

## **RULE 2.42 NITRIC ACID PRODUCTION**

**ADOPTED** May 13, 2009

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## 100 GENERAL

- 101 **PURPOSE:** The purpose of this rule is to limit nitrogen oxide (NO<sub>x</sub>) and visible emissions from nitric acid production facilities.
- 102 **APPLICABILITY:** The provisions of this rule are applicable to weak nitric acid production facilities.
- 103 **SEVERABILITY:** If any provision, clause, sentence, paragraph, section or part of this rule for any reason is judged to be unconstitutional or invalid, such judgement shall not affect or invalidate the remainder of the rule.
- 104 **VIOLATIONS:** Failure to comply with any provision of this Rule shall constitute a violation of this rule.
- 110 **EXEMPTION - EQUIPMENT STARTUP AND SHUTDOWN:** The provisions of Section 301 and 302 shall not apply to any nitric acid production facilities during periods of equipment startup or shutdown, provided that the frequency and duration of these periods and the associated emissions are minimized to the maximum extent practicable.

## 200 DEFINITIONS

- 201 **EMISSION CONTROL SYSTEM:** The control device(s) and continuous emission monitoring system used to reduce and monitor NO<sub>x</sub> emission concentrations created during the production of weak nitric acid.
- 202 **NITRIC ACID PRODUCTION FACILITY:** An operation that manufactures weak nitric acid either by the pressure or atmospheric pressure process.
- 203 **NITROGEN OXIDE (NO<sub>x</sub>) EMISSIONS:** The sum of nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>) in the exhaust gas stream, expressed as NO<sub>2</sub>.
- 204 **NO<sub>x</sub> COMPLIANCE LIMIT:** Allowable NO<sub>x</sub> emissions expressed in pounds of nitrogen dioxide (NO<sub>2</sub>) emitted per ton of nitric acid produced (lb NO<sub>x</sub>/ton HNO<sub>3</sub>), where the production is expressed as 100% nitric acid by mass.
- 205 **OPERATING SYSTEM PARAMETERS:** Operating parameters that the Air Pollution Control Officer (APCO) has deemed necessary for analysis when determining compliance, including, but not limited to, daily nitric acid production rate, average daily nitric acid strength, NO<sub>x</sub> emission rates, and hours of operation.
- 206 **SHUTDOWN PERIOD:** The period of time after feedstock is no longer introduced in a nitric acid production unit. The shutdown period is not to include the time required to cool down the control equipment and shall not exceed three (3) hours.
- 207 **STARTUP PERIOD:** The period of time between when feedstock is introduced into the nitric acid production process and the equipment achieves the proper operating

temperature and stable operating conditions. The startup period is not to include the time required to preheat the control equipment and shall not exceed three (3) hours.

- 208 **WEAK NITRIC ACID:** Nitric acid with a strength between 30% and 70% (by mass).

### 300 STANDARDS

- 301 **NO<sub>x</sub> EMISSION LIMITATION:** The owner or operator of an affected facility shall not operate such equipment which results in measured NO<sub>x</sub> (expressed as NO<sub>2</sub>) emissions exceeding 3.0 lb/ton HNO<sub>3</sub> produced (being expressed as 100% nitric acid by mass) averaged over a three (3) hour rolling period.

- 302 **OPACITY LIMITATIONS:** No activity associated with the nitric acid manufacturing process shall discharge into the atmosphere any air contaminant for a period or periods aggregating more than three (3) minutes in any one (1) hour which is:

302.1 Half as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

302.2 Of such opacity as to obscure an observer's view to a degree equal to or greater than smoke as described in subsection 302.1 or 10% opacity.

- 303 **CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The owner or operator of an affected facility shall install, calibrate, maintain, and operate a Continuous Emission Monitoring System (CEMS) for measuring NO<sub>x</sub> emission concentrations.

303.1 The CEMS shall comply with the requirements specified in 40 Code of Federal Regulations Part 60, Appendix B, Specification 2 or other alternative methods approved by the U.S. EPA and the District.

303.2 The CEMS shall be calibrated and checked using a NO<sub>2</sub> span gas with a value between 450 and 500 ppmv, or other alternative methods approved by the U.S. EPA and the District.

- 304 **SOURCE TESTING:** All facilities subject to the provisions of this Rule shall perform a source test to verify compliance with the requirements of Section 301 and 302 at least once every twelve (12) continuous calendar months, in accordance with a District-approved protocol and the test methods listed in Section 600 of this Rule.

### 400 ADMINISTRATIVE REQUIREMENTS

- 401 **COMPLIANCE SCHEDULE:** The owner or operator of an affected facility shall demonstrate full compliance with all provisions by July 1, 2009.

402 **EMISSION CONTROL SYSTEM AND CEMS OPERATING AND MAINTENANCE PLAN:** The owner or operator of an affected facility shall submit an Operations and Maintenance (O&M) Plan for the emission control device and the CEMS to the APCO for approval. The plan shall include:

402.1 The procedures for collecting and recording required data and other information in a form approved by the APCO.

402.2 The procedures and schedules for preventive and corrective maintenance performed for the purpose of maintaining both the emission control device and the CEMS in proper operating condition.

## 500 **REPORTING AND RECORDKEEPING**

501 **REPORTING:** All records required by this Rule shall be maintained on-site for a period of five (5) years and made available to the APCO upon request.

502 **RECORDKEEPING:** The owner or operator of an affected facility shall maintain an operating log for the facility that includes, on a daily basis:

502.1 The actual startup and shutdown time;

502.2. Total hours of operation, amount of nitric acid produced (expressed as 100% acid strength);

502.3 Operating system parameters;

502.4 The exhaust gas NO<sub>x</sub> concentrations in parts per million volume (ppmv) on a dry basis; and

502.5 The exhaust gas NO<sub>x</sub> emission rate in lb/ton HNO<sub>3</sub> per three (3) hour rolling average.

## 600 **TEST METHODS AND CALCULATIONS:**

601 **NO<sub>x</sub> EMISSION CONCENTRATION:** NO<sub>x</sub> emission concentrations shall be determined in accordance with U.S. EPA Method 7, or alternative methods approved by the U.S. EPA and the District.

602 **NO<sub>x</sub> EMISSION RATE:** The NO<sub>x</sub> emission rate used to demonstrate compliance with the NO<sub>x</sub> compliance limit of this Rule shall be calculated using the equation contained in 40 CFR Part 60.74(b)(1).

603 **NO<sub>x</sub> EMISSION CONVERSION FACTOR:** The owner or operator of an affected facility shall calculate an emission conversion factor for the purpose of converting the NO<sub>x</sub> CEMS data (in ppmv) into the units of the applicable NO<sub>x</sub> compliance limit (in lb/ton) using the data from the most recent source test submitted to, and approved by, the District. The emission conversion factor shall:

- 603.1 Be calculated using the CEMS and source test data pertaining to the same operating time frame.
  - 603.2 Be calculated by dividing the source test data averages (in lb/ton) by the corresponding CEMS data averages (in ppmv) to obtain a conversion factor expressed in the units of lb/ton per ppmv.
  - 603.3 Be reestablished during any source test event performed pursuant to the requirements of Section 304 of this Rule.
- 604 **OPACITY:** Visible emission evaluations shall be determined in accordance with U.S. EPA Method 9, or alternative methods approved by the U.S. EPA and the District.