

emissions and performance testing continuous emission monitors at stationary sources is required. Other regulations may also identify its use.

1.3 Data Quality Objectives. *How good must my collected data be?* Refer to section 1.3 of Method 7E.

## 2.0 Summary of Method

Using continuous or intermittent sampling, you extract a gas sample from the emissions unit under investigation. You then convey the sample to a gas analyzer and measure the concentration of O<sub>2</sub> or CO<sub>2</sub>. You must adhere to the performance requirements to validate your data.

## 3.0 Definitions

3.1 The Analyzer Calibration Error, Calibration Curve, Calibration Gas, High-Level Gas, Mid-Level Gas, Low-Level Gas, Data Recorder, Gas Analyzer, Interference Check, Measurement System, Response Time, Sampling System, and Sampling System Bias are the same as in sections 3.0 of Method 7E.

## 4.0 Interferences [Reserved]

## 5.0 Safety

Refer to section 5.0 of Method 7E.

## 6.0 Equipment and Supplies

Figure 7E-1 in Method 7E is a schematic diagram of an acceptable measurement system. You must use a measurement system for O<sub>2</sub> and CO<sub>2</sub> that meets the following specifications for the essential components.

6.1 Sample Probe, Particulate Filter, Heated Sample Line, Sample Line, Moisture Removal System, Sample Pump, Flow Control/Gas Manifold, Sample Gas Manifold, and Data Recorder. You must follow the noted specifications in section 6.1 of Method 7E.

6.2 Analyzer. An instrument that continuously measures O<sub>2</sub> or CO<sub>2</sub> in the gas stream and meets the specifications in section 13.0.

## 7.0 Reagents and Standards

7.1 Calibration Gas. *What calibration gases do I need?* Refer to section 7.1 of Method 7E for the calibration gas requirements. You have five options for the calibration gas. The tests for analyzer calibration error and sampling system bias require span, mid-, and low-level gases.

(a) CO<sub>2</sub> in nitrogen (N<sub>2</sub>).

(b) CO<sub>2</sub> in air.

(c) CO<sub>2</sub>/SO<sub>2</sub> gas mixture in N<sub>2</sub>.

(d) O<sub>2</sub>/SO<sub>2</sub> gas mixture in N<sub>2</sub>.

(e) O<sub>2</sub>/CO<sub>2</sub>/SO<sub>2</sub> gas mixture in N<sub>2</sub>.

7.2 Interference Check. *What reagents do I need for the interference check?* Use the reagents listed in Table 7E-1 of Method 7E to conduct the interference check.

## 8.0 Sample Collection, Preservation, Storage, and Transport

### Emission Test Procedure

8.1 Sampling Site and Sampling Points. You must follow section 8.1 of Method 7E.

8.2 Measurement System Performance Tests. You must follow the calibration gas verification, measurement system preparation, analyzer calibration error test, initial sampling system bias check, response time, Interference Check, and validation of runs procedures in sections 8.2 and 8.3 of Method 7E.

8.3 Sample Collection. Follow the procedures in section 8.4 of Method 7E.

8.4 Validation of Runs. Follow section 8.5 of Method 7E.

## 9.0 Quality Control

Follow quality control procedures in section 9.0 of Method 7E.

## 10.0 Calibration and Standardization

Follow the procedures for calibration and standardization in section 10.0 of Method 7E.

## 11.0 Analytical Procedures

Because sample collection and analysis are performed together (see section 8), additional discussion of the analytical procedure is not necessary.

## 12.0 Calculations and Data Analysis

You must follow the procedures for calculations and data analysis in section 12.0 of Method 7E.

## 13.0 Method Performance

13.1 The Analytical Range, Sensitivity, Analyzer Calibration Error, Response Time, Interference Test, and Alternative Dynamic Spike Check specifications are the same as in section 13.0 of Method 7E.

13.2 Sampling System Bias. The pre- and post-run sampling system bias must be within  $\pm 3$  percent of the manufacturer certified concentration for the mid- and span-level calibration gases and less than  $\pm 0.25$  percent of upper range.

## 14.0 Pollution Prevention [Reserved]

## 15.0 Waste Management [Reserved]

## 16.0 Alternative Procedures

16.1 Dynamic spiking procedure and manufacturer's stability test. These procedures are the same as in section 16 of Method 7E.

## 17.0 References

1. "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards" September 1997 as amended, EPA-600/R-97/121.

## 18.0 Tables, Diagrams, Flowcharts, and Validation Data

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## Method 6C—Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure)

### 1.0 Scope and Application

What is Method 6C?

Method 6C is a procedure for measuring sulfur dioxide (SO<sub>2</sub>) in stationary source emissions using a continuous instrumental analyzer. Quality assurance and quality control requirements are included to assure that you, the tester, collect data of known quality. You must document your adherence to these specific requirements for equipment, supplies, sample collection and analysis, calculations, and data analysis. This method does not completely describe all equipment, supplies, and sampling and analytical procedures you will need but refers to other methods for some of the details. Therefore, to obtain reliable results, you should also have a thorough knowledge of these additional test methods:

(a) Method 1—Sample and Velocity Traverses for Stationary Sources.

(b) Method 3A—Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure).

(c) Method 4—Determination of Moisture Content in Stack Gases.

(d) Method 6—Determination of Sulfur Dioxide Emissions from Stationary Sources.

All methods in this list appear in 40 CFR part 60, appendix A.

1.1 Analytes. *What does this method determine?*

Analyte	CAS No.	Sensitivity
SO <sub>2</sub> .....	7446-09-5	See discussion in section 1.3.

1.2 Applicability. *When is this method required?* Method 6C is required in specific New Source Performance Standards, Clean Air Marketing rules, and State Implementation Plans and permits where measuring SO<sub>2</sub> concentrations in stationary source emissions is required. Other regulations may also require its use.

1.3 Data Quality Objectives. Refer to section 1.3 of Method 7E.

## 2.0 Summary of Method

In this method, you continuously sample the emission gas and convey the sample to an analyzer that measures the concentration of SO<sub>2</sub>. Properly designed and operated analyzers based on ultraviolet, nondispersive infrared, or fluorescence detection principles have been used successfully. Analyzers based on other detection principles may be acceptable, however you must meet the

performance requirements of this method regardless of type of detector principle used.

## 3.0 Definitions

3.1 The Analyzer Calibration Error, Calibration Curve, Direct Calibration, System Calibration, Calibration Gas, Data Recorder, Gas Analyzer, Measurement System, Range, Response Time, Sampling System Bias, and Span are the same as in sections 3.0 of Method 7E.