



Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments

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**Subpart Z—Phosphoric Acid
Production**

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Subpart Z—Phosphoric Acid Production

**U. S. Environmental Protection Agency
Office of Atmosphere Programs
Climate Change Division
Washington, D.C.**

FOREWORD

This document provides EPA's responses to public comments on EPA's Proposed Mandatory Greenhouse Gas Reporting Rule. EPA published a Notice of Proposed Rulemaking in the Federal Register on April 10, 2009 (74 FR 16448). EPA received comments on this proposed rule via mail, e-mail, facsimile, and at two public hearings held in Washington, DC and Sacramento, California in April 2009. Copies of all comments submitted are available at the EPA Docket Center Public Reading Room. Comments letters and transcripts of the public hearings are also available electronically through <http://www.regulations.gov> by searching Docket ID *EPA-HQ-OAR-2008-0508*.

Due to the size and scope of this rulemaking, EPA prepared this document in multiple volumes, with each volume focusing on a different subject area of the rule. This volume of the document provides EPA's responses to the significant public comments received for 40 CFR Part 98, Subpart Z—Phosphoric Acid Production.

Each volume provides the verbatim text of comments extracted from the original letter or public hearing transcript. For each comment, the name and affiliation of the commenter, the document control number (DCN) assigned to the comment letter, and the number of the comment excerpt is provided. In some cases the same comment excerpt was submitted by two or more commenters either by submittal of a form letter prepared by an organization or by the commenter incorporating by reference the comments in another comment letter. Rather than repeat these comment excerpts for each commenter, EPA has listed the comment excerpt only once and provided a list of all the commenters who submitted the same form letter or otherwise incorporated the comments by reference in table(s) at the end of each volume (as appropriate).

EPA's responses to comments are generally provided immediately following each comment excerpt. However, in instances where several commenters raised similar or related issues, EPA has grouped these comments together and provided a single response after the first comment excerpt in the group and referenced this response in the other comment excerpts. In some cases, EPA provided responses to specific comments or groups of similar comments in the preamble to the final rulemaking. Rather than repeating those responses in this document, EPA has referenced the preamble.

While every effort was made to include significant comments related to 40 CFR Part 98, Subpart Z—Phosphoric Acid Production in this volume, some comments inevitably overlap multiple subject areas. For comments that overlapped two or more subject areas, EPA assigned the comment to a single subject category based on an assessment of the principle subject of the comment. For this reason, EPA encourages the public to read the other volumes of this document with subject areas that may be relevant to 40 CFR Part 98, Subpart Z—Phosphoric Acid Production.

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SUBPART Z—PHOSPHORIC ACID PRODUCTION

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Edgar O. Morris

Commenter Affiliation: Mosaic Fertilizer Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0687.1

Comment Excerpt Number: 11

Comment: EPA proposes that GHG emissions associated with phosphoric acid production be calculated for each "process line." See proposed 40 C.F.R. §§ 98.260, 98.262(a) & 98.263. The proposal does not define "process line," creating a potential ambiguity. Mosaic suggests that the reporting requirements be further specified by defining "process line" to make the requirements consistent with current reporting under the New Source Performance Standards ("NSPS") and the Hydrogen Fluoride Maximum Achievable Control Technology ("HF MACT"), where emissions are currently reported in connection with phosphoric acid plant emission unit identification numbers. This will promote clarity, maintain consistency with current Clean Air Act regulatory control, and avoid an unnecessary duplication of reporting requirements. Specifically, Mosaic proposes the following revision to define "process line": § 98.260 Definition of source category. The phosphoric acid production source category consists of facilities with a wet process phosphoric acid process line used to produce phosphoric acid. A wet process phosphoric acid line is any system of operation that manufactures phosphoric acid by reacting phosphate rock and acid. "Process line" means the phosphoric acid production unit or units identified or assigned an individual identification number in a Clean Air Act operating permit and/or any process unit or group of process units at a facility using phosphate rock from a common supply source.

Response: We appreciate the comment and have updated §98.260 to clarify the definition of a wet-process phosphoric acid process line in terms of process unit definitions in existing operating permits for consistency with existing regulatory requirements.

