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Unofficial electronic compilation of the  
U.S. EPA Final Rule on Mandatory Reporting of Greenhouse Gases  
Incorporated by Reference in California's Regulation for the  
Mandatory Reporting of Greenhouse Gas Emissions

### Unofficial Electronic Compilation

This unofficial electronic compilation is provided by the California Air Resources Board (ARB) solely for the reader's convenience.

ARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (title 17, California Code of Regulations (CCR), sections 95100-95157) incorporated by reference certain requirements promulgated by the United States Environmental Protection Agency (U.S. EPA) in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, Code of Federal Regulations (CFR), Part 98). Specifically, section 95100(c) of ARB's regulation incorporated those requirements promulgated by U.S. EPA as published in the Federal Register on October 30, 2009, July 12, 2010, September 22, 2010, October 28, 2010, November 30, 2010, December 17, 2010, and April 25, 2011.

This compilation combines the various incorporated Federal Register versions into one document for the reader's convenience; however, this compilation is not an official edition of either the CFR or the CCR. While reasonable steps have been taken to make this unofficial compilation accurate, the officially published requirements, found within the incorporated Federal Register notices with the dates listed above, take precedence if there are any discrepancies.

### Official Legal Versions

The official legal versions of the incorporated CFR provisions from the Federal Register are available, with the incorporated Federal Register notice and date, at <http://www.epa.gov/climatechange/emissions/subpart.html>. To access the incorporated versions, click on the relevant subpart(s) for your reporting entity, and then click on the Final Rule which corresponds to the incorporated date(s). For instance, when reporting is required under Subpart R of the U.S. EPA Rule, go here: <http://www.epa.gov/climatechange/emissions/subpart/r.html>, then click on the applicable date(s) to access the relevant requirements.

**40 CFR Part 98**  
**Subpart R**  
**Mandatory Reporting of Greenhouse Gases**

**PART 98—MANDATORY GREENHOUSE GAS REPORTING**

**Subpart R – Lead Production**

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**§98.180 Definition of the source category.**

The lead production source category consists of primary lead smelters and secondary lead smelters. A primary lead smelter is a facility engaged in the production of lead metal from lead sulfide ore concentrates through the use of pyrometallurgical techniques. A secondary lead smelter is a facility at which lead-bearing scrap materials (including but not limited to, lead-acid batteries) are recycled by smelting into elemental lead or lead alloys.

**§98.181 Reporting threshold.**

You must report GHG emissions under this subpart if your facility contains a lead production process and the facility meets the requirements of either §98.2(a)(1) or (a)(2).

**§98.182 GHGs to report.**

You must report:

- (a) Process CO<sub>2</sub> emissions from each smelting furnace used for lead production.
- (b) CO<sub>2</sub> combustion emissions from each smelting furnace used for lead production.
- (c) CH<sub>4</sub> and N<sub>2</sub>O combustion emissions from each smelting furnace used for lead production. You must calculate and report these emissions under subpart C of this part (General Stationary Fuel Combustion Sources) by following the requirements of subpart C.

(d) CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from each stationary combustion unit other than smelting furnaces used for lead production. You must report these emissions under subpart C of this part (General Stationary Fuel Combustion Sources) by following the requirements of subpart C.

### §98.183 Calculating GHG emissions.

You must calculate and report the annual process CO<sub>2</sub> emissions from each smelting furnace using the procedure in paragraphs (a) and (b) of this section.

(a) For each smelting furnace that meets the conditions specified in §98.33(b)(4)(ii) or (b)(4)(iii), you must calculate and report combined process and combustion CO<sub>2</sub> emissions by operating and maintaining a CEMS to measure CO<sub>2</sub> emissions 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) For each smelting furnace that is not subject to the requirements in paragraph (a) of this section, calculate and report the process and combustion CO<sub>2</sub> emissions from the smelting furnace by using the procedure in either paragraph (b)(1) or (b)(2) of this section.

(1) Calculate and report under this subpart the combined process and combustion CO<sub>2</sub> emissions by operating and maintaining a CEMS to measure CO<sub>2</sub> emissions 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).

(2) Calculate and report process and combustion CO<sub>2</sub> emissions separately using the procedures specified in paragraphs (b)(2)(i) through (b)(2)(iii) of this section.

