

combination of ammonia and sulfuric acid.

§ 60.422 Standards for particulate matter.

On or after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator of an ammonium sulfate dryer subject to the provisions of this subpart shall cause to be discharged into the atmosphere, from any ammonium sulfate dryer, particulate matter at an emission rate exceeding 0.15 kilogram of particulate per megagram of ammonium sulfate produced (0.30 pound of particulate per ton of ammonium sulfate produced) and exhaust gases with greater than 15 percent opacity.

§ 60.423 Monitoring of operations.

(a) The owner or operator of any ammonium sulfate manufacturing plant subject to the provisions of this subpart shall install, calibrate, maintain, and operate flow monitoring devices which can be used to determine the mass flow of ammonium sulfate feed material streams to the process. The flow monitoring device shall have an accuracy of ± 5 percent over its range. However, if the plant uses weigh scales of the same accuracy to directly measure production rate of ammonium sulfate, the use of flow monitoring devices is not required.

(b) The owner or operator of any ammonium sulfate manufacturing plant subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the emission control system. The monitoring device shall have an accuracy of ± 5 percent over its operating range.

§ 60.424 Test methods and procedures.

(a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) The owner or operator shall determine compliance with the particulate matter standards in § 60.422 as follows:

(1) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_s Q_{sd}) / (PK)$$

where:

E=emission rate of particulate matter, kg/Mg (lb/ton) of ammonium sulfate produced.

c_s =concentration of particulate matter, g/dscm (g/dscf).

Q_{sd} =volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

P=production rate of ammonium sulfate, Mg/hr (ton/hr).

K=conversion factor, 1000 g/kg (453.6 g/lb).

(2) Method 5 shall be used to determine the particulate matter concentration (c_s) and volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 1.50 dscm (53 dscf).

(3) Direct measurement using product weigh scales or computed from material balance shall be used to determine the rate (P) of the ammonium sulfate production. If production rate is determined by material balance, the following equations shall be used:

(i) For synthetic and coke oven by-product ammonium sulfate plants:

$$P = ABCK^{1/4}$$

where:

A=sulfuric acid flow rate to the reactor/crystallizer averaged over the time-period taken to conduct the run, liter/min.

B=acid density (a function of acid strength and temperature), g/cc.

C=acid strength, decimal fraction.

$K^{1/4}$ =conversion factor, 0.0808 (Mg-min-cc)/(g-hr-liter) [0.0891 (ton-min-cc)/(g-hr-liter)].

(ii) For caprolactam by-product ammonium sulfate plants:

$$P = DEFK''$$

where:

D=total combined feed stream flow rate to the ammonium crystallizer before the point where any recycle streams enter the stream averaged over the time-period taken to conduct the test run, liter/min.

E=density of the process stream solution, g/liter.

F=percent mass of ammonium sulfate in the process solution, decimal fraction.

K'' =conversion factor, 6.0×10^{-5} (Mg-min)/(g-hr) [6.614×10^{-5} (ton-min)/(g-hr)].