb/yr	monthly	Y
94	oxidation temperature	minimum of 10°F below baseline temperature	hourly average & 3-hr average	N
	actions taken during start-up, shut-down, or mal-function	as necessary	as necessary	Y
16 & 17	sulfur content of No. 2 fuel oil	Maximum = 0.5% sulfur (by weight)	with each shipment	N
	natural gas usage	1,012.8 MM ft ³ /yr	monthly	Y
	No.2 fuel oil usage	1.211 MM ft ³ /yr	monthly	Y
21	needle cover throughput	48 MM covers	monthly	Y
41	amount of waste plastic ground	11,700 tons/yr	monthly	Y
	Preventive maintenance	N/A	every 3 months	N
44	VOC content	24,000 lb/yr	monthly	N
	relative toxicity of HAPs	Maximum of 1.0	monthly	Y
	HAP content	12,000 lb/yr	monthly	Y
45	cannula throughput	70 MM/yr	monthly	Y
	Preventive maintenance	N/A	monthly	N
71	amount of steel plates cleaned	21,000 plates/yr	monthly	Y

SN	Recorded Item	Limit (as established in permit)	Frequency*	Report (Y/N)**
85	Varn usage	50 gal/yr	monthly	Y
89 & 90	DEHP throughput	39.2 MM lb/yr (4.75 MM gal/yr)	monthly	Y
93 & 99	hardwood pallet throughput	1,265,125 board ft/yr	monthly	Y
95	plastic pellets/tubing production	100 MM lb/yr	monthly	Y
	plastic sheeting production	150 MM lb/yr	monthly	Y
	DEHP throughput	39.2 MM lb/yr	monthly	Y
	MSDS for resins, plasticizers, solvents, and minor ingredients	N/A	N/A	N
	preventive maintenance of HEPA filters	activated carbon must be changed every 18 months	quarterly	N
97	VOC usage	440,000 lb/yr	monthly	Y
	MEK usage	5,000 lb/yr	monthly	Y
102	MeCl usage	4,000 lb/yr	monthly	Y
104	HMDI usage	963,000 lb/yr	monthly	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	Compliance Mechanism
16	5% (Natural Gas) 20 % (No.2 fuel oil)	Carry over from last permit	weekly observations & Ref. Method 9, when visible emissions are present
17	5% (Natural Gas) 20 % (No.2 fuel oil)	Carry over from last permit	weekly observations & Ref. Method 9, when visible emissions are present
41	5%	Carry over from last permit	weekly observations & Ref. Method 9, when visible emissions are present

16. DELETED CONDITIONS:

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

Former SC	Justification for removal
	None Removed

17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

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

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18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Lyndon Poole, P.E.