

## 2.4 Nitric Acid Plants

### 2.4.1 Applicability and Designation of Affected Facility

The provisions of this source category are applicable to each nitric acid production unit, which is the affected facility.

### 2.4.2 Test Methods and Procedures

(a) In conducting the performance tests required in Section 1.2, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of this text or other methods and procedures as specified in this section, except as provided in Section 1.2, paragraph 2. Acceptable alternative methods and procedures are given in paragraph (c) of this section.

(b) The owner or operator shall determine compliance with the NO<sub>x</sub> standard as follows:

(1) The emission rate (E) of NO<sub>x</sub> shall be computed for each run using the following equation:

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

Where:

E = emission rate of NO<sub>x</sub> as NO<sub>x</sub>, kg/metric ton (lb/ton) of 100 percent nitric acid.

C<sub>s</sub> = concentration of NO<sub>x</sub> as NO<sub>x</sub>, g/dscm (lb/dscf).

Q<sub>sd</sub> = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

P = acid production rate, metric ton/hr (ton/hr) or 100 percent nitric acid.

K = conversion factor, 1000 g/kg (1.0 lb/lb).

(2) Method 7 shall be used to determine the NO<sub>x</sub> concentration of each grab sample. Method 1 shall be used to select the sampling site, and the sampling point shall be the centroid of the stack or duct or at a point no closer to the walls than 1 m (3.28 ft). Four grab samples shall be taken at approximately 15-minute intervals. The arithmetic mean of the four sample concentrations shall constitute the run value (C<sub>s</sub>).

(3) Method 2 shall be used to determine the volumetric flow rate (Q<sub>sd</sub>) of the effluent gas. The measurement site shall be the same as for the NO<sub>x</sub> sample. A velocity traverse shall be made once per run within the hour that the NO<sub>x</sub> samples are taken.

(4) The methods of Section 2.4.3 shall be used to determine the production rate (P) of 100 percent nitric acid for each run. Material balance over the production system shall be used to confirm the production rate.

(c) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For Method 7, Method 7A, 7B, 7C, or 7D may be used. If Method 7C or 7D is used, the sampling time shall be at least 1 hour.

(d) The owner or operator shall use the procedure in Section 2.4.3(b) to determine the conversion factor for converting the monitoring data to the units of the standard.

### 2.4.3 Emission Monitoring

(a) The source owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides (NO<sub>x</sub>). The pollutant gas mixtures under Performance Specification 2 and for calibration checks under Section 1.4(d) of this part shall be nitrogen dioxide (NO<sub>2</sub>). The span value shall be 500 ppm of NO<sub>2</sub>. Method 7 shall be used for the

performance evaluations under Section 1.4(c). Acceptable alternative methods to Method 7 are given in Section 2.4.2(c).

- (b) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/ton). The conversion factor shall be established by measuring emissions with the continuous monitoring system concurrent with measuring emissions with the applicable reference method tests. Using only that portion of the continuous monitoring emission data that represents emission measurements concurrent with the reference method test periods, the conversion factor shall be determined by dividing the reference method test data averages by the monitoring data averages to obtain a ratio expressed in units of the applicable standard to units of the monitoring data, i.e., kg/metric ton per ppm (lb/ton per ppm). The conversion factor shall be re-established during any performance test under Section 1.3 or any continuous monitoring system performance evaluation under Section 1.5, paragraph 2.
- (c) The owner or operator shall record the daily production rate and hours of operation.
- (d) [Reserved]
- (e) For the purpose of reports required under Section 1.5 paragraph 3, periods of excess emissions that shall be reported are defined as any three-hour period during which the average nitrogen oxides emissions (arithmetic average of three contiguous one-hour periods) as measured by a continuous monitoring system exceed the standard.