

**RULE 425.3 Portland Cement Kilns (Oxides of Nitrogen)** - Adopted 10/13/94, Amended 3/8/18, 11/13/24

**I. Purpose**

The purpose of this Rule is to limit nitrogen oxide (NO<sub>x</sub>) emissions from Portland cement kilns.

**II. Applicability**

Provisions of this Rule shall apply to all Portland cement manufacturing facilities operating in the Eastern Kern Air Pollution Control District (District).

**III. Definitions**

- A. 30-Operating Day Rolling Average: Total of all hourly emissions data (in pounds) fuel was combusted in a cement kiln, in the preceding 30 operating-days, divided by the total number of tons of clinker produced in that kiln during the same 30-day period.
- B. Clinker: The product of feedstock sintered in a kiln which is then ground and mixed with additives to make cement.
- C. Continuous Emissions Monitoring System (CEMS): An instrument satisfying the requirements of 40 CFR, Part 60.
- D. Kiln: Any device including associated preheater and precalciner devices that produce clinker by heating limestone and other raw materials for subsequent production of Portland cement.
- E. Nitrogen Oxide (NO<sub>x</sub>) Emissions: The sum of nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>) in the flue gas, collectively expressed as nitrogen dioxide.
- F. Operating Day: A calendar day during which Portland cement is manufactured by the kiln. An operating day includes all valid data obtained in any daily 24-hour period during which the kiln operates and excludes any measurements made during the daily 24-hour period when the kiln was not operating or was in startup or shutdown.
- G. Portland Cement: A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an interground addition.
- H. Portland Cement Manufacturing Facility: Any facility that produces Portland cement or associated products, as defined in the Standard Industrial Classification Manual as Industry Number 3241, Portland Cement Manufacturing.

- I. Shutdown: The cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases.
- J. Startup: The time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first.

#### IV. Requirements

- A. Emissions Limits: The owner or operator of a Portland cement kiln subject to this Rule, shall not exceed the following NOx emission limits:
  - 1. 2.8 lb/ton of clinker produced over a 30 operating-day rolling average, excluding periods of startup and shutdown as defined in this rule: and
  - 2. 21,528 lb/day only during periods of startup or shutdown as defined in this rule.
- B. Emissions Monitoring: The owner or operator of a Portland cement manufacturing facility shall provide, properly install, maintain, calibrate, and operate a continuous emission monitoring system (CEMS), as defined in Section III.C., for each emission point from the kiln.
- C. Production Monitoring: The owner or operator of a Portland cement manufacturing facility shall determine hourly clinker production by one of the following two methods:
  - 1. Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of clinker produced. The system of measuring hourly clinker production must be maintained within  $\pm 5$  percent accuracy; or
  - 2. Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of feed to the kiln. The system of measuring feed must be maintained within  $\pm 5$  percent accuracy. Calculate the hourly clinker production rate using a kiln specific feed to clinker ratio based on reconciled clinker production determined for accounting purposes and recorded feed rates. This ratio must be updated monthly. Note that if this ratio changes at clinker reconciliation, the new ratio must be used going forward, but a retroactive change in clinker production rates previously estimated is not required.

## V. Administrative Requirements

- A. Annual Demonstration of Compliance: The owner or operator of a Portland cement manufacturing facility shall demonstrate compliance with this Rule by conducting annual testing, not more than 13 months after the most recently conducted testing, pursuant to the following test methods:
1. NO<sub>x</sub> stack testing for purposes of this Rule shall be conducted using EPA Test Method 7E.
  2. Stack gas flow rate testing for purposes of this Rule shall be conducted using EPA Test Method 2.
  3. Any owner or operator of a kiln subject to this Rule shall convert observed NO<sub>x</sub> concentrations to a mass emission rate using the following formula (for purposes of this calculation, standard conditions are @ 68° F and 29.92 inches Hg):  
  
$$\text{lb/hr} = 7.1497 \times 10^{-6} (\text{ppmv})(\text{dscfm})$$
  
  
Parts Per Million by Volume: (ppmv)  
  
Dry Standard Cubic Feet per Minute: (dscfm)
  4. For the purposes of this Rule, NO<sub>x</sub> shall be calculated as NO<sub>2</sub> on a dry basis.
- B. Recordkeeping: Any owner or operator subject to the requirements of this Rule shall maintain records of the following:
1. Results of any testing conducted to determine compliance with this Rule as specified in Section V.A.
  2. Daily clinker production rates and kiln feed rates. During each quarter of operation, you must determine, record, and maintain the ongoing accuracy of the system of measuring hourly clinker production (or feed mass flow).
  3. Calculated NO<sub>x</sub> emission rates from the kiln in lbs/ton of clinker produced for each day of operation of the kiln.
  4. Results of performance testing, evaluations, calibrations, checks, adjustments, and maintenance of CEMS required by this rule.
  5. Date, time, duration, and calculated NO<sub>x</sub> emission rates from the kiln in lbs/day, for each period of startup or shutdown.

Such records shall be retained for a minimum of 60 months from date of entry and be made available to District staff upon request.

C. Reporting: Any owner or operator subject to this Rule shall meet the following reporting requirements:

1. Report to the APCO: date, time, duration, magnitude, nature and cause (if known), and corrective action taken of any exceedance.
2. At least every six (6) calendar months, the owner or operator shall submit an excess emissions and continuous monitoring system performance report to the APCO according to 40 CFR 60.7(c). The report shall cover each continuous monitoring system required by Section IV. An excess emission occurs for any unit operating period in which the requirements in Section IV.A are not met. This semi-annual monitoring report may be aligned with the due dates of other reporting requirements to avoid duplication (e.g., semiannual compliance reporting required by title V of the federal Clean Air Act).
3. For each performance test conducted, the owner or operator shall submit a test protocol to the APCO 30 days prior to any testing and submit a performance test report to the APCO within 60 days of completion of the testing.

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