Western Regional Boiler Association (2015)

Reduce continuous emission monitoring (CEMS) costs while increasing reliability with modern optical benches and software.

Robert Wilson President of Emission Technologies, Inc. Largest Stack Testing & CEMS firm based in the NW





Like Cell Phones

Combustion Analyzers Have Evolved Dramatically

- All components (O₂, NO_X, CO, etc.) one manufacture
- All components (O₂, NO_x, CO, etc.) one case
- All components (O₂, NO_X, CO, etc.) one power supply
- All components (O₂, NO_X, CO, etc.) one control board
- All components (O₂, NO_X, CO, etc.) one control menu
- All components (O_2 , NO_X , CO, etc.) one parts source

ABB Analyzer Calibration Cell Eliminates Daily Calibration Gases



🔜 Marianas Energy Corporation - Master

System Maintenance Log Display Calibration Data Review Setup Valve Control





Western Regional Boiler Association (2015) Compliance Demonstration & Challenges Associated to Plant Emissions

Brian Lee, Ph.D. Emission Technologies, Inc. (ETI) ETI@stacktester.com As emission limits lower - QA/QC & adherence to methods becomes increasingly important!

"Condensable PM typically is not measured because federal and most state regulations do not require sources to do so".¹

EPA Method 202 for Condensable PM (CPM)

¹Corio, Louis 7. In-Stack Condensable Particulate Matter Measurements and Issues; J. Ain ^e Was Manage. Assoc. 2000, 50, 207-218

Artificial Particulate can be formed and captured as CPM using Method 202

Artificial Particulate – vapor that would not form particulate matter in the atmosphere when the flue gas is cooled to atmospheric temperature.

Sulfate/Nitrogen Purge
5.2.1 Post-test N₂ Purge for Sources Emitting SO₂.
Method 202 allows for a nitrogen gas purge to correct for Artificial PM by removing dissolved SO₂. An hour purge with N₂ after final leak check to remove SO₂ gas. If not performed a positive sulfate bias may be recorded as CPM.

Laboratory (Method 202)

"Weighing Tins. 50 ml. Glass evaporation vials, fluoropolymer beaker liners, or aluminum weighing tins can be used".²

ETI utilizes glass [Tins can dissolve from acidic samples]!

"A desiccator containing anhydrous calcium sulfate that is maintained below 10 percent relative humidity, and a hot plate or oven equipped with temperature control".²

With R.H. about 40-45% the conductivity of air is dramatically Insulating material (glass) can hold a static charge.

Static charge on glassware can bias mass (unstable mass)

"During each weighing, the period for which the filter is exposed to the laboratory atmosphere shall be less than 2 minutes".³



Discharge Glassware with Ionized Air Molecules.



Artificial Particulate – will bias the back-half high.
Lab Work – may add a positive bias.

As Emission Standards are Lowered and Methods become more efficient – Lab Work Techniques as well as other Artifacts become increasingly important.

Thank you,

References

¹Corio, Louis A. In-Stack Condensable Particulate Matter Measurements and Issues; J. Air & Waste Manage. Assoc. 2000, 50, 207-218

²EPA Method 202 ³EPA Method 5

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