



TRC Environmental

CEMS Testing Overview
Recent Changes to EPA Methods
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Continuous Emissions Monitoring Systems

The Methods

- **Method 3A** - *DETERMINATION OF OXYGEN AND CARBON DIOXIDE CONCENTRATIONS IN EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)*
- **Method 6C** - *DETERMINATION OF SULFUR DIOXIDE EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)*
- **Method 7E** - *DETERMINATION OF NITROGEN OXIDES EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)*
- **Method 10** - *DETERMINATION OF CARBON MONOXIDE EMISSIONS FROM STATIONARY SOURCES (INSTRUMENTAL ANALYZER PROCEDURE)*
- **Method 20** - *DETERMINATION OF NITROGEN OXIDES, SULFUR DIOXIDE, AND DILUENT EMISSIONS FROM STATIONARY GAS TURBINES*



Continuous Emissions Monitoring Systems

More Test Methods

- **Method 15** - *DETERMINATION OF HYDROGEN SULFIDE, CARBONYL SULFIDE, AND CARBON DISULFIDE EMISSIONS FROM STATIONARY SOURCES*
- **Method 16** - *SEMICONTINUOUS DETERMINATION OF SULFUR EMISSIONS FROM STATIONARY SOURCES*
- **Method 18** - *MEASUREMENT OF GASEOUS ORGANIC COMPOUND EMISSIONS BY GAS CHROMATOGRAPHY*
- **Method 25A** - *DETERMINATION OF TOTAL GASEOUS ORGANIC CONCENTRATION USING A FLAME IONIZATION ANALYZER*
- **Method 25B** - *DETERMINATION OF TOTAL GASEOUS ORGANIC CONCENTRATION USING A NONDISPERSIVE INFRARED ANALYZER*



Recent Changes to the CEMS Test Methods

Federal Register May 15, 2006 –

Update of Continuous Instrumental Test Methods-Final Rule

New CEMS Requirements



Changes to the Methods

Major changes to the CEMS methods include:

1. New Range Requirements
2. Required Sampling Traverse Points
3. Method 7E NO_x Converter Requirements
4. Method 20



New Range Requirements

- Calibration Span
 - Analyzer's high range is now equal to the concentration of the highest calibration gas
- Analyzer Range
 - The majority of the analyzer readings need to be within 20 to 100% of full (or calibration span) of the analyzer



Sampling Traverse Points

Use of EPA Method 1 Traverse Points for Gaseous Sampling

- Tester may sample at twelve Method one tests points
- Tester may also choose to perform a 3 or 12 point stratification test
 - 3 points = 16.7%, 50.0%, and 85.3% of duct diameter*
 - 12points = 4.4%, 14.7%, 29.5%, 70.5%, 85.3%, and 95.6% of duct diameter*

*assuming circular ducts



Stratification Test

1. If the concentration of all the stratification test points are less than 10% of the mean then testing may continue using a 3 point traverse
2. If the concentration of all the stratification test points are less than 5% of the mean then testing may continue using a single test point
3. It should be noted that this does not affect Part 60 RATAs which always require a 3 point traverse



Method 7E Converter Test

A NO_x Converter is now required to be performed prior to each field test

- Alternatively, for a series of sources a tester may opt to perform a converter test prior to the first source and after the last source in a series.



Method 7E Converter Test (cont'd)

Two procedures for demonstrating NO_x converter efficiency.

1. Use of EPA Protocol One calibration gas to prove 90% efficiency.
2. The use of the Tedlar bag method in which thirty minutes of readings must be within 2% of the peak reading in order to demonstrate efficiency.



Method 20

EPA Method 20 now refers to Method 3A and 7E, in essence making Method 20 identical to running a Method 3A and 7E or 6C depending on the gases of interest.

