



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

**Volume No.: 18**

**Subpart F—Aluminum Production**

September 2009

# **Subpart F—Aluminum 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 broad 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 F—Aluminum 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 F—Aluminum 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 F—Aluminum Production.

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## SUBPART F—ALUMINUM PRODUCTION

### 1. DEFINITION OF SOURCE CATEGORY

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**Commenter Name:** Michael A. Palazzolo

**Commenter Affiliation:** Alcoa, Inc.

**Document Control Number:** EPA-HQ-OAR-2008-0508-0650.1

**Comment Excerpt Number:** 11

**Comment:** EPA requested comment on whether any US smelters operate coke calcining facilities. Alcoa does not have coke calcining operations that are co-located with aluminum smelters. However, we do operate a separate coke calcining facility located in Lake Charles, LA. Total CO<sub>2</sub>e emissions from this facility are approximately 160,000 mt/yr.

**Response:** EPA appreciates input from Alcoa on this issue. No coke calcining operations at primary aluminum facilities were identified by any commenter. Therefore, EPA is not including methods for estimating these emissions from this source in subpart F. However, coke calcining at petroleum refineries is covered under subpart Y.

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### 2. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

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**Commenter Name:** Marcelle Shoop

**Commenter Affiliation:** Rio Tinto Services, Inc.

**Document Control Number:** EPA-HQ-OAR-2008-0508-0636.1

**Comment Excerpt Number:** 34

**Comment:** 1. Frequency of Measuring Slope Coefficients EPA requests comment on the proposal that all aluminum smelters be required to measure their smelter-specific slope coefficients at least once every three years. (74 Fed. Reg. at 16489) The update on perfluorocarbon (PFC) emissions every 3 years should only be mandatory if a major technological change has occurred during that time (e.g., if PFC emissions have been significantly lowered due to process improvement in anode effect duration and frequency). Rio Tinto supports ending this requirement if a plant can demonstrate that it operates with less than a certain level of anode effect per day, or less than a predefined relative contribution of PFC emissions to overall GHG plant performance. The specific level should be determined by an expert group. New measurement methodology recognized by the IAI should be allowed for PFC measurement. 2. Over-voltage Method and Pechiney Technology. The over-voltage method was developed for smelters using the Pechiney technology. EPA requests comment on whether any U.S. smelters are using the Pechiney technology and, if so, on whether these smelters should be permitted to use the Over-voltage Method. (74 Fed. Reg. at 16491) While Rio Tinto Alcan does not operate Pechiney technology in the United States, we do operate such technology in Canada. We agree that the over-voltage method should be allowed for calculating PFC emissions from Pechiney technology because the over voltage method was specifically designed to fit that purpose. 3. Coke Calcining A potential source of process CO<sub>2</sub> emissions is coke calcining. EPA requests comment on whether any U.S. smelters operate calcining furnaces and the extent of

these process emissions. (74 Fed. Reg. at 16489) Rio Tinto Alcan does not operate a coke calciner at its Sebree smelter in the United States. We do, however, operate a coke calciner in Canada and use a mass balance approach to calculate CO2 emissions in conformity with IAI Protocol (2006).

**Response:** These comments have been responded to in the Preamble.

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**Commenter Name:** Michael A. Palazzolo

**Commenter Affiliation:** Alcoa, Inc.

**Document Control Number:** EPA-HQ-OAR-2008-0508-0650.1

**Comment Excerpt Number:** 10

**Comment:** The proposed rule's Subpart F for Aluminum Production requires the use of site-specific slope coefficients (Tier 3) for PFC emissions and furthermore [Section 98.64(a)] requires re-measurement of smelter-specific slope coefficients "at least every 36 months". Alcoa generally supports the use of Tier 3 factors when available to improve accuracy, but we have two significant concerns regarding the proposed approach: 1. We disagree with EPA's proposed approach of not allowing the use of industry default values (Tier 2). The International Aluminum Institute has developed globally sanctioned slope coefficients based on PFC testing at numerous smelters. These Tier 2 values are representative of different smelter designs, updated periodically and sufficient to meet the needs of the proposed GHG reporting program. We request that EPA allow the use of these industry default slope coefficients as an option to developing site-specific values. 2. We oppose the proposed requirement to re-measure smelter-specific slope coefficients every 36 months. These tests have already been done for many smelters and the resulting Tier 3 coefficients remain representative of facility emissions unless "material" changes are made in design or operation. The requirement to re-measure site-specific coefficients "every 36 months" is unreasonable and results in unnecessary cost because existing historical factors are adequate for future GHG reporting at most smelters. Developing a new Tier 3 coefficient every 36 months at a cost of \$60,000 to \$90,000 is not justified. We therefore recommend that EPA 1) allow use of either IAI Tier 2 or site-specific Tier 3 slope coefficients and 2) allow the continued use of historical Tier 3 coefficients rather than measure every 36 months unless the smelter makes a design or operational change that could have a "material" impact on reported PFC emissions.

**Response:** These comments have been responded to in the Preamble.

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**Commenter Name:** Robert P. Strieter

**Commenter Affiliation:** The Aluminum Association

**Document Control Number:** EPA-HQ-OAR-2008-0508-0350.1

**Comment Excerpt Number:** 18

**Comment:** EPA requests comment on whether any U.S. aluminum production smelters operate coke calcining furnaces in the U.S. and the extent of these process emissions. To our knowledge no coke calcining furnaces are operating at primary aluminum facilities in the U.S.

