

INTRODUCTION :

Foseco's AFAX production process consists of four emissions units linked together to produce a medium-fine powdery material used as a lubricant in the continuous casting of molten steel. These emissions units are: (1) a large, counter-current, hot air, spray dryer tower which includes an 11.7 mmBtu/hr gas heater; (2) a dry material weighing and pulp mixing operation for generating a slurry to feed the spray dryer; (3) a product screening/cooling operation; and (4) a bulk bagging operation. The uncontrolled PTE for these four sources combined is over 300 TPY; Foseco plans to install and operate high efficiency particulate control devices on each of the four emissions units. The spray dryer tower, the largest of the four emissions units in this process, will be controlled by a multi-clone/wet venturi scrubber to a BAT emissions level of 0.025 grains/dscf. The pulp mixing operation, with an uncontrolled PTE of over 100 TPY, will be controlled by a hood/single baghouse dust control system with a collection efficiency of 99 percent. The remaining smaller units (the screening/cooling system and the bulk bagging operation) will be controlled with cartridge filter and baghouse systems with collection efficiencies of 99 percent or better. Together, BAT controlled emissions from the four combined emissions units will be restricted to 12.47 TPY.

A. ADDITIONAL EMISSIONS LIMITATIONS AND/OR CONTROL MEASURES :

1. Per BAT requirements, the permittee shall install and operate, in accordance with all manufacturers specifications, the following emissions control systems on each of the emissions units comprising the AFAX production process:
 - a. On the spray dryer tower (P046), a multiple chamber cyclone, the exhaust of which shall be vented to a double column wet venturi scrubber emissions control system. The particulate emissions from this combination cyclone/scrubber system shall not exceed 0.025 grains/dscf. Absorption/collection of heater combustion gases shall be at least 95 percent;
 - b. On the dry material weighing/pulp mixing operation (P047), exhaust hoods over both the weighing area and pulp mixers with both exhausts venting to a common single baghouse with a stated minimum collection efficiency of 99 percent (per manufacturers specifications);
 - c. On the product screening/chiller-cooling operation, exhaust hoods venting to a cartridge filter dust control system with a stated minimum collection efficiency of 99.9 percent (manufacturers specifications); and
 - d. On the bulk bagging operation, an exhaust hood venting to a single baghouse dust control system with a stated minimum collection efficiency of 99 percent (manufacturers specifications).

B. OPERATIONAL RESTRICTIONS :

For Emissions Unit P046:

1. The control system (multiple chamber cyclone/venturi scrubber) installed to limit emissions from this emissions unit shall be operated at all times that the spray dryer tower is in operation. Any failure of any portion of this emissions control device, or any scheduled or unscheduled maintenance of this control system, shall be accompanied by the shut down of this portion of the AFAX production operation (emissions unit) for which the control device is the intended emissions control system.

2. The scrubber water supply pressure (psig) and water flow rate (gallons per minute) shall be continuously maintained at values of not less than those specified by the manufacturer at all times while the emissions unit is in operation.

[Note: Specific values for scrubber water pressure, water flow rate, or any other suitable scrubber control parameter, will be established during startup testing of this emissions unit and will be listed in the Permit to Operate for this source.]

For Emissions Units P047 and P049:

1. The control systems (exhaust hoods venting to single baghouse dust control systems) installed to limit emissions from these emissions units shall be operated at all times that either the dry material weighing/pulp mixing operation or the bulk bagging operation is in progress. Any failure of any portion of either of these emissions control devices, or any scheduled or unscheduled maintenance of either of these control systems, shall be accompanied by the shut down of the respective emissions units for which the control device is the intended emissions control system.
2. The pressure drop across either of these baghouse systems shall be maintained within the range (inches of water) specified by the manufacturer while the emissions unit is in operation.

For Emissions Unit P048:

1. The control system (exhaust hood and cartridge filter) installed to limit emissions from this emissions unit shall be operated at all times that the product screening and chiller-cooler operation is running. Any failure of any portion of this emissions control device, or any scheduled or unscheduled maintenance of this control system, shall be accompanied by the shut down of this portion of the AFAX production operation (emissions unit) for which the control device is the intended emissions control system.
2. The cartridge filter shall be cleaned and/or changed regularly in accordance with manufacturers specifications.

For All Emissions Units:

1. All operational failures and scheduled or unscheduled maintenance shut-downs of the emissions control systems associated with any emissions unit within this AFAX process shall be recorded in an operations/maintenance log kept on file at this facility.

