

**STATEMENT OF BASIS****Page 1 of 5**BAQ Engineering Services Division  
2600 Bull Street, Columbia, SC 29201  
Phone: 803-898-4123 Fax: 803-898-4079**Company Name:** Capsugel – Division of Pfizer  
**Permit Number:** CM-1240-0063**Permit Writer:** Jo Anna Cunningham  
**Date:** October 6, 2009**DATE APPLICATION RECEIVED:** July 16, 2009**DATE OF LAST INSPECTION:****FACILITY DESCRIPTION**

Capsugel – Division of Pfizer operates a production facility in Greenwood, SC for manufacturing gelatin capsules for the pharmaceutical industry. There are two 30.6 x 10<sup>6</sup> Btu/hr boilers, designated as B-1 and B-2. They are dual fuel type, capable of operating on either natural gas or No. 2 fuel oil, with natural gas being the primary fuel.

**ENVIRONMENTAL CONTACT:** Mark Abell (864) 942-6620**PROJECT DESCRIPTION** - This project is the renewal of the Conditional Major operating permit**CHANGES SINCE LAST OP ISSUANCE**

- i. Construction permit 1240-0063-CC was issued on July 18, 2006 - Increase the operating hours of Unit ID 04 (LiCAP/LVCAP process, existing machines #1, #2, and #3) from 6240 hours per year up to 8760 hours per year. Construct (2) two new LiCap/LVCap machines (#4 and #5) for the production of dietary supplements.
- ii. Exemption 1240-0063-07X was issued on August 28, 2008 for the Relocation of four (4) Vacuum Pumps (associated with Unit ID 01 Gelatin Capsule Printing Machines). The actual process associated with Unit ID 01 was not being modified. Relocation of the vacuum pumps did not cause an increase in the potential to emit of VOCs (39.24 tons per year) or the previously modeled methanol emission rates (9.38 lbs/day).
- iii. Exemption 1240-0063-06X was issued on July 19, 2007 for a Capsule Manufacturing Process Change (Drying) . Two (2) VCAPS Plus machines (HCM37 and HCM38 each with an associated roof top ventilation unit) was installed as part of this exemption process. The capsule drying process change is exempt from construction permit requirements per SC Regulation 61-62.1, Section II (B)(2)(g): sources emitting only steam, air, nitrogen, carbon dioxide, or any physical combination of these.
- iv. Exemption 1240-0063-05x was issued on March 28, 2007 for Five (5) Torit Dust Collectors (existing sources). The dust collectors are located in the following areas: Additives Preparation Area, Trim System Area, Detroit Mechanical Room, Capsule Grinding Area and the Buffer Station in the Moldbar Manufacturing Area.
- v. Exemption 1240-0063-03X was issued on May 24, 2004 for Tank T-01, a 76,300 gallon No. 2 Fuel Oil Storage Tank, to store fuel oil for back-up supply for the existing boilers.
- vi. Exemption 1240-0063-03X was issued on May 14, 2004 for a 360 gallon No. 2 Fuel Oil Tank and 160 hp Emergency Fire Pump Engine in the Fire Pump Building, and the addition of six Capsule Printing Machines for Capsugel – Division of Pfizer (1240-0063). The No. 2 fuel oil tank is exempt per SC Regulation 61-62.1, Section II, B (2)(h). The emergency fire pump is exempt per SC Regulation 61-62.1, Section II, F (2)(e).



**Company Name:** Capsugel – Division of Pfizer  
**Permit Number:** CM-1240-0063

**Permit Writer:** Jo Anna Cunningham  
**Date:** October 6, 2009

**SPECIAL CONDITIONS, MONITORING, LIMITS**

During the Technical review of the Capsugel Conditional Major renewal it was noted that the No. 2 fuel oil usage condition limits the facility-wide SO<sub>2</sub> emissions to less than 100 tons per year. The boiler operation condition also limits the facility-wide SO<sub>2</sub> emissions to less than 100 tons per year. Since both conditions are achieving the same thing, to clarify the permit, after receiving comments from the facility, the boiler operation condition has been removed in the renewal permit.

**PUBLIC NOTICE**

This project will require a 30-day public notice - the facility has requested to keep it's status as a conditional major source and limit it's potential to emit. The federally enforceable permit conditions and emissions limits will be carried over from the existing conditional major operating permit.

