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Method 203B - Visual Determination of Opacity of Emissions From Stationary Sources for Time-Exception Regulations

1.0 Scope and Application

What is Method 203B?

Method 203B 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 time-exception regulations. A time-exception regulation means any regulation that allows predefined periods of opacity above the otherwise applicable opacity limit (e.g., allowing exceedances of 20 percent opacity for 3 minutes in 1 hour.)

Method 203B is virtually identical to EPA's Method 9 of 40 CFR part 60, Appendix A, except for the data-reduction procedures, which have been modified to apply to time-exception regulations. The certification procedures for this method are identical to those provided in Method 9. An example of a 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 a qualified observer.

3.0 Definitions [Reserved]

4.0 Interferences [Reserved]

5.0 Safety [Reserved]

6.0 Equipment and Supplies

What equipment and supplies are needed?

The same as specified in 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 observer qualified in accordance with Section 10 of Method 203A must use the following procedures for visually determining the opacity of emissions.

8.1 Procedures for Emissions From Stationary Sources. The procedures for emissions from stationary sources are the same as specified in 8.1 of Method 203A.

8.2 Recording Observations. You must record opacity observations to the nearest 5 percent at 15-second intervals on an observational record sheet. Each observation recorded represents the average opacity of emissions for a 15-second period. The overall length of time for which observations are recorded must be appropriate to the applicable regulation.

9.0 Quality Control [Reserved]

10.0 Calibration and Standardization

The Calibration and Standardization requirements are the same as specified in Section 10 of Method 203A.

11.0 Analytical Procedures [Reserved]

12.0 Data Analysis and Calculations

Data Reduction for Time-Exception Regulations. For a time-exception regulation, reduce opacity observations as follows: Count the number of observations above the applicable standard and multiply that number by 0.25 to determine the minutes of emissions above the target opacity.

13.0 Method Performance

13.1 Time-Exception Regulations. “Opacity Errors for Averaging and Non-Averaging Data Reduction and Reporting Techniques” analyzed the time errors associated with false compliance or false non-compliance determinations resulting from a sample of 1110 opacity readings with 6-minute observation periods. The study applied a 20 percent opacity standard. Fifty-one percent of the data showed zero error in time determinations. The standard deviation was 97.5 seconds for the 6-minute time period.

13.1.1 Overall, the study showed a negative bias. Each reading is associated with a 15-second block of time. The readings were multiplied by 15 seconds and the resulting time spent above the standard was compared to the transmissometer results. The average amount of time that observations deviated from the transmissometer's determinations was –8.3 seconds. Seventy percent of the time determinations were either correct or underestimated the time of excess emissions. Consequently, a larger percentage of noncompliance periods would be reported as compliant periods rather than compliant periods reported as violations.

13.1.2 Some time-exception regulations reduce the data by averaging over 1-minute periods and then counting those minutes above the standard. This data reduction procedure results in a less stringent standard than determinations resulting from data reduction procedures of Method 203B.

14.0 Pollution Prevention [Reserved]

15.0 Waste Management [Reserved]

16.0 Alternative Procedures [Reserved]

17.0 References

The references are the same as specified in Section 17 of Method 203A.

18.0 Tables, Diagrams, Flowcharts, and Validation Data [Reserved]