§ 98.263 Calculating GHG emissions.
You must calculate and report the annual process CO₂ emissions from each wet-process phosphoric acid process line using the procedures in either paragraph (a) or (b) of this section.

(a) Calculate and report under this subpart the process CO₂ emissions by operating and maintaining a CEMS according to the Tier 4 Calculation Methodology specified in §98.33(a)(4) and all associated requirements for Tier 4 in subpart C of this part (General Stationary Fuel Combustion Sources).

(b) Calculate and report under this subpart the process CO₂ emissions using the procedures in paragraphs (b)(1) and (b)(2) of this section.

(1) Calculate the annual CO₂ mass emissions from each wet-process phosphoric acid process line using the methods in paragraphs (b)(1)(i) or (ii) of this section, as applicable.

(i) If your process measurement provides the inorganic carbon content of phosphate rock as an output, calculate and report the process CO₂ emissions from each wet-process phosphoric acid process line using Equation Z-1a of this section:

$$E_m = \sum_{i=1}^{b} \sum_{n=1}^{z} (IC_{n,i} \times P_{n,i}) \times \frac{2000 \times 44}{2205 \times 12} \quad \text{(Eq. Z-1a)}$$

where:

- $E_m =$ Annual CO₂ mass emissions from a wet-process phosphoric acid process line m (metric tons).
- $IC_{n,i} =$ Inorganic carbon content of a grab sample batch of phosphate rock by origin i obtained during month n, from the carbon analysis results (percent by weight, expressed as a decimal fraction).
- $P_{n,i} =$ Mass of phosphate rock by origin i consumed in month n by wet-process phosphoric acid process line m (tons).
§ 98.264 Monitoring and QA/QC requirements.

(a) You must obtain a monthly grab sample of phosphate rock directly from the rock being fed to the process line before it enters the mill using one of the following methods. You may conduct the representative bulk sampling using a method published by a consensus standards organization, or you may use industry consensus standard practice methods, including but not limited to the Phosphate Mining States Methods Used and Adopted by the Association of Fertilizer and Phosphate Chemists (AFPC) (P.O. Box 1645, Bartow, Florida 33831, (863) 534–9755, http://afpc.net, paul.mcafee@mosaicco.com). If phosphate rock is obtained from more than one origin in a month, you must obtain a sample from each origin of rock or obtain a composite representative sample.

(b) You must determine the carbon dioxide or inorganic carbon content of each monthly grab sample of phosphate rock (consumed in the production of

\[ E_m = \sum_{i=1}^{b} \sum_{n=1}^{z} \left( \text{CO}_2_{n,i} \ast \frac{P_{n,i}}{100} \right) \ast \frac{\text{Conversion factor}}{\text{Conversion factor}} \]  

(Eq. Z-1b)

where:

- \( E_m \) = Annual \text{CO}_2 mass emissions from a wet-process phosphoric acid process line \( m \) according to this Equation Z-1b (metric tons).
- \( \text{CO}_2_{n,i} \) = Carbon dioxide emissions of a grab sample batch of phosphate rock by origin \( i \) obtained during month \( n \) (percent by weight, expressed as a decimal fraction).
- \( P_{n,i} \) = Mass of phosphate rock by origin \( i \) consumed in month \( n \) by wet-process phosphoric acid process line \( m \) (tons).
- \( z \) = Number of months during which the process line \( m \) operates.
- \( b \) = Number of different types of phosphate rock in month, by origin. If the grab sample is a composite sample of rock from more than one origin, \( b = 1 \).
- \( \frac{1000}{2205} \) = Conversion factor to convert tons to metric tons.

(2) You must determine the total emissions from the facility using Equation Z-2 of this section:

\[ \text{CO}_2 = \sum_{m=1}^{p} \frac{E_m}{\text{Conversion factor}} \]  

(Eq. Z-2)

Where:

- \( \text{CO}_2 \) = Annual process \text{CO}_2 emissions from phosphoric acid production facility (metric tons/year).
- \( E_m \) = Annual process \text{CO}_2 emissions from wet-process phosphoric acid process line \( m \) (metric tons/year).
- \( p \) = Number of wet-process phosphoric acid process lines.

(c) If GHG emissions from a wet-process phosphoric acid process line are vented through the same stack as any combustion unit or process equipment that reports \text{CO}_2 emissions using a CEMS that complies with the Tier 4 Calculation Methodology in subpart C of this part (General Stationary Fuel Combustion Sources), then the calculation methodology in paragraph (b) of this section shall not be used to calculate process emissions. The owner or operator shall report under this subpart the combined stack emissions according to the Tier 4 Calculation Methodology in §98.39(a)(4) and all associated requirements for Tier 4 in subpart C of this part.