**EMISSIONS**

UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)				
ID	Pollutant	lb/hr	TPY	Method for Estimating Emissions
01 – Gelatin Capsule Printing	VOC's	8.96	39.24	Engineering Calculations
	Methanol	0.016	0.070	“ “
02 – Boiler 01	PM	0.755	3.3069	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	PM <sub>10</sub>	0.5142	2.2522	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	SO <sub>2</sub>	16.16	70.08	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	NO <sub>x</sub>	4.47	19.5786	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	CO	2.57	11.2566	AP-42, 5 <sup>th</sup> ed. Table 1.4-1, -2
	VOC	0.765	3.3507	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
03 - Boiler 02	PM	0.755	3.3069	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	PM <sub>10</sub>	0.5142	2.2522	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	SO <sub>2</sub>	16.16	70.08	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	NO <sub>x</sub>	4.47	19.5786	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
	CO	2.57	11.2566	AP-42, 5 <sup>th</sup> ed. Table 1.4-1, -2
	VOC	0.765	3.3507	AP-42, 5 <sup>th</sup> ed. Table 1.3-1, -2, -3, -6
04: LICAP Process Lines #1 thru #5	VOCs	3.72	16.30	Engineering Calculations
	Methanol	0.225	0.702	“ “

**Note:** There are no control devices for Unit ID's 01 – 04. The facility is required to limit the Facility-Wide potential to emit of SO<sub>2</sub> from the boilers by operating only one boiler at a time and by monitoring #2 fuel oil sulfur content and fuel oil usage.

ID 02, 03: Boiler emissions are based on the most conservative values between natural gas and #2 fuel oil, and emissions data provided by the facility.

ID 04: VOC emission factor was determined from stack test and sampling of the vacuum pumps.



**Company Name:** Capsugel – Division of Pfizer  
**Permit Number:** CM-1240-0063

**Permit Writer:** Jo Anna Cunningham  
**Date:** October 6, 2009

**SAMPLE CALCULATION**

**Unit ID 01 – Gelatin Capsule Printing**

Raw Material Data

- Isopropyl Alcohol- 5,500 gal/yr
- Ethanol (denatured) – 450 gal/yr
- Butyl alcohol – 2, 500 gal/yr
- Inks – 32,200 lb/yr

The complete printing process has the design capacity of 468 million capsules per year (based on 8760 operating hours per line per year) or approximately 17,800 capsules per line per operating hour. Process emissions are captured by the three vacuum pumps (a fourth vacuum pump is only for standby support) and vented to the atmosphere (vents VP-1, VP-2, VP-3).

PM emissions are not generated by the equipment. VOC emission sources were identified as alcohols used in the ink and equipment cleaning. Ink and alcohol maximum usage was used to calculate the Potential to Emit emissions as follows:

Solvent: Isopropyl Alcohol – 5,550 gallon/yr  
 VOC Content: 100%  
 Specific Gravity: 6.56 (lb/hr)

Algorithm: Usage (gal/yr) x %VOC x Specific Gravity (lb/gal) x 1 yr/8760 hr = VOC (lb/hr)  
 Calculation: 5,500 gal/yr x 1.0 x 6.56 (lb/gal) x 1 yr/8760 hr = 4.12 lb/hr

**HAP Methanol emissions are generated as a constituent found only with ethanol use.**

Maximum ethanol use = 450 gallon/yr at 6.66 lb/gallon  
 Methanol emissions (4.78% methanol in ethanol)  
 (450 gallon/yr) x (6.66 lb/gallon) x (0.0478 lb methanol/lb ethanol) = 143.2 lb Methanol/yr = 0.07 ton/year  
 Methanol emission rate at 8760 hr/yr = 0.016 lb/hr

FACILITY WIDE EMISSIONS		
Pollutant	Uncontrolled Emissions	Controlled Emissions
	TPY	TPY
PM	6.61	N/A
PM <sub>10</sub>	4.50	N/A
SO <sub>2</sub>	140.16	< 100*
NO <sub>x</sub>	39.1572	N/A
CO	22.51	N/A
VOC	62.24	N/A
Methanol	0.77	N/A

\* The SO<sub>2</sub> controlled facility wide emissions are based on a federally enforceable limit (fuel oil usage limit and operation of only one boiler at a time).