(i) For each smelting furnace, determine the annual mass of carbon in each carbon-containing material, other than fuel, that is fed, charged, or otherwise introduced into the smelting furnace and estimate annual process CO<sub>2</sub> emissions using Equation R-1 of this section. Carbon-containing materials include carbonaceous reducing agents. If you document that a specific material contributes less than 1 percent of the total carbon into the process, you do not have to include the material in your calculation using Equation R-1 of this section.

$$E_{CO_2} = \frac{44}{12} \times \frac{2000}{2205} \times [(Ore \times C_{Ore}) + (Scrap \times C_{Scrap}) + (Flux \times C_{Flux}) + (Carbon \times C_{Carbon}) + (Other \times C_{Other})] \quad (\text{Eq. R-1})$$

Where:

$E_{CO_2}$  = Annual process CO<sub>2</sub> emissions from an individual smelting furnace (metric tons).

44/12 = Ratio of molecular weights, CO<sub>2</sub> to carbon.

2000/2205 = Conversion factor to convert tons to metric tons.

Ore = Annual mass of lead ore charged to the smelting furnace (tons).

C<sub>Ore</sub> = Carbon content of the lead ore, from the carbon analysis results (percent by weight, expressed as a decimal fraction).

Scrap = Annual mass of lead scrap charged to the smelting furnace (tons).

C<sub>Scrap</sub> = Carbon content of the lead scrap, from the carbon analysis (percent by weight, expressed as a decimal fraction).

Flux = Annual mass of flux materials (e.g., limestone, dolomite) charged to the smelting furnace (tons).

C<sub>Flux</sub> = Carbon content of the flux materials, from the carbon analysis (percent by weight, expressed as a decimal fraction).

Carbon = Annual mass of carbonaceous materials (e.g., coal, coke) charged to the smelting furnace (tons).

C<sub>Carbon</sub> = Carbon content of the carbonaceous materials, from the carbon analysis (percent by weight, expressed as a decimal fraction).

Other = Annual mass of any other material containing carbon, other than fuel, fed, charged, or otherwise introduced into the smelting furnace (tons).

C<sub>Other</sub> = Carbon content of the other material from the carbon analysis results (percent by weight, expressed as a decimal fraction).

(ii) Determine the combined annual process CO<sub>2</sub> emissions from the smelting furnaces at your facility using Equation R-2 of this section.

$$CO_2 = \sum_1^k E_{CO_2k} \quad (\text{Eq. R-2})$$

Where:

CO<sub>2</sub> = Annual process CO<sub>2</sub> emissions from smelting furnaces at facility used for lead production (metric tons).

E<sub>CO<sub>2</sub>k</sub> = Annual process CO<sub>2</sub> emissions from smelting furnace k calculated using Equation R-1 of this section (metric tons/year).

k = Total number of smelting furnaces at facility used for lead production.

(iii) Calculate and report under subpart C of this part (General Stationary Fuel Combustion Sources) the combustion CO<sub>2</sub> emissions from the smelting furnaces according to the applicable requirements in subpart C.

**§98.184 Monitoring and QA/QC requirements.**

If you determine process CO<sub>2</sub> emissions using the carbon mass balance procedure in §98.183(b)(2)(i) and (b)(2)(ii), you must meet the requirements specified in paragraphs (a) and (b) of this section.

(a) Determine the annual mass for each material used for the calculations of annual process CO<sub>2</sub> emissions using Equation R-1 of this subpart by summing the monthly mass for the material determined for each month of the calendar year. The monthly mass may be determined using plant instruments used for accounting purposes, including either direct measurement of the quantity of the material placed in the unit or by calculations using process operating information.

(b) For each material identified in paragraph (a) of this section, you must determine the average carbon content of the material consumed or used in the calendar year using the methods specified in either paragraph (b)(1) or (b)(2) of this section. If you document that a specific process input or output contributes less than one percent of the total mass of carbon into or out of the process, you do not have to determine the monthly mass or annual carbon content of that input or output.

(1) Information provided by your material supplier.

(2) Collecting and analyzing at least three representative samples of the material each year. The carbon content of the material must be analyzed at least annually using the methods (and their QA/QC procedures) specified in paragraphs (b)(2)(i) through (b)(2)(iii) of this section, as applicable.

(i) ASTM E1941-04, Standard Test Method for Determination of Carbon in Refractory and Reactive Metals and Their Alloys (incorporated by reference, see §98.7) for analysis of metal ore and alloy product.

(ii) ASTM D5373-08 Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal (incorporated by reference, see §98.7), for analysis of carbonaceous reducing agents and carbon electrodes.

(iii) ASTM C25-06, Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime (incorporated by reference, see §98.7) for analysis of flux materials such as limestone or dolomite.

**§98.185 Procedures for estimating missing data.**

A complete record of all measured parameters used in the GHG emissions calculations in §98.183 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 as specified in the paragraphs (a) and (b) of this section. You must document and keep records of the procedures used for all such estimates.

