

3745-18-04 **Measurement methods and procedures.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules, and federal statutory provisions referenced in this rule, see the last paragraph of rule 3745-18-01 of the Administrative Code titled "Incorporation by Reference."]

- (A) Unless otherwise specified in paragraphs (B) to (E) of this rule, the non-continuous test methods used for determining compliance with the allowable emission limits in rules 3745-18-06 to 3745-18-94 of the Administrative Code shall be those specified in 40 CFR Part 60.
- (B) The test methods and procedures used for determining compliance with the allowable emission limits for any sulfur recovery plant shall be those specified in 40 CFR, Section 60.46.
- (C) The test methods and procedures used for determining compliance with the allowable emission limit for any sulfuric acid production unit or any primary zinc smelter shall be those specified in 40 CFR, Section 60.85.
- (D) Unless otherwise specified in this rule, the test methods and procedures used for determining compliance with the allowable emission limit for any fuel burning equipment burning coal shall be one of the following:
 - (1) Stack gas sampling using Methods 1 through 4, and 6, 6A, 6B or 6C as specified in 40 CFR Part 60, Appendix A and 40 CFR 60.46, at a frequency to be determined by the director; or
 - (2) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" in 40 CFR Part 60, Appendix B and Appendix F with any necessary modifications approved by the director. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c. Compliance with the applicable sulfur dioxide emission limitation shall be based on daily calculations using an arithmetic average of all data available for the preceding thirty-day period; or
 - (3) Coal sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A or equivalent methods as approved by the director. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. Coal monitoring and compliance determination procedures shall be:
 - (a) Except as specified by the director, for all facilities greater than one thousand million Btus per hour heat input capacity, daily as-fired fuel sampling.

Compliance with the applicable sulfur dioxide emission limit shall be determined based on the weighted arithmetic average of the preceding thirty consecutive daily sample analyses.

- (b) For all facilities greater than one hundred million Btus per hour heat input capacity and less than or equal to one thousand million Btus per hour heat input capacity, monthly composite sampling. Such composite samples shall be composed of either periodic as-fired samples, with the collection frequency determined by the director, or as-received samples with a minimum of one sample per truckload or carload. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the analysis of each monthly composite sample.
- (c) For all facilities greater than ten million Btus per hour heat input capacity and less than or equal to one hundred million Btus per hour heat input capacity, either monthly composite sampling consistent with paragraph (D)(3)(b) of this rule, or monthly average fuel analysis based on fuel supplier analyses. Fuel supplier analyses shall be obtained for each shipment received during the calendar month. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the weighted arithmetic average of all fuel supplier analyses for each calendar month.
- (4) For the "Cardinal Operating Company and Buckeye Power, Incorporated" (OEPA premise numbers 0641050002 and 1741050129) facilities located at Brilliant, Ohio, fuel analysis using any method approved by the director for determining heat content of the fuel and decimal fraction of sulfur in the fuel utilized during any calendar day period. Alternative methods may be submitted with the certification required by paragraph (B) of rule 3745-18-03 of the Administrative Code. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. Compliance with the applicable sulfur dioxide emission limit shall be based on two allowed exceedances in any consecutive thirty-day period. Each day completes a new thirty-day period.
- (5)
 - (a) For any fuel burning equipment burning coal at the sources described below, compliance with the applicable sulfur dioxide emission limits shall be determined using the methods described in paragraphs (D)(5)(b) and (D)(5)(c) of this rule. A determination of noncompliance pursuant to either of these methods shall not be refuted by evidence of compliance pursuant to the other method:

