QAG™ 825

COOPER ENVIRONMENTAL

Multi-Metal Quantitative Aerosol Generator

Description

The QAG™ creates an aerosol of known concentration by nebulizing a solution. The resulting droplets are carried out of the generation area to a drying chamber where they are dried to particles. The aerosol exiting the drying chamber contains known concentrations of analytes calculated from the QAG's input parameters. The reference aerosol produced by the QAG is traceable-to-NIST standards and can be used to challenge and evaluate the accuracy, precision and linearity of measurement methods, such as ambient PM monitors & the Xact series of monitors, during certification and Relative Accuracy Test Audit (RATA).

Features

- Approved by USA EPA for multi-metals CEMS audits and certifications
- Quantitative aerosol is traceable to NIST Standards
- Simultaneous generation of one or more elements
- Wide concentration range: ng/dscm to mg/dscm
- Automatic aerosol concentration reporting
- Single operator with minimal input requirements

Applications

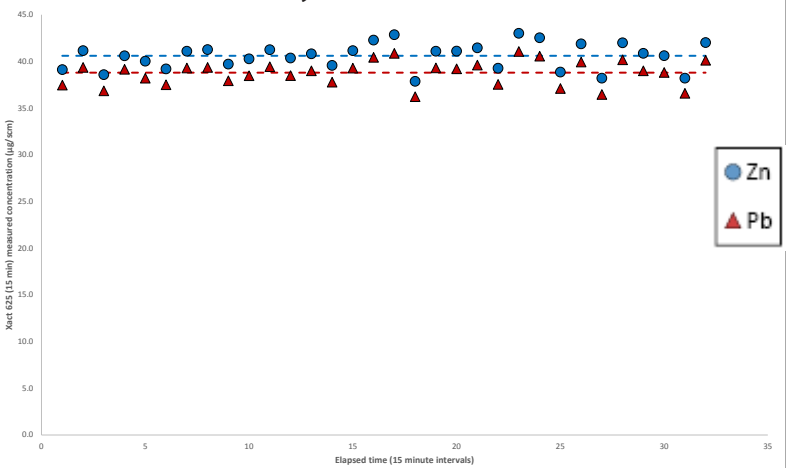
Possible applications include evaluation, verification, audit and certifications of metals and PM measurement systems. It is applicable to both metal and non-metal species as well as generic PM aerosol. The QAG can be used for single concentration audits and stability evaluation of instrumentation, along with multi-point linearity checks and calibrations.

Specifications

Aerosol Generation Method	Pneumatic nebulization
Key applicable elements	Hg, As, Pb, Cr, Cd, Co, Fe, Zn, Tl, Sb, Cu, Mn, Ni, V, Se, Ba, Br, Sr, Pd, Ag and more. . . . .
Aerosol Concentration Range	ng/dscm to mg/dscm
Can spike flows	up to 1000 lpm
Calibration Period	Most components require recalibration at least annually
Percent relative difference	5%
Linearity	Correlation coefficient greater than 0.99
Size and weight	4′ (W) x 4′ (D) x 7′ (H), 160 lbs assembled
Range of operating temperatures	50 to 90 °F
Power requirements	120VAC/60 Hz, one- 20 amp circuirs (220VAC/60Hz with optional power converter)
Inputs/Outputs	All aerosol concentration available in .csv format
Options	Particulate matter, metals and non-metal species

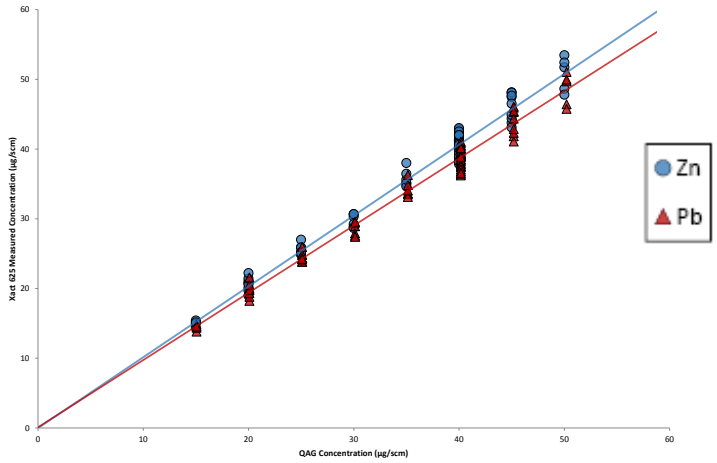
Performance

Stability of QAG Aerosol



Stable aerosol concentrations of Zn and Pb as measured by the Xact 625 ambient metals monitor (AMM). Percent Relative standard deviation over 32 samples was 3.5%.

Multi-Point Linear Calibration Audit



Example multi-point linear calibration audit performed on an Xact 625 AMM. Both Zn and Pb demonstrated a linear fit shown by the high coefficient of determination (0.98 for both Zn and Pb). In addition, aerosol concentrations compared very closely as shown by their near unity slopes (1.02 ±0.02 Zn, 0.96 ±0.02 Pb).

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