(a) For each missing data for the carbon content for the smelting furnaces at your facility that estimate annual process CO<sub>2</sub> emissions using the carbon mass balance procedure in §98.183(b)(2)(i) and (ii), 100 percent data availability is required. You must repeat the test for average carbon contents of inputs according to the procedures in §98.184(b) if data are missing.

(b) For missing records of the monthly mass of carbon-containing materials, the substitute data value must be based the best available estimate of the mass of the material from all available process data or data used for accounting purposes (such as purchase records).

**§98.186 Data reporting procedures.**

In addition to the information required by §98.3(c), each annual report must contain the information specified in paragraphs (a) or (b) of this section, as applicable.

(a) If a CEMS is used to measure CO<sub>2</sub> emissions according to the requirements in §98.183(a) or (b)(1), then you must report under this subpart the relevant information required by §98.36 and the information specified in paragraphs (a)(1) through (a)(4) of this section.

(1) Identification number of each smelting furnace.

(2) Annual lead product production capacity (tons).

(3) Annual production for each lead product (tons).

(4) Total number of smelting furnaces at facility used for lead production.

(b) If a CEMS is not used to measure CO<sub>2</sub> emissions, and you measure CO<sub>2</sub> emissions according to the requirements in §98.183(b)(2)(i) and (b)(2)(ii), then you must report the information specified in paragraphs (b)(1) through (b)(9) of this section.

(1) Identification number of each smelting furnace. (2) Annual process CO<sub>2</sub> emissions (in metric tons) from each smelting furnace as determined by Equation R-1 of this subpart.

- (3) Annual lead product production capacity for the facility and each smelting furnace(tons).
- (4) Annual production for each lead product (tons).
- (5) Total number of smelting furnaces at facility used for production of lead products reported in paragraph (b)(4) of this section.
- (6) Annual material quantity for each material used for the calculation of annual process CO<sub>2</sub> emissions using Equation R-1 of this subpart for each smelting furnace (tons).
- (7) Annual average of the carbon content determinations for each material used for the calculation of annual process CO<sub>2</sub> emissions using Equation R-1 of this subpart for each smelting furnace.
- (8) List the method used for the determination of carbon content for each material reported in paragraph (b)(7) of this section (e.g., supplier provided information, analyses of representative samples you collected).
- (9) If you use the missing data procedures in §98.185(b), you must report how the monthly mass of carbon-containing materials with missing data was determined and the number of months the missing data procedures were used.

**§98.187 Records that must be retained.**

In addition to the records required by §98.3(g), each annual report must contain the information specified in paragraphs (a) through (c) of this section, as applicable to the smelting furnaces at your facility.

(a) If a CEMS is used to measure combined process and combustion CO<sub>2</sub> emissions according to the requirements in §98.183(a) or (b)(1), then you must retain the records required for the Tier 4 Calculation Methodology in §98.37 and the information specified in paragraphs (a)(1) through (a)(3) of this section.

(1) Monthly smelting furnace production quantity for each lead product (tons).

(2) Number of smelting furnace operating hours each month.

(3) Number of smelting furnace operating hours in calendar year.

(b) If the carbon mass balance procedure is used to determine process CO<sub>2</sub> emissions according to the requirements in §98.183(b)(2)(i) and (b)(2)(ii), then you must retain under this subpart the records specified in paragraphs (b)(1) through (b)(5) of this section.

(1) Monthly smelting furnace production quantity for each lead product (tons).

- (2) Number of smelting furnace operating hours each month.
  - (3) Number of smelting furnace operating hours in calendar year.
  - (4) Monthly material quantity consumed, used, or produced for each material included for the calculations of annual process CO<sub>2</sub> emissions using Equation R-1 of this subpart (tons).
  - (5) Average carbon content determined and records of the supplier provided information or analyses used for the determination for each material included for the calculations of annual process CO<sub>2</sub> emissions using Equation R-1 of this subpart.
- (c) You must keep records that include a detailed explanation of how company records of measurements are used to estimate the carbon input to each smelting furnace, including documentation of any materials excluded from Equation R-1 of this subpart that contribute less than 1 percent of the total carbon into or out of the process. You also must document the procedures used to ensure the accuracy of the measurements of materials fed, charged, or placed in an smelting furnace including, but not limited to, calibration of weighing equipment and other measurement devices. The estimated accuracy of measurements made with these devices must also be recorded, and the technical basis for these estimates must be provided.

**§98.188 Definitions.**

All terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.