- (i) Athens county / "Columbus Southern Power Company, Poston Station" / OEPA premise number 0506000000 / boiler numbers 1 through 4 / OEPA source numbers B001 to B004; and
 - (ii) Coshocton county / "Columbus Southern Power Company, Conesville Generating Station" / OEPA premise number 0616000000 / unit numbers 5 and 6 / OEPA source numbers B007 and B008.
- (b) Compliance shall be determined by stack gas sampling using method specified in 40 CFR 60.46, at a frequency to be determined by the director; or
- (c) Compliance shall be determined by coal sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A or equivalent methods as approved by the director. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. Coal monitoring and compliance determination procedures shall be:
- (i) Except as specified by the director, for all facilities greater than one thousand million Btus per hour heat input capacity, daily as-fired fuel sampling. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the weighted arithmetic average of the preceding thirty consecutive daily sample analyses;
 - (ii) For all facilities greater than one hundred million Btus per hour heat input capacity and less than or equal to one thousand million Btus per hour heat input capacity, monthly composite sampling. Such composite samples shall be composed of either periodic as-fired samples, with the collection frequency determined by the director, or as-received samples with a minimum of one sample per truckload or carload. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the analysis of each monthly composite sample; and
 - (iii) For all facilities greater than ten million Btus per hour heat input capacity and less than or equal to one hundred million Btus per hour heat input capacity, either monthly composite sampling consistent with paragraph (D)(3)(b) of this rule, or monthly average fuel analysis based on fuel supplier analyses. Fuel supplier analyses shall be obtained for each shipment received during the calendar month. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the weighted arithmetic average of all fuel supplier analyses for each calendar month.
- (6) For any fuel burning equipment burning coal at the "ISG Cleveland Incorporated" (OEPA premise numbers 1318000078 and 1318001613) facilities located in

Cleveland, Ohio, compliance shall be determined using the methods described in paragraphs (D)(6)(a) to (D)(6)(c) of this rule.

- (a) Stack gas sampling using methods specified in 40 CFR 60.46, at a frequency to be determined by the director; or
 - (b) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" in 40 CFR Part 60, Appendix B and Appendix F with any necessary modifications approved by the director. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a. Compliance with the applicable sulfur dioxide emission limits shall be based on daily average calculations; or
 - (c) Coal sampling and analysis in accordance with 40 CFR, Part 60, "Appendix A, Method 19," or equivalent methods as approved by the director. Coal monitoring and compliance determination procedures shall consist of daily, as-fired fuel sampling for all sources greater than one hundred million Btus per hour actual heat input capacity. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. Compliance with the applicable sulfur dioxide emission limits shall be determined based on a daily average.
- (7) For any fuel burning equipment burning coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-37 of the Administrative Code, Hamilton county emission limits, compliance with the applicable sulfur dioxide emission limits shall be determined using stack gas sampling using Methods 1 through 4, and 6, 6A, 6B or 6C as specified in 40 CFR 60.46.
- (8) For any fuel burning equipment burning coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-37 of the Administrative Code, Hamilton county emission limits, emission tracking, recordkeeping, and reporting requirements shall be those described in paragraphs (D)(8)(a) to (D)(8)(e) of this rule.
- (a) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" in 40 CFR Part 60, Appendix B and Appendix F. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c; or
 - (b) Coal sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A. Emission tracking procedures shall consist of weekly, as-fired fuel sampling for all sources greater than one hundred million Btus per hour actual heat input capacity. The representative sulfur

dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule; or

- (c) Either monthly composite sampling consistent with paragraph (D)(8)(b) of this rule, or fuel supplier analyses, for all sources greater than ten million Btus per hour heat input capacity and less than one hundred million Btus per hour heat input capacity. Fuel supplier analyses shall be obtained for each shipment received. The representative sulfur dioxide emission rate from any sample or fuel supplier analysis shall be calculated using the formulas in paragraph (F) of this rule.
- (d) In lieu of the emission tracking requirements in paragraphs (D)(8)(a) to (D)(8)(c) of this rule, the owners or operators of the following sources shall provide coal sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A and in accordance with the requirements indicated:
 - (i) "Henkel Corporation, Emery Group" (OEPA premise number 1431070035); boiler numbers 1 and 2 (OEPA source numbers B027 and B028); one representative coal sample per day for analysis. The coal sample shall consist of at least twenty-four sample increments weighing a minimum of two pounds each.
 - (ii) "Procter and Gamble Company" (OEPA premise number 1431390903); boiler numbers 3 and 4 (OEPA source numbers B021 and B022); one representative coal sample per day for analysis. The coal sample shall consist of at least fourteen sample increments weighing a minimum of two pounds each.
 - (iii) "Factory Power Company" (OEPA premise number 1431070076); boiler numbers 3 through 6 (OEPA source numbers B001, B003, B004 and B005); one representative coal sample per week for analysis. The coal sample shall consist of at least two sample increments per boiler and each increment shall weigh a minimum of two pounds each.
 - (iv) "PMC Specialties Group, Division of PMC Incorporated" (OEPA premise number 1431390137); boiler number 2 (OEPA source number B003); one representative coal sample per week for analysis. The coal sample shall consist of at least six sample increments weighing a minimum of 1.5 pounds each.
 - (v) "University Hospital" (OEPA premise number 1431070207); boiler numbers 3 and 4 (OEPA source numbers B008 and B003); one representative coal sample per week for analysis. The coal sample shall consist of at least one sample increment per boiler and each increment shall weigh a minimum of five pounds each.

- (vi) Until December 22, 1993, "University of Cincinnati" (OEPA premise number 1431070849); boiler numbers 1 and 4 (OEPA source numbers B001 and B004); one representative coal sample per week for analysis. The coal sample shall consist of at least one sample increment per boiler and each increment shall weigh a minimum of five pounds each.
 - (vii) "Cincinnati Gas and Electric Company, Miami Fort Station" (OEPA premise number 1431350093); unit numbers 5-1, 5-2, 6, 7 and 8 (OEPA source numbers B005, B006, B007, B015 and B016); one representative coal sample per day for analysis which shall be conducted according to the appropriate ASTM method.
- (e) Any owner or operator required to perform emissions tracking pursuant to paragraph (D)(8) of this rule shall maintain such records for a period of not less than three years and shall make such records available for inspection by and submittal to the director upon request.
- (9) For any fuel burning equipment burning coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-15 of the Administrative Code, Butler county emission limits, compliance with the applicable sulfur dioxide emission limits shall be determined using the methods described in paragraphs (D)(9)(a) to (D)(9)(c) of this rule. A determination of noncompliance pursuant to any of these methods shall not be refuted by evidence of compliance pursuant to any other of these methods.
- (a) Stack gas sampling using Methods 1 through 4, and 6, 6A, 6B or 6C as specified in 40 CFR Part 60, Appendix A and 40 CFR 60.46, at a frequency to be determined by the director; or
 - (b) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" as specified in 40 CFR Part 60, Appendix B and Appendix F, with any necessary modifications approved by the director. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c. compliance with the applicable sulfur dioxide emission limits shall be based on daily average calculations; or
 - (c) Coal sampling and analysis in accordance with Method 9 as specified in 40 CFR Part 60, Appendix A, or equivalent methods as approved by the director. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. Coal monitoring and compliance determination procedures shall be:
 - (i) Except as specified by the director, for all facilities greater than one thousand million Btus per hour heat input capacity, daily as-fired fuel

sampling. Compliance with the applicable sulfur dioxide emission limits shall be determined based on a daily average.

- (ii) For all facilities greater than one hundred million Btus per hour heat input capacity and less than or equal to one thousand million Btus per hour heat input capacity, monthly composite sampling. Such composite samples shall be composed of either periodic as-fired samples, with the collection frequency determined by the director, or as-received samples with a minimum of one sample per truckload or carload. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the analysis of each monthly composite sample.
 - (iii) For all facilities greater than ten million Btus per hour heat input capacity and less than or equal to one hundred million Btus per hour heat input capacity, either monthly composite sampling consistent with paragraph (D)(9)(c)(ii) of this rule, or monthly average fuel analysis based on fuel supplier analyses. Fuel supplier analyses shall be obtained for each shipment received during the calendar month. Compliance with the applicable sulfur dioxide emission limit shall be determined based on the weighted arithmetic average of all fuel supplier analyses for each calendar month.
- (E) Unless otherwise specified in this rule, the test methods and procedures used for determining compliance with the allowable emission limit for any fuel burning equipment burning fuels other than coal shall be one of the following:
- (1) Stack gas sampling using Methods 1 through 4, and 6, 6A, 6B or 6C as specified in 40 CFR Part 60, Appendix A and 40 CFR 60.46, at a frequency to be determined by the director; or
 - (2) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" as specified in 40 CFR Part 60, Appendix B and Appendix F with any necessary modifications approved by the director. Emissions rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c. Compliance with the applicable sulfur dioxide emission limitation shall be based on daily calculations using an arithmetic average of all data available for the preceding thirty-day period; or
 - (3) Fuel sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A or the appropriate ASTM methods, or equivalent methods as approved by the director. In lieu of performing onsite sampling, representative fuel analyses performed by fuel suppliers may be acceptable. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. The sampling frequency shall