2. REPORTING THRESHOLD

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 19

Comment: EPA should not include phosphoric acid production units as de facto (i.e., "all-in") regulated facilities. These facilities are very minor sources of GHG emissions. While most (if not all) would still fall within the reporting threshold requirement, EPA unnecessarily includes phosphoric acid production units as regulated facilities regardless of the amount of emissions. By including phosphoric acid production units with large emitters in the "all-in" category, EPA inaccurately suggests that these units are major emitters of GHGs. Such inclusion could have significant implications for these minor sources, including potentially influencing determinations of materiality in making certain public disclosures (for example, in U.S. Securities and Exchange

Commission (SEC) filings). EPA should remove phosphoric acid production units from inclusion with the de facto (all-in) source categories under the NPRM.

Response: The response has been provided in section III of the preamble to this rule (see section Z, Phosphoric Acid Production).

Commenter Name: Jennifer Reed-Harry

Commenter Affiliation: PennAg Industries Association

Document Control Number: EPA-HQ-OAR-2008-0508-0948.1

Comment Excerpt Number: 6

Comment: EPA should not include phosphoric acid production units as de facto (i.e., "all-in") regulated facilities. These facilities are very minor sources of GHG emissions. While most (if not all) would still fall within the reporting threshold requirement, EPA unnecessarily includes phosphoric acid production units as regulated facilities regardless of the amount of emissions. Furthermore, given the small emissions footprint of these sources, the NPRM should provide for default emissions factors en lieu of requiring regular sampling of the rock for phosphoric acid production units.

Response: The response is located in section III of the preamble to this rule (see section Z, Phosphoric Acid Production).

5. DETAILED GHG EMISSION CALCULATION PROCEDURES/EQUATIONS IN THE RULE

Commenter Name: Edgar O. Morris

Commenter Affiliation: Mosaic Fertilizer Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0687.1

Comment Excerpt Number: 12

Comment: The proposed protocol for calculating process-related emissions in phosphoric acid production requires monthly sampling of each "batch" of phosphate rock to determine the value of the variable IC_o, (the rock's inorganic carbon content). See proposed 40 C.F.R. §98.263(b); see also proposed 40 C.F.R. §98.264 (same issue in "Monitoring for QA/QC Requirements") and "Technical Support Document for the Phosphoric Acid Production Sector: Proposed Rule for Mandatory Reporting of Greenhouse Gases," EPA Docket # EPA-HQ-OAR-2008-0508-0026, at 5 – 8 (referred to herein as "Phosphoric Acid Production Sector TSD"). This approach is impractical because phosphoric acid production is a continuous rather than a "batch" process. Rail cars and trucks place phosphate rock onto a blended rock "pile" that is continuously delivered to grinding mills and fed in a liquid slurry state to the plant. The phosphoric acid processing steps (e.g. grinding, blending, and agitating) mix the materials and product from multiple units which are continuously blended into common tanks. Therefore, the term "batch" does not make sense or have a generally accepted meaning in this industry. Moreover, the phosphate rock that is the basis for phosphoric acid production is a homogeneous product within a geological formation. See Phosphoric Acid Production Sector TSD, Table 3, at 4. Because of this homogeneity, monthly "batch" sampling would simply impose a needless expense, on a

