

**Method 203C--Visual Determination of Opacity of Emissions
From Stationary Sources for Instantaneous Limitation
Regulations.**

1.0 Scope and Application

What is Method 203C?

Method 203C is an example test method suitable for State Implementation Plans (SIPs) and is applicable to the determination of the opacity of emissions from sources of visible emissions for regulations with an instantaneous opacity limitation. An instantaneous opacity limitation is an opacity limit which is never to be exceeded.

Method 203C is virtually identical to EPA's Method 9 of 40 CFR Part 60, Appendix A, except for 5-second reading intervals and the data-reduction procedures, which have been modified for instantaneous limitation regulations. The certification procedures for this method are virtually identical to Method 9. An example visible emission observation form and instructions for its use can be found in reference 7 of Section 17 of Method 203A.

2.0 Summary of Method

The opacity of emissions from sources of visible emissions is determined visually by an observer certified according to the procedures in Section 10 of Method 203A.

3.0 Definitions [Reserved]**4.0 Interferences** [Reserved]**5.0 Safety** [Reserved]**6.0 Equipment and Supplies**

The equipment and supplies used are the same as Section 6.0 of Method 203A.

7.0 Reagents and Standards [Reserved]**8.0 Sample Collection, Preservation, Storage, and Transport**

What is the Test Procedure?

The qualified observer must use the following procedures for visually determining the opacity of emissions.

8.1 Procedures for Emissions From Stationary Sources. These are the same as Section 8.1 of Method 203A.

8.1.1 Position. Same as Section 8.1.1 of Method 203A.

8.1.2 Field Records. Same as Section 8.1.2 of Method 203A.

8.1.3 Observations. Make opacity observations at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. Do not look continuously at the plume, instead, observe the plume momentarily at 5-second intervals.

8.1.3.1 Attached Steam Plumes. Same as Section 8.1.3.1 of Method 203A.

8.1.3.2 Detached Steam Plumes. Same as Section 8.1.3.2 of Method 203A.

8.2 Recording Observations. You must record opacity observations to the nearest 5 percent at 5-second intervals on an observational record sheet. Each observation recorded represents the average of emissions for the 5-second period. The overall time for which recordings are made must be of a length appropriate to the applicable regulation for which opacity is being measured.

9.0 Quality Control [Reserved]

10.0 Calibration and Standardization

The calibration and standardization procedures are the same as Section 10 of Method 203A.

11.0 Analytical Procedures [Reserved]

12.0 Data Analysis and Calculations

12.1 Data Reduction for Instantaneous Limitation Regulations. For an instantaneous limitation regulation, a 1-minute averaging time will be used. You must divide the observations recorded on the record sheet into sets of consecutive observations. A set is composed of the consecutive observations made in 1 minute. Sets need not be

consecutive in time, and in no case must two sets overlap. You must reduce opacity observations by dividing the sum of all observations recorded in a set by the number of observations recorded in each set.

12.2 Reduce opacity observations by averaging 12 consecutive observations recorded at 5-second intervals. Divide the observations recorded on the record sheet into sets of 12 consecutive observations. For each set of 12 observations, calculate the average by summing the opacity of the 12 observations and dividing this sum by 12.

13.0 Method Performance

The results of the "Collaborative Study of Opacity Observations at Five-second Intervals by Certified Observers" are almost identical to those of previous studies of Method 9 observations taken at 15-second intervals and indicate that observers can make valid observations at 5-second intervals. The average difference of all observations from the transmissometer values was 8.8 percent opacity, which shows a fairly high negative bias. Underestimating the opacity of the visible emissions is more likely than overestimating the opacity of the emissions.

14.0 Pollution Prevention [Reserved]

15.0 Waste Management [Reserved]

16.0 Alternative Procedures [Reserved]**17.0 References**

The references are the same as references 1-7 in Method 203A in addition to the following:

1. Office of Air Quality Planning and Standards.

"Collaborative Study of Opacity Observations at Five-second Intervals by Certified Observers." Docket A-84-22, IV-A-2. Emission Measurement Branch, Research Triangle Park, N.C. September 1990.

18.0 Tables, Diagrams, Flowcharts, and Validation Data

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PART 60 - [Amended]

3. The authority citation for Part 60 continues to read as follows:

Authority: 42 U.S.C. 7401, 7411, 7413, 7414, 7416, 7601, and 7602.

4. Amend §60.106(b)(3) by revising the equation to read as follows:

§ 60.106 Test methods and procedures.

* * * * *

(b) * * *

(3) * * *

$$R_c = K_1 Q_r (\%CO_2 + \%CO) + K_2 Q_a - K_3 Q_r (\%CO/2 + \%CO_2 + \%O_2)$$

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5. Revise § 60.284(f) to read as follows:

§ 60.284 Monitoring of emissions and operations.

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(f) The procedures under § 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems required under this section. All continuous monitoring systems shall be operated in accordance with the applicable procedures under Performance Specifications 1, 3, and 5 of appendix B of this part.

§ 60.752 [Amended]

6. Revise § 60.752(b)(2)(iii)(A) to read as follows:

§ 60.752 standards for air emissions from municipal solid waste landfills.

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(b) * * *

(2) * * *

(iii) * * *

(A) An open flare designed and operated in accordance with § 60.18 except as noted in § 60.754(e);

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§ 60.754 [Amended]

7. Amend § 60.754 by adding paragraph (e) to read as follows:

§ 60.754 Test Methods and Procedures.

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(e) For the performance test required in § 60.752(b)(2)(iii)(A), the net heating value of the combusted landfill gas as determined in § 60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under § 60.18(f)(4).

8. In Appendix A-7, Method 24 is amended by adding Section 6.7 to read as follows:

Appendix A-7 to Part 60 - Test Methods 19 through 25E

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Method 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings

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6.7 ASTM D 6419-00, Test Method for Volatile Content of Sheet-Fed and Coldset Web Offset Printing Inks.

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9. In Appendix B, Performance Specification 2 is amended by adding a sentence to the end of Section 13.2 to read as follows:

Appendix B to Part 60 - Performance Specifications

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Performance Specification 2 - Specifications and Test Procedures for SO₂ and NO_x Continuous Emission Monitoring Systems in Stationary Sources

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13.2 * * * For SO₂ emission standards of 130 to and including 86 ng/J (0.30 and 0.20 lb/million Btu), inclusive, use 15 percent of the applicable standard; below 86 ng/J (0.20 lb/million Btu), use 20 percent of the emission standard.

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