**Company Name:** Capsugel – Division of Pfizer  
**Permit Number:** CM-1240-0063

**Permit Writer:** Jo Anna Cunningham  
**Date:** October 6, 2009

**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations (PROJECT ONLY)</b>			
<b>Section II(E): Synthetic Minor</b>	X		Federally Enforceable facility wide emission limits and permit requirements, have been established (and will continue to remain in place) to limit the potential to emit SO <sub>2</sub> emissions to less than 100 tons per year). The facility shall continue to comply with the existing facility-wide limits.
<b>Section II(G): Conditional Major</b>	X		Federally enforceable limits on No. 2 fuel oil usage have been established (and will continue to remain in place) to ensure SO <sub>2</sub> emissions to less than 100 tons per year. The facility shall continue to comply with the existing facility-wide limits.
<b>Standard 1: Fuel Burning Operations</b>	X		Boiler 1 and 2 (Unit ID's 02, 03) are subject to the PM, SO <sub>2</sub> , and Opacity limits of this standard.
<b>Standard 2: Ambient Air Quality Standards</b>	X		This facility has demonstrated compliance through modeling; see modeling summary dated August 25, 2008; June 29, 2006. No operational restriction has been established to ensure compliance with the modeled emission rates.
<b>Standard 3: Waste Combustion/Reduction (state only)</b>		X	This process does not contain waste combustion or reduction sources.
<b>Standard 3.1: HMI Waste Incinerators</b>		X	No medical waste incineration.
<b>Standard 4: Emissions from Process Industries</b>	X		Unit IDs 01 and 04 are subject to the PM and opacity limitations of this standard.
<b>Standard 5: Volatile Organic Compounds</b>		X	The facility was not in existence in 1979 or 1980.
<b>Standard 5.1: BACT/LAER For VOC (state only)</b>		X	The facility wide PTE of VOCs is less than 100 tons per year. The facility is not subject to LAER.
<b>Standard 5.2: Control of Oxides of Nitrogen</b>		X	Not applicable to this facility. All fuel combustion sources were constructed prior to the effective date (June 25, 2004) of this regulation.
<b>Standard 7: Prevention of Significant Deterioration</b>		X	The facility's potential to emit is less than 250 TPY.
<b>Standard 7(c): Ambient Air Increments</b>		X	There are no minor source baselines established for PM <sub>10</sub> , NO <sub>x</sub> , and SO <sub>2</sub> for Greenwood County
<b>Standard 7.1: Standards for Non Attainment Areas</b>		X	This facility is located in an area which is in attainment.
<b>Standard 8: Toxic Air Pollutants (state only)</b>	X		This facility has demonstrated compliance through modeling; see modeling summary dated August 25, 2008; June 29, 2006.
<b>Regulation 61-62.6: Control of Fugitive Particulate Matter</b>		X	The processes at this facility do not generate fugitive PM emissions.
<b>Regulation 61-62.60: SC Designated Facility Plan and NSPS</b>	X		Boilers 1 and 2 (Unit ID's 02, 03) are subject to 40 CFR 60 Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units, as applicable.
<b>Regulation 61-62.61: NESHAP</b>		X	This process does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
<b>Regulation 61-62.63: NESHAP For Source Categories</b>		X	Not applicable to this facility.
<b>Regulation 61-62.68: Chemical Accident Prevention</b>		X	This facility does not store or use any chemicals which are regulated by the 112(r) regulation.



**Company Name:** Capsugel – Division of Pfizer  
**Permit Number:** CM-1240-0063

**Permit Writer:** Jo Anna Cunningham  
**Date:** October 6, 2009

**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>Regulation 61-62.70:</b> Title V		X	Federally enforceable limits on No. 2 fuel oil usage have been established (and will continue to remain in place) to limit the potential to emit of SO <sub>2</sub> to less than 100 tons per year, therefore this facility will not be major for Title V.
<b>Regulation 61-62.72:</b> Acid Rain		X	Not Applicable
<b>Regulation 61-62.96:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Trading Program		X	Not Applicable
<b>Regulation 61-62.99:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	Not Applicable

**Federal Regulations (PROJECT ONLY)**

NSPS (Part 60) Subpart(s)	X		Boilers 1 and 2 (Unit ID's 02, 03) are subject to 40 CFR 60 Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units, as applicable. The Standard 1 opacity requirements are more stringent than subpart Dc, therefore the permit contains only the Standard 1 opacity requirements
NESHAP (Part 61) Subpart(s)		X	This process does not emit the pollutants subject to this standard (asbestos, benzene, beryllium, coke oven emissions, arsenic, mercury, radio nuclide, radon, or vinyl chloride).
MACT (Part 63) Subpart(s)		X	This facility is not major for HAP emissions and does not emit any MACT area source pollutants.
Area Source Standards (Part 63) Subpart(s)		X	There are no area source Standards (Part 63) for this category.
Compliance Assurance Monitoring (CAM) (Part 64)		X	Not a Title V facility.

**SUMMARY AND CONCLUSIONS**

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.