repeated basis, to prove what is already known about the inorganic carbon content of the rock. Mosaic proposes that the NPRM be modified to allow use of a default number based on the geographic source of the rock for the variable IC_n, (the rock's inorganic carbon content) in equation Z-1. Absent a change in rock source, no additional sampling should be necessary. Mosaic suggests the following revised language for § 98.263 (based on Table 3 of the Phosphoric Acid Production Sector TSD at 4; see also U.S. Environmental Protection Agency, U.S. Greenhouse Gas Emissions and Sinks: 19902007, 430-R-09-004, Table 4-47 at 4-34 (2009), available at <http://epa.gov/climatechange/emissions/downloads09/IndustrialProcesses.pdf>). IC_n = The default value for inorganic carbon content of the phosphate rock used during month n (percent by weight, expressed as a decimal fraction) shall be [See DCN:EPA-HQ-OAR-2008-0508-0687.1 for table provided by commenter.] Alternatively, in the event the Agency concludes that monthly phosphate rock sampling is necessary, the variable IC_n should be defined as a representative grab or composite sample collected once per month from the rock feed (e.g. the ground rock slurry) to the process line. The following revised regulatory language is suggested for the proposed Section 98.263: IC_n = Inorganic carbon content of the phosphate rock used during month n, from the carbon analysis results (percent by weight, expressed as a decimal fraction) of a representative grab or composite sample collected once per month of the rock feed (e.g. ground rock slurry) to the phosphoric acid process line. EPA should also revise the proposed methodology to make clear that the measurements required under the HF MACT may be used for the variable P_n (the mass of phosphate rock consumed in a month) in equation Z-1. See proposed 40 C.F.R. § 98.263. The HF MACT contains a requirement for measurement of total mass flow of phosphorous bearing feed. See 40 C.F.R. §§ 63.606(c) (3) and 63.626(c) (3). Allowing the use of the HF MACT measurements would avoid imposing an unnecessary burden on facilities without compromising EPA's data-gathering needs. Mosaic suggests the following revision for the definition of P_n: P_n = Mass of phosphate rock consumed in month n by wet process phosphoric acid process line m (tons). Data from the monitoring equipment utilized to measure total mass flow of phosphorous bearing feed under 40 C.F.R. Parts 60 or 63 may be used to calculate the mass of phosphate rock consumed during month n.

Response: We appreciate the comment regarding the rock sampling procedures. The final rule has been changed to allow for a monthly grab sample of rock in accordance with the Phosphate Mining States Methods Used and Adopted by the Association of Fertilizer and Phosphate Chemists AFPC Manual. We also have updated the definition of P_n (the mass of phosphate rock consumed in a month in) for consistency with the HF MACT. These clarifications are consistent with the intent of the requirements in the proposal for a obtaining a monthly sample of phosphate rock and also for measuring the mass of phosphate rock consumed.

Also, consistent with the commenter's statement that "absent a change in rock source, no additional sampling should be necessary", we clarified the definition of the inorganic carbon contents (IC_n, used in Equation Z-1), requesting carbon content analysis with respect to origin of the phosphate rock. As stated in the proposal, the inorganic carbon contents vary by origin of the rock. If the rock source changes within a month – facilities should sample for rock source consumed to assure accuracy of the reported emissions.

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 20

Comment: Given the small emissions footprint of these sources, the NPRM should allow for default emissions factors in lieu of requiring regular sampling of the rock for phosphoric acid production units.

Response: We disagree with this comment. It is our understanding that phosphate facilities have the necessary equipment on-site for conducting chemical analyses of the inorganic carbon weight fraction of the phosphate rock and that this analysis is conducted on a routine basis at facilities. We decided not to finalize the proposal allowing use of the default CO₂ emission factors for phosphoric acid production facilities because their application is more appropriate for GHG estimates from aggregated process information on a sector-wide or nationwide basis than for determining GHG emissions from specific facilities. In this case the improvement in accuracy compared to default approaches, which may vary greatly depending on consistency of the rock source, can be achieved at minimal additional cost. We are allowing use of default factors as part of the missing data provisions. For more information, see section III of the preamble to this rule (see section Z, Phosphoric Acid Production).

6. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 39

Comment: The Technical Support Document for the Phosphoric Acid Production Sector references measuring the inorganic carbon content of phosphate rock, but does not reference a method for representative bulk sampling. The Association of Fertilizer and Phosphate Chemists has developed a series of reference methodologies for representative bulk sampling of phosphate rock, which we include as enclosure 2. The International Fertilizer Industry Association is also finalizing a Recommended Best Practices for the Sampling of Dry Bulk Fertilizer Shipments methodology. These manuals should be incorporated by reference as meeting the requirements for measuring the inorganic carbon content of the phosphate rock.

Response: See the response to comment EPA-HQ-OAR-2008-0687.1, excerpt 12.