be, at a minimum, such that a sulfur dioxide emission rate representative of the thirty-day average emission rate can be determined.

- (4) For any fuel burning equipment burning fuels other than coal at the "LTV Steel Company, Incorporated" (OEPA premise numbers 1318000078 and 1318001613) facilities located in Cleveland, Ohio, compliance shall be determined using the methods described in paragraphs (E)(4)(a) to (E)(4)(c) of this rule:
 - (a) Stack gas sampling using Methods 1 through 4, and 6 as specified in 40 CFR 60.46, at a frequency to be determined by the director; or
 - (b) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" as specified in 40 CFR Part 60, Appendix B and Appendix F with any necessary modifications approved by the director. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a. Compliance with the applicable sulfur dioxide emission limits shall be based on daily average calculations; or
 - (c) Fuel sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A or the appropriate ASTM methods, or equivalent methods as approved by the director. In lieu of performing on-site sampling, representative fuel analyses performed by the fuel suppliers may be acceptable. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. The sampling frequency shall be, at a minimum, such that a sulfur dioxide emission rate representative of the daily average emission rate can be determined.
- (5) For any fuel burning equipment burning fuels other than coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-37 of the Administrative Code, Hamilton county emission limits, compliance with the applicable sulfur dioxide emission limits shall be determined using stack gas sampling using Methods 1 through 4 and 6, 6A, 6B or 6C as specified in 40 CFR 60.46.
- (6) For any fuel burning equipment burning fuels other than coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-37 of the Administrative Code, Hamilton county emission limits, emission tracking, recordkeeping and reporting requirements shall be those described in paragraphs (E)(6)(a) and (E)(6)(b) of this rule.
 - (a) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" as specified in 40 CFR Part 60, Appendix B and Appendix F. Emission rates shall be

determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c; or

- (b) Fuel sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60 Appendix A," or the appropriate ASTM methods. In lieu of performing on-site sampling, representative fuel analyses performed by the fuel suppliers may be acceptable. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. The sampling frequency shall be, at a minimum, such that at least one analysis is obtained from each shipment of fuel.
- (7) For any fuel burning equipment burning fuels other than coal at any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-15 of the Administrative Code, Butler county emission limits, compliance with the applicable sulfur dioxide emission limits shall be determined using the methods described in paragraphs (E)(7)(a) to (E)(7)(c) of this rule. A determination of noncompliance pursuant to any of these methods shall not be refuted by evidence of compliance pursuant to any other of these methods:
- (a) Stack gas sampling using Methods 1 through 4, and 6, 6A, 6B or 6C as specified in 40 CFR Part 60, Appendix A and 40 CFR 60.46, at a frequency to be determined by the director; or
 - (b) Continuous emission monitoring using continuous monitoring systems meeting the requirements of "Performance Specification 2" as specified in 40 CFR Part 60, Appendix B and Appendix F with any necessary modifications approved by the director. Emission rates shall be determined using methods specified in 40 CFR 60.45 and 40 CFR 60.47a, 40 CFR 60.47b or 40 CFR 60.47c. compliance with the applicable sulfur dioxide emission limits shall be based on daily average calculations; or
 - (c) Fuel sampling and analysis in accordance with Method 19 as specified in 40 CFR Part 60, Appendix A or the appropriate ASTM methods, or equivalent methods as approved by the director. In lieu of performing on-site sampling, representative fuel analyses performed by the fuel suppliers may be acceptable. The representative sulfur dioxide emission rate from any sample shall be calculated using the formulas in paragraph (F) of this rule. The sampling frequency shall be, at a minimum, such that a sulfur dioxide emission rate representative of the thirty-day average emission rate can be determined.
- (F) Sulfur dioxide emissions from fuel samples shall be calculated as follows:
- (1) From solid fuels:

$$ER = (1 \times 10^6)/H \times S \times 1.9$$

where: ER = the emission rate in pounds of sulfur dioxide per MM Btu;

H = the heat content of the solid fuel in Btu per pound;

S = the decimal fraction of sulfur in the solid fuel.

(2) From liquid fuels:

$$ER = (1 \times 10^6)/H \times D \times S \times 1.974$$

where: ER = the emission rate in pounds of sulfur dioxide per MM Btu;

H = the heat content of the liquid fuel in Btu per gallon;

D = the density of the liquid fuel in pounds per gallon; and

S = the decimal fraction of sulfur in the liquid fuel.

(3) From gaseous fuels other than natural gas as specified in paragraph (F)(4) of this rule:

$$ER = (1 \times 10^6)/H \times D \times S \times 1.998$$

where: ER = the emission rate in pounds of sulfur dioxide per MM Btu;

H = the heat content of the gaseous fuel in Btu per standard cubic foot;

D = the density of the gaseous fuel in pounds per standard cubic foot; and

S = the decimal fraction of sulfur in the gaseous fuel.

(4) From natural gas, the sulfur dioxide emission rate shall be considered to be equal to 0.0 pounds of sulfur dioxide per MM Btu.

(G) All data, calculations and reports from any performance test, continuous monitor and/or fuel sample developed for the purpose of demonstrating compliance with rules 3745-18-06 to 3745-18-94 of the Administrative Code shall be retained for a minimum of three years and shall be available for inspection by the director or his representative.

(H) Any owner or operator of any sulfur dioxide emissions source subject to, and not specifically exempted from, rule 3745-18-37 of the Administrative Code, Hamilton county emission limits, shall document any compliance test or applicable emission tracking procedure, shall document compliance with any applicable operating rate

limits and shall retain all data, calculations and reports from any performance test, continuous emission monitor, fuel sample, and/or operating rate monitor utilized for the purpose of demonstrating compliance with the applicable emission limits, emission tracking requirements, and/or operating rate limits for a period of not less than three years and shall make such records available for inspection by and submittal to the director upon request.

- (I) Nothing in this rule shall be interpreted to prevent the director from issuing orders pursuant to section 3704.03 of the Revised Code to require performance testing, continuous emission monitoring, or fuel sampling and/or to require record-keeping and reporting of emission information. Any such data may be used to further evaluate compliance with the requirements of rules 3745-18-06 to 3745-18-94 of the Administrative Code.
- (J) Any owner or operator of any sulfur dioxide source subject to, and not specifically exempted from, paragraphs (B)(4), (B)(5), (B)(6), (B)(7), (B)(8), (B)(11), (B)(13) and (B)(14) of rule 3745-18-49 of the Administrative Code, "Lubrizol Corporation" processes "L", "M", "N", "O", "W" and "AC" (OEPA source numbers P011, P012, P013, P014, P022 and P030), shall demonstrate compliance with the combined hourly emission limits by performing emission tests in accordance with Method 6 or Method 6C in 40 CFR Part 60, Appendix A, and by employing the continuous emission rate monitoring system. The combined allowable sulfur dioxide emission limit for these processes for any hour shall be the sum of the individual allowable sulfur dioxide emissions limits for those processes that are in operation during any part of that hour. The combined allowable sulfur dioxide emission limit for these processes for any rolling three hour period shall be the average of the three, one hour allowable limits comprising the three hour period.

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