

3.2 *Interference check* means a test intended to detect analyzer responses to things other than the compound of interest, usually a gas present in the measured gas stream, that is not adequately accounted for in the calibration procedure and hence results in excessive bias.

4.0 Interferences [Reserved]

5.0 Safety

Refer to section 5.0 of Method 7E.

6.0 Equipment and Supplies

Figure 7E-1 of Method 7E is a schematic diagram of an acceptable measurement system. You must use a measurement system for SO₂ that meets the following specifications for the essential components.

6.1 *What do I need for the measurement system?* Sample Probe, Particulate Filter, Heated Sample Line, Sample Lines, 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 SO₂ Analyzer. An instrument that uses an ultraviolet, nondispersive infrared, fluorescence, or other detection principal to continuously measure SO₂ in the gas stream and meets the specifications in section 13.0. The dual-range analyzer provisions of section 6.1.8.1 of Method 7E apply.

6.3 *What additional equipment do I need for the interference check?* Use the apparatus described in section 6.0 of Method 6. Figure 6C-2 illustrates the interference check sampling train. In cases where the emission concentrations are less than 15 ppm, the alternative interference check detailed in section 16.1 should be used.

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 your calibration gas.

- SO₂ in nitrogen (N₂).
- SO₂ in air.
- SO₂ and CO₂ in N₂.
- SO₂ and O₂ in N₂.
- SO₂/CO₂/O₂ gas mixture in N₂.

7.2 Additional Calibration Gas Requirements When Using a Fluorescence Analyzer. When you use a fluorescence-based analyzer and calibration gas (c), (d), or (e), the O₂ or CO₂ concentration in your calibration gas must be within 1 percent (absolute) of the O₂ (CO₂) concentration in the effluent sample. If you use a fluorescence-based analyzer and a calibration gas that is SO₂ in air, you may use the nomographs provided by the gas vendor to determine the quenching correction factor. You must know the concentrations of O₂ and CO₂ in the effluent.

7.3 Interference Check. *What additional reagents do I need for the interference check?* Use the reagents described in section 7.0 of Method 6 to conduct the interference check.

For gas concentration less than 15 ppm, the test gases for the alternative interference check are listed in Table 7E-3 of Method 7E.

7.3.1 Alternative Analyzer Interference Check. As an alternative to the above, you may conduct an alternative interference check by sequentially introducing the gases listed in Figure 7E-3 of Method 7E (one at a time) both with and without SO₂ into the calibrated analyzer and recording the apparent concentrations after waiting at least 3 times the analyzer response time. This is then repeated with a blend containing a known SO₂ concentration greater than 80 percent of the analyzer's range and calculating the difference between the known value and the apparent concentration. For each potential interferent gas, identify the largest of the 2 absolute values as the potential interference. The interference for all potential interferent gases in the source category must be less than 2.5 percent of the upper range limit to be acceptable. Record the data on a form similar to Figure 6C-8.

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, and Measurement System Response Time procedures in section 8.2 of Method 7E.

8.3 Interference Check. You must conduct an interference check consisting of at least three runs before or during the initial field test of a particular source category (type of facility). This interference check must be repeated yearly on each individual gas analyzer. When testing under conditions of low concentrations (<15 ppm), the alternative interference check in section 16.1 must be used; it is an acceptable alternative in other applications. For the interference check, build the modified Method 6 sampling train (flow control valve, two midget impingers containing 3 percent H₂O₂, and dry gas meter) shown in Figure 6C-2. Connect the sampling train to the sample bypass discharge vent. Record the dry gas meter reading before you begin sampling. Simultaneously collect modified Method 6 and Method 6C samples. Open the flow control valve in the modified Method 6 train as you begin to sample with Method 6C. Adjust the Method 6 sampling rate to 1 liter per minute (±10 percent). If your modified Method 6 train does not include a pump, you risk biasing the results high if you over-pressurize the midget impingers and cause a leak. You can reduce this risk by cautiously increasing the flow rate as sampling begins. After completing a run, record the final dry gas meter reading, meter temperature, and barometric pressure. Recover and analyze the contents of the midget impingers using the procedures in Method 6. (You do not need to analyze performance audit samples with

this interference check.) Determine the average valid gas concentration reported by Method 6C for the run.

8.4 Sample Collection. Follow section 8.1. Sample within 5 percent of the rate you used during the sampling system bias check

8.5 Post-Run Sampling System Bias Check and Alternative Dynamic Spike Procedure. Follow sections 8.5 and 8.6 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 as applicable.

13.0 Method Performance

13.1 The Analytical Range, Sensitivity, System Response and Minimum Sampling Times, Analyzer Calibration Error, Sampling System Bias, and Alternative Dynamic Spike Check specifications are the same as in section 13.0 of Method 7E.

13.2 Interference Test. Documentation of successful completion, within the last 12 months at the specific source category, where the difference between the analyzer and the modified Method 6 result is less than 7 percent of the modified Method 6 result for each of a minimum of 3 runs.

13.3 Alternative Interference Check. Same as in section 13.6 of Method 7E.

14.0 Pollution Prevention [Reserved]

15.0 Waste Management [Reserved]

16.0 Alternative Procedures

16.1 Alternative Interference Check. The interference check detailed in section 8.3 of Method 7E may be used as an alternative interference check.

16.2 Dynamic Spiking Procedure, Manufacturer's Stability Test and Annual Primary Interference Recheck (as applicable). 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 amend, EPA-600/R-97/121.

18.0 Tables, Diagrams, Flowcharts, and Validation Data

BILLING CODE 6560-50-P