The Recommended Best Practices for the Sampling of Dry Bulk Fertilizer Shipments from IFIA has not been incorporated into the final rule. We believe the addition of the reference methodologies for representative bulk sampling of phosphate rock created by The Association of Fertilizer and Phosphate Chemists will adequately address the need for guidance on phosphate rock sampling.

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 21

Comment: Monitoring guidelines such as the 2006 IPCC Guidelines do not provide estimation methodologies for process-related emissions from phosphoric acid production facilities. EPA selected “Option 2: Hybrid Method” for estimating emissions given the lack of a published guideline. Under this approach, the quantity of phosphate rock and the percentage of inorganic carbon present in the rock must be measured. The equation requires, among other variables, the following two inputs: IC_n = Inorganic carbon content of the batch of phosphate rock used during month “n”, from the carbon analysis results P_n = Mass of phosphate rock consumed in month “n” Does EPA intend that each facility conduct a monthly carbon content determination? If so, what does EPA propose as the monthly sampling approach with respect to the variable IC_n? The phrase “batch of phosphate rock used during month n” does not have a generally understood or accepted operational meaning given that the process is continuous, not “batch.” Phosphate rock used during the month may be from different rail cars, trucks, piles and/or mines, all of which is generally stored on a common pile from which it is delivered to the process line. Accordingly, this phrase is ambiguous. To clarify this monthly phosphate rock sampling requirement, the following language should be considered: “With respect to the variable, IC_n, the sample used for the analysis should be a monthly grab sample from the rock being fed to the process line or the default factor for inorganic carbon content provided in Table 3 of the Technical Support Document for the Phosphoric Acid Production Sector. [See DCN: EPA-HQ-OAR-2008-0508-0952.1 for table showing default carbon content (percent by weight) for phosphate rock based in origin.]” With respect to the variable, P_n, the means of measurement specified in the reporting rule, should mirror the HF MACT measurement for mass of phosphate rock. The NSPS and HF MACT contain a requirement for measurement of total mass flow of phosphorous bearing feed (e.g., 40 CFR § 63.625(a) and 40 CFR § 63.605(a)(2)). To ensure this consistency, proposed 40 C.F.R. § 98.263 should read as follows: “P_n = Mass of phosphate rock consumed in month n by wet process phosphoric acid process line m (tons). Data from the monitoring equipment utilized to measure total mass flow of phosphorous bearing feed under 40 C.F.R. Parts 60 or 63 may be used to calculate the mass of phosphate rock consumed during month n.”

Response: See the response to comment EPA-HQ-OAR-2008-0687.1, excerpt 12.

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 22

Comment: The NPRM states that inorganic carbon content of each batch of phosphate rock should be determined using the applicable test method in Section IX of the “Book of Methods Used and Adopted by the Association of Florida Phosphate Chemists,” Seventh Edition, 1991 (hereinafter “AFPC Methods”). The analysis for a facility should be from the monthly grab sample collected from the rock feed to process line. Further, the AFPC Methods manual referenced has been superseded by more current editions. The rule should state that the most current edition (AFPC Methods manual, 9th Edition, Version 1.9, 2007) be used.

Response: See the response to comment EPA-HQ-OAR-2008-0687.1, excerpt 12.

Commenter Name: Edgar O. Morris

Commenter Affiliation: Mosaic Fertilizer Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0687.1

Comment Excerpt Number: 13

Comment: EPA should clarify proposed Section 98.264, Monitoring and QA/QC Requirements, to reference the most recent edition of the AFPC Method handbook (since the version referenced in the NPRM has been superseded by a more recent edition). Mosaic suggests the following regulatory language: § 98.264 Monitoring and QA/QC Requirements. (a) Conduct the inorganic carbon content analysis of the phosphate rock required in § 98.263 using the applicable test method in section IX of the most recent edition of the "Book of Methods Used and Adopted by the Association of Florida Phosphate Chemists." (b) If the origin of the phosphate rock consumed in a month changes, a representative sample of the carbon content of the new rock must be obtained and the highest inorganic carbon content measured in the sample during that month must be used, in Equation Z-1 of this subpart.