C. MONITORING AND/OR RECORD KEEPING REQUIREMENTS :

For Emissions Unit P046:

1. The permittee shall properly install, operate and maintain equipment to monitor and record the water supply pressure and the water flow rate [and/or any other suitable parametric value as determined during initial performance testing which will indicate proper performance of this emissions control equipment) while the emissions unit is in operation. The monitoring devices and recorder(s) shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day:

- a. The water supply pressure, in psig, on a once per shift basis.
- b. The water flow rate, in gpm, on a once per shift basis.
- c. The value of any other operational parameter deemed necessary, on a once per shift basis.
- d. A log or record of operating time for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

[Note: The specific control device operational parameters to be recorded relative to determining operational compliance of the multi-clone/venturi scrubber system shall be determined from either the manufacturers specifications or from results of the initial control system efficiency test as required below.]

2. The permittee shall maintain records, on a weekly basis, which indicate the average daily amount of material processed through this emissions unit and the total daily production time (hours of operation) for this emissions unit.
3. The permittee shall measure and maintain a monthly record of the cumulative volume of natural gas consumed in the heater for this emissions unit.

For Emissions Units P047 and P049:

1. The permittee shall properly install, operate, and maintain equipment to monitor the pressure drop across the baghouse of each of these emissions units (P047 and P049) while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse on a once per shift basis.
2. The permittee shall maintain records, on a weekly basis, which indicate the average daily amount of material processed through each of these emissions units, as well as the total daily production time (hours of operation) for each of these operations.

For Emissions Unit P048:

1. The permittee shall maintain records, on a weekly basis, which indicate the average daily amount of material processed through this emissions unit, as well as the total daily production time (hours of operation) for this operation.

D. REPORTING REQUIREMENTS:

1. The permittee shall submit deviation (excursion or exceedance) reports that identify all periods of time during which any of the specified parametric values used to determine control system operational compliance were not maintained at or within prescribed levels. These reports shall include (but not be limited to) such operational and/or emissions limitation information as:
 - a. The period of time during which the water supply pressure, the water flow rate, or any other parametric value applicable to the proper operation of the scrubber associated with emissions unit P046 which is required to be recorded, is not maintained at or above the range/level required above.
 - b. The period of time during which the pressure drop across the baghouse dust control device associated with either emissions unit P047 or P049 did not comply with the range prescribed above.

Such report shall be sent to the Northeast District Office within 30 days following the end of the calendar month during which the emission or control compliance (usage, etc.) deviation occurred and shall include the date and time of the excursion, the nature of the deviation, and the corrective action taken to bring the control device back into compliance.

2. The permittee shall submit an annual report to the Northeast District Office which lists:
 - a. The total annual and average daily amount of material processed through each of these emissions units;
 - b. The total and average daily hours of operation of each of these emissions units; and
 - c. The total annual and average daily volume of natural gas burned in the spray dryer tower heater.

E. TESTING REQUIREMENTS:

Compliance with the emissions limitations stated in the terms and conditions of this permit shall be determined in accordance with the following methods:

1. Emissions limitation for Spray Dryer Tower, emissions unit P046:

- a. Emissions Limitation: 0.025 grains/dscf or 2.54 lbs/hour of particulate matter.

Applicable Compliance Method: Compliance shall be based on calculations using the emissions factor supplied by the manufacturer (maximum of 30 mg/dsm³) and/or the emissions rate established by the results of the initial compliance test and hourly operating time recorded and reported annually for this emissions unit/control device. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance with the particulate emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 5, and in OAC 3745-17-03(B)(7).

- b. Emissions Limitation: NO_x emissions shall not exceed 0.08 lb/hr and 0.35 TPY.

Applicable Compliance Method: Compliance shall be based upon calculations using the volume of gas burned in this spray dryer heater, the emissions factor (AP-42, table 1.4-1 & 1.4-2) of 140 pounds per million cubic feet of gas consumed, the hours of operation of this emissions unit/control device, and the assumption of 95 percent collection efficiency of the scrubber for this gas. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance with the NO_x emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 7 or 7E.

- c. Emissions Limitation: Carbon Monoxide emissions shall not exceed 0.02 lb/hr and 0.088 TPY.

Applicable Compliance Method: Compliance shall be based upon calculations using the volume of gas burned in this spray dryer heater, the emissions factor (AP-42, table 1.4-1 & 1.4-2) of 3.5 pounds per million cubic feet of gas consumed, the hours of operation of this emissions unit/control device, and the assumption of 95 percent collection efficiency of the scrubber for this gas. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance with the CO emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 10.