**Response:** EPA appreciates input from the Aluminum Association on this issue. No coke calcining operations at primary aluminum facilities were identified by any commenter.

Therefore, EPA is not including methods for estimating these emissions from this source in subpart F.

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**Commenter Name:** Robert P. Strieter

**Commenter Affiliation:** The Aluminum Association

**Document Control Number:** EPA-HQ-OAR-2008-0508-0350.1

**Comment Excerpt Number:** 17

**Comment:** EPA requests comment on the use of an alternative overvoltage measurement methodology for PFC emissions. The overvoltage method was developed for smelters using the Pechiney technology in facilities outside the U.S. The Association believes that, although no smelters currently operating in the U.S. use this alternative measurement method, the overvoltage method has been demonstrated and verified as an accurate method internationally. Therefore, we request that EPA provide in the rule that alternative methods may be used if a facility decides to adopt the approach in the future.

**Response:** This comment has been responded to in the Preamble.

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**Commenter Name:** Robert P. Strieter

**Commenter Affiliation:** The Aluminum Association

**Document Control Number:** EPA-HQ-OAR-2008-0508-0350.1

**Comment Excerpt Number:** 16

**Comment:** EPA requests comment on the proposal that all smelters be required to measure their smelter-specific PFC slope coefficients at least once every three years. The measurements are used to verify the accuracy of the emission slope factors, based on anode effects, to insure the factors are representative of PFC emission rates. The Aluminum Association believes that a mandatory three year requirement for PFC emission measurement is excessive and should be required only when a major technological change or process change has occurred at the facility. Given the major advancements and improvements in PFC emission characterization achieved over the last 15 years on U.S. smelter performance in the cooperative program with EPA under the VAIP, further need for a rotating three year measurement process is unnecessary. In terms of the initial year of reporting, some smelters may have emission test data that is older than 36 months and re-measuring slope coefficients by the January 1, 2010 implementation date may not be feasible. The rule should state at the very least that the first year of emissions reporting can be reported based on the latest slope-factor emissions measurement available. To summarize, EPA should revise the proposal to add flexibility to emission measurement reporting requirements for PFC's. Given the progress made in establishing the Tier 2 emission factors and in developing facility specific PFC emission rates over the last 15 years under the VAIP program, we recommend that further measurement should be conducted at the option of the facility or if a change occurs at the facility due to a technology upgrade or when a process change occurs that may impact PFC emission levels. In addition, the Association believes that measurements should no longer be required if a facility shows a high level of emissions avoidance by demonstrating that it operates with a very low level of anode effects per day<sup>1</sup>, or less than a predefined relative contribution of PFC emissions to overall GHG plant performance. The specific level should be determined by an expert group under the VAIP program with EPA. Finally, we request that the proposal provide provisions for the adoption of new PFC emission measurement methodology once tested, verified and recognized by the International Aluminium Institute (IAI). [Footnote: In

the primary aluminum production process, alumina (Al<sub>2</sub>O<sub>3</sub>) is fed in powder form into the pots and is dissolved in the cryolite bath. Molten aluminum is evolved while the anode is consumed: Al<sub>2</sub>O<sub>3</sub> + 3/2C => 2Al + 3/2 CO<sub>2</sub> When the alumina ore content of the electrolytic bath falls below critical levels optimal for the above chemical reaction to take place, rapid voltage increases occur, termed “anode effects”. During an anode effect, carbon from the anode and fluorine from the dissociated molten cryolite bath combine, producing the PFC compounds CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub>. These gases are emitted from the exhaust ducting system or other pathways from the cell (e.g., the hood of the cell).]

**Response:** These comments have been responded to in the Preamble.

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**Commenter Name:** Robert P. Strieter

**Commenter Affiliation:** The Aluminum Association

**Document Control Number:** EPA-HQ-OAR-2008-0508-0350.1

**Comment Excerpt Number:**19

**Comment:** An additional issue has been raised regarding the mandatory GHG reporting protocol proposal (68 Fed. Reg. 16448, April 10, 2009). Under section 98.67 (c)(1) and (c)(2) for reporting by primary aluminum facilities there is provision for recordkeeping of emissions and anode effects, specified as follows (68 Fed. Reg. 16644) for the retention of records:

(c) The following PFC-specific information on a monthly basis:

- (1) Perfluoromethane and perfluoroethane emissions from anode effects in *each* prebake and Soderberg electrolysis cells (*emphasis added*).
- (2) Anode effect minutes per cell-day, anode effect frequency (AE/cell-day), anode effect duration (minutes) from *each* prebake and Soderberg electrolysis cells (*emphasis added*).

Of concern is the requirement for record retention for 5 years for the PFC specific emissions and anode effect minutes per cell day, anode frequency and duration for each potcell. Currently, as agreed in the VAIP program, information for each pot cell is acquired and retained for up to two weeks until the entire potline statistics are amassed from weekly accrual of all potline cells combined for reporting and record retention. Retaining all the information for each potcell, which number in the hundreds per facility, would require a huge amount of computer storage space and increase recordkeeping costs substantially for an unnecessary set of statistics. We request that the word ‘*each*’ highlighted above from 98.67 (c)(1) and (c)(2) be deleted from the final rule.

**Response:** EPA agrees with the commenter that recordkeeping of individual potcell data for 5 years would be burdensome and costly and has adopted these changes in the Subpart F Rule.