Response: See the response to comment EPA-HQ-OAR-2008-0687.1, excerpt 12.

7. PROCEDURES FOR ESTIMATING MISSING DATA

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 23

Comment: The NPRM provides no option to use surrogate or back-up data to account for missing data. An option for surrogate data should be provided. The NPRM should allow use of the default carbon content values based on the origin of the rock if analytical data are unavailable (as provided in Table 3 of the Technical Support Document for the Phosphoric Acid Production Sector). The NPRM should also allow as a default to the measurement of the mass of phosphate rock consumed, the lesser of the maximum capacity of the system, the maximum rate the meter can measure, or best available estimate based on available process data.

Response: The response is located in section III of the preamble to this rule (see section Z, Phosphoric Acid Production).

Commenter Name: Edgar O. Morris

Commenter Affiliation: Mosaic Fertilizer Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0687.1

Comment Excerpt Number: 14

Comment: EPA's proposal provides no option for using surrogate or backup data to fill gaps for missing data See proposed 40 C.F.R. § 98.265. Although Mosaic does not anticipate frequent circumstances in which data might be missing, past experience indicates that these circumstances can arise for reasons beyond the company's reasonable control. For example, after samples are collected, the laboratory analysis might fail or the sample might be lost in some manner, where there would be an inability to go back and collect new samples. We do not retain samples of the rock feed and would be unable to recover the missing data. EPA should allow use of default carbon values based on the geographic source of the rock, but if EPA does require sampling it should provide for use of backup data. Mosaic suggests the following regulatory language in

place of the existing proposed Section 98.265: § 98.265 Procedures for estimating missing data. A complete record of all measured parameters used in the GHG emissions calculations is required: Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations, according to the requirements in paragraphs (a) and (b) of this section. (a) For missing carbon content, use the following default values based on the origin of the phosphate rock processed during the month [See DCN:EPA-HQ-OAR-2008-0508-0687.1 for table provided by commenter.] (b) For the mass of phosphate rock consumed during the month, use the lesser of the maximum capacity of the system or the maximum rate the meter can measure.

Response: The response is located in section III of the preamble to this rule (see section Z, Phosphoric Acid Production).

8. DATA REPORTING REQUIREMENTS

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 27

Comment: The annual arithmetic average percent inorganic carbon in phosphate rock from batch records is also required to be reported. As previously explained, the term “batch” when referring to phosphate rock, does not have a generally understood operational meaning. The following clarification should be made: “Annual arithmetic average percent inorganic carbon in phosphate rock based on the monthly phosphate rock analysis conducted to estimate emissions in § 98.263(b) or on the values provided in Table 3 of the Technical Support Documents for the Phosphoric Acid Production Sector.

Response: See the response to comment EPA-HQ-OAR-2008-0687.1, excerpt 12.

Further clarification of the source of monthly records within this definition is not necessary because the term “batch” is not used in the final rule.

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 26

Comment: The annual phosphoric acid production by concentration of phosphoric acid produced must be reported. However, it is not clear what information is being required. Phosphoric acid production facilities are generally integrated with fertilizer manufacturing operations. As such, phosphoric acid is not generally produced as an end product. Rather, clarified reactor acid is generally concentrated to varying levels for blending into fertilizer granulation units. MACT and NSPS regulations require production measurement to be determined in terms of the mass of phosphate feed (as P₂O₅). As such, EPA should delete the requirement of proposed 40 C.F.R. § 98.266(b) as redundant to the proposed § 98.266(a).

Response: We appreciate the comment. We have deleted this reporting requirement as it is redundant and not quantifiable by most sources.

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 25

Comment: The annual phosphoric acid production capacity must also be reported. See proposed 40 C.F.R. § 98.266(c). The term production capacity can have varying meaning (e.g., permit limit capacity or design capacity). The following clarification should be made to that proposed provision: “Annual phosphoric acid permitted production capacity.”

Response: We appreciate the comment and have modified the rule language to clarify the definition, which is included as § 98.266(a)(2) and § 98.266(b)(4).