- d. Emissions Limitations: Visible particulate emissions from the exhaust stack serving this emissions unit/control device shall not exceed ten (10) percent opacity, as a six-minute average, more than once any sixty-minute period.

Applicable Compliance Method-- Compliance shall be determined through visible emission observations in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

2. Emissions for the Dry Material Weighing/Pulp Mixing emissions unit P047:

- a. Emissions Limitation: 0.29 pound per hour of particulate emissions.

Applicable Compliance Method: Calculations based upon an emissions factor of 7.0 lbs/ton of material processed (AP-42, Section 10.2-1), the daily average weight of material processed and the daily hours of operation recorded and reported annually, and an assumed collection efficiency of 99 percent (per manufacturers specifications) for the emissions control device employed on this emissions unit. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance

with the particulate emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 5, and in OAC 3745-17-03(B) (7) .

- b. Emissions Limitations: Visible particulate emissions from the exhaust stack serving this emissions unit/control device shall not exceed ten (10) percent opacity, as a six-minute average, more than once any sixty-minute period.

Applicable Compliance Method-- Compliance shall be determined through visible emission observations in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B) (1) .

- 3. Emissions from the Screening/Chiller-Cooling emissions unit P048:

- a. Emissions Limitation: 0.0005 pound per hour of particulate emissions.

Applicable Compliance Method: Calculations based upon an emissions factor of 0.11 lb/ton of material processed (AP-42, Section 11.7), the daily average weight of material processed and the daily hours of operation recorded and reported annually, and an assumed collection efficiency of 99.9 percent (per manufacturers specifications) for the emissions control device employed on this emissions unit. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance with the particulate emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 5, and in OAC 3745-17-03(B) (7) .

- b. Emissions Limitations: Visible particulate emissions from the exhaust stack serving this emissions unit/control device shall not exceed ten (10) percent opacity, as a six-minute average, more than once any sixty-minute period.

Applicable Compliance Method-- Compliance shall be determined through visible emission observations in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B) (1) .

- 4. Emissions from the Bulk Bagging emissions unit P049:

- a. Emissions Limitation: 0.01 pound per hour of particulate emissions.

Applicable Compliance Method: Calculations based upon an emissions factor of 0.2 lb/ton of material processed [RACM (1980 Edition), Table 2.12-1, page 2-282] , the daily average weight of material processed and the daily hours of operation recorded and reported annually, and an assumed collection efficiency of 99 percent (per manufacturers specifications) for the emissions control device employed on this emissions unit. If required pursuant to OAC 3745-15-04, the permittee shall demonstrate compliance with the particulate emissions limits of this permit by means of physical testing of the effluent from this emissions unit in accordance with testing procedures listed in 40 CFR Part 60, "Standards of Performance for New Stationary Sources", Appendix A, Method 5, and in OAC 3745-17-03(B) (7) .

- b. Emissions Limitations: Visible particulate emissions from the exhaust stack serving this emissions unit/control device shall not exceed ten (10) percent opacity, as a six-minute average, more than once any sixty-minute period.

Applicable Compliance Method-- Compliance shall be determined through visible emission observations in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B) (1).

F. **MISCELLANEOUS REQUIREMENTS :**

1. Emissions Control Equipment Testing:

- a. The multi-clone/wet venturi scrubber system required to control particulate emissions from the spray-dryer tower, emissions unit P046, shall be tested for on line efficiency under maximum operating conditions within 60 days of reaching full operating potential but no later than 180 days of emissions unit start-up. This test shall determine particulate loading at both the inlet and outlet of the combination multi-clone/venturi scrubber under maximum operating conditions. Test results shall be used to demonstrate compliance with specific emissions limits listed above prior to granting the initial Permit to Operate for this emissions unit.
- b. Data from these initial compliance tests shall also be used to determine specific operating parameters which shall be inserted in the Permit to Operate as daily monitoring/recording requirements to establish whether or not this control device remains in compliance with the emissions limitations listed in this permit.
- c. Stack emissions tests shall be conducted in accordance with appropriate test methods specifically listed in 40 CRF Part 60, Appendix A, Method 5, "Determination of Particulate Emissions from Stationary Sources". An acceptable test result will be one which indicates an hourly particulate emissions rate of 2.55 pounds per hour or less.
- d. Per OAC rule 3745-15-04, the Ohio EPA, Northeast District Office, shall be properly notified by the permittee of the intent to conduct these initial compliance emissions tests, be provided with the opportunity to witness these tests, and further be provided with a report of the complete results of these tests within thirty (30) days of the test date.