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 24

Comment: The NPRM requires reporting of significant amounts of data in addition to estimated GHG emissions. For example, the annual phosphoric acid production by origin of phosphate rock must be reported. The specificity of information required by EPA in identifying rock origin is not clear. EPA should explain the purpose of requiring reporting of this data from such a minor source. If such data must be reported, the definition of origin of phosphate rock should be specified by geologic formation as follows: “Annual phosphoric acid production by origin (as listed on Table 3 of the Technical Support Document for the Phosphoric Acid Production Sector) of the phosphate rock (metric tons).”

Response: The annual phosphoric acid production by origin of phosphate rock, along with the other data collected, is necessary for EPA to verify whether reported emissions are within a reasonable range. We have changed the final rule to include a table that clarifies the specific phosphate rock origins. These default values have been added to the final rule as Table Z-1.

Commenter Name: Edgar O. Morris

Commenter Affiliation: Mosaic Fertilizer Company LLC

Document Control Number: EPA-HQ-OAR-2008-0508-0687.1

Comment Excerpt Number: 15

Comment: Mosaic does not oppose the proposed data reporting requirements. However, some of the specific proposed wording warrants revision to comport more accurately with processes of the phosphoric acid industry. Sections 98.266(a) and (b) require reporting "annual phosphoric acid production by origin of the phosphate rock" and "annual phosphoric acid production by concentration of phosphoric acid produce&" These requirements warrant revision because phosphoric acid is not generally produced as an end product. Rather, clarified reactor acid is generally concentrated to varying levels for blending, into fertilizer granulation units. Since

companies do not track the acids produced as intermediate products, they will not have a measure of the mass of individual acid concentrations. Existing HF MACT and NSPS regulations require production measurement to be determined by the mass of phosphate feed (as P₂O₅.) In the interests of consistency, and of ensuring a reporting structure that fits with the actual practices of the industry, Mosaic proposes that EPA adopt the same approach for GHG reporting. Additionally, the specificity of information EPA seeks in identifying rock origin is not clear. Mosaic proposes defining rock origin by geologic formation, as discussed above. To address these issues, Mosaic proposes the following regulatory language revision: §98.266(a) Annual phosphoric acid production by origin (North Florida, Central Florida, North Carolina, Idaho, Morocco) of the phosphate rock (metric tons). (This revision makes § 98.266(b) redundant and unnecessary.) Section 98.266(c) requires facilities to report "annual phosphoric acid production capacity." The term "production capacity" can have many meanings, such as permit limit capacity, design capacity, or highest demonstrated production. For the sake of clarity, Mosaic suggests that this section be revised to read: § 98.266(c) Annual phosphoric acid permitted production capacity. Section 98.266(d) requires facilities to report "the annual arithmetic average percent inorganic carbon in phosphate rock from batch records." See proposed § 98.266(d). The term "batch" is inapt for describing phosphoric acid production processes. Mosaic suggests the following clarification: § 98.266(d) Annual arithmetic average percent inorganic carbon in phosphate rock as defined in equation Z in section 98.263(b).

Response: We appreciate these comments. For clarification on the concentration of phosphoric acid, see the response to comment EPA-HQ-OAR-2008-0952.1, excerpt 26.

For clarification on identifying the origin of the phosphate rock, see the response to comment EPA-HQ-OAR-2008-0952.1, excerpt 24.

For clarification on batch sampling, see the response to comment EPA-HQ-OAR-2008-0508-0687.1 excerpt 12.

11. OTHER SUBPART Z COMMENTS

Commenter Name: William C. Herz

Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 43

Comment: On page 7 of the TSD, The direct measurement method using CEMS data may underestimate emissions since rock is partially digested in ball mills with pond water, and the emissions from the ball mill are not evacuated by the scrubbers.

Response: We are not aware of any phosphoric acid production facilities that are using CEMS but want to allow the use of any CEMS now and in the future; so we have retained CEMS as an option for estimating process-related CO₂ emissions from Phosphoric Acid production. The commenter did not provide detailed information on the potential magnitude of these emissions but we will consider this information in any future rulemakings related to phosphoric acid production.

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 42

Comment: On page 2 and 5 of the TSD, Natural gas consumption is almost entirely in the process itself to heat/dry the DAP/MAP product. Very little is used in auxiliary boilers as sulfuric acid plants produce all the steam needed for the process.

Response: We appreciate the comments and have evaluated the implications of these revised assumptions for our estimation of combustion related emissions from phosphoric acid production. If we subtract the emissions associated with fuel consumption at the auxiliary boiler, the combustion emissions from the packaged boiler are still estimated to exceed 100,000 metric tons CO₂e. This is based on the assumptions we provided: a CO₂ emission factor of 0.053 mt CO₂/MM BTU for natural gas, permit information on the natural gas usage rate for the packaged boiler is 350 MM BTU/hr and that the boiler operates at 90% capacity continuously (24 hours a day, 365 days a year). The clarification is helpful and further evaluation indicates that these revisions do not change the overall conclusions of our analysis.

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)
Document Control Number: EPA-HQ-OAR-2008-0508-0952.1
Comment Excerpt Number: 41

Comment: On page 1 of the TSD states that process emissions total 1.17 million tons CO₂ in 2006 for the 14 facilities in Table 1. Table 1 shows 7.69 million tons of acid produced by 10 of the 14 facilities for which there is data. If this is pro-rated to 0.77 million tons per facility, then a total of 10.8 million tons of acid was produced by the 14 facilities. The unit CO₂ generated by the process would be $1.17/10.8 = 0.108$ tons CO₂/ton of acid produced. However, Pierre Becker's Phosphates and Phosphoric Acid on pages 45-47 (Figures 2.1-2.3) predicts between 0-9.8 tons CO₂/1,000 tons acid produced, or 0-0.01 tons CO₂/ton acid produced. While rock quality can change, and Becker does not discuss whether all of the carbon ends up as CO₂, EPA should investigate the cause of this divergence. Additionally, Figure 2.3 of the TSD shows CO₂ emissions to be zero when wet rock is used.

Response: The purpose of the TSD was to outline the choices considered for each provision in the rule. The information provided was as an estimate of the phosphoric acid production industry at the time of the proposal. The commenter provides a reference, but did not submit a copy of the reference mentioned for EPA to effectively evaluate the alternative information presented. EPA will plan to obtain a copy of the reference from the commenter after the final rule is developed to further evaluate this divergence. In the final rule EPA has referenced the most current methods provided by the industry consensus organization for estimating CO₂ emissions from Phosphoric Acid Production, the "Book of Methods Used and Adopted by the Association of Florida Phosphate Chemists" or AFPC manual. The rule requires facilities to use the 10th edition of the AFPC manual published this year in 2009.

Commenter Name: William C. Herz
Commenter Affiliation: The Fertilizer Institute (TFI)

Document Control Number: EPA-HQ-OAR-2008-0508-0952.1

Comment Excerpt Number: 40

Comment: On page 1 of the TSD, water is not produced; it is consumed from the reactor solution to hydrate gypsum.

Response: We appreciate TFI's comments. The text is technically incorrect and has been improved. We have updated the text in the TSD which currently states "Most companies in the United States use a dihydrate process in which two molecules of water (H₂O) are produced per molecule of gypsum (CaSO₄ • 2 H₂O or calcium sulfate dihydrate)." The revised text states more clearly "that two molecules of water are combined with one molecule of gypsum to form calcium sulfate dehydrate."

Comment: Generally across the rule, commenters requested clarification on use of standards and in some cases proposed alternative standards for determining particular parameters used to estimate emissions.

Response: For Subpart Z, EPA specified the use of methods in the AFPC manual for determining inorganic carbon contents. Given that few methods are available for this determination we reference this industry consensus method. This ensures consistency and comparability in the information reported by facilities. Where commenters made suggestions for methods for determining other key parameters we have incorporated references as feasible.

See also the responses to comment EPA-HQ-OAR-2008-0508-0687.1, excerpt 12 and comment EPA-HQ-OAR-2008-0508-0952.1, excerpt 39.