

CES

Xact™ 640 Multi-Metal Continuous Emissions Monitoring System (MM-CEMS)



Key Features

- Simultaneous measurement of up to 20 elements
- Non-destructive analysis allows for sample archiving
- Reports results every 15 minutes in µg/dscm
- Easy transfer of data to site DAS or MS Excel
- Automatic QA including daily upscale, blank and flow checks
- Automatic alarming and control features

The Xact™ 640 is an automated multi-metals CEMS based on reel-to-reel (RTR) filter tape sampling followed by nondestructive X-ray fluorescence (XRF) analysis of metals in the resulting PM deposit. In the 640, an isokinetic sub-sample of stack gas is taken from a stilling chamber and drawn through a chemically-reactive filter tape. Both PM and vapor phase metals including Hg are deposited on the reactive filter tape. The resulting deposit is then automatically advanced and analyzed by XRF for selected metals while the next sample is being collected. In the Xact 640, sampling and analysis is performed continuously and simultaneously except for the time required to advance the tape (~20 sec) and the time required for daily automated quality assurance checks.

Accurate, Precise, Reliable, User Friendly, & EPA Approved and Awarded

The Xact 640 CEMS' demonstrated relative accuracy in reference method comparisons was about 95% with relative precisions of about 98%. Long-term reliability has been demonstrated on an incinerator stack at which the instrument has been operating continuously for almost four years. Based on four years experience, the Xact 640 CEMS requires about one man-day per month to maintain. The Xact 640 may be an alternative to or replace current requirements to monitor plant operating conditions, perform periodic EPA Method 29 tests, feed stream analysis, etc. It can determine metal concentrations in stack gas without relying on assumed control efficiencies or feed stream testing. This instrument is the first multi-metal CEMS to be approved by EPA for compliance demonstration with US EPA metal emission standards. It received EPA's Clean Air Excellence Award in May of 2007.

Cooper Environmental Services LLC

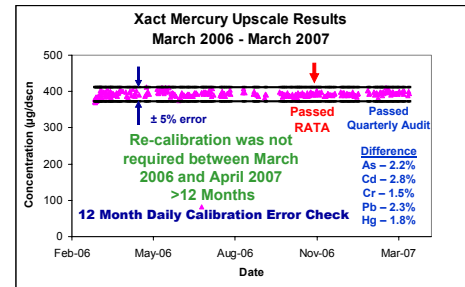
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Applications

Waste incinerators (hazardous, sewage, municipal, medical), cement kilns, lime kilns, foundries, coal-fired power plants, industrial furnaces and boilers, primary and secondary metal smelters, etc.

Product Specifications

The Xact 640 offers non-destructive sample analysis, allowing for archiving and possible re-analysis of samples at a later time. The instrument also provides continuous QA checks with every sample, automatic daily upscale, blank and flow checks, and automatic alarming and control features.



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| Measurement Method | Based on EPA Method IO 3.3 – Determination of Metals in Ambient PM using XRF |
| Key Applicable Elements | Sb, As, Ba, Br, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mn, Ni, Se, Ag, Sn, Ti, Tl, V, Zn and more |
| Measurement Range | 0 to 10 mg/dscm |
| Detection Limits (IF, EPA IO 3.3) | As low as 0.1 µg/dscm with 15 minute sampling and analysis times, 0.5 lpm flow |
| Sampling and Analysis Times | Selectable from 15 minutes to 240 minutes |
| Calibration Stability Check frequency | With each sample analyzed |
| Estimated Recalibration Frequency | About once per year when in a stable temperature environment ($\pm 3^{\circ}\text{C}$): See figure below |
| Upscale Drift, Zero Drift, & Flow Drift | Checked daily |
| Sample Flow Rate | 0.5 lpm |
| Linearity | Correlation coefficient greater than 0.98 |
| Size and Weight | 2' (W) x 3' (D) x 5' (H), 180 lbs, optional 483 mm rack mountable components |
| Operating Environment | Secure environment with temperature controlled to $20 \pm 3^{\circ}\text{C}$ (68°F) |
| Power Requirements | 120 or 240 volts, 40 amps, 60 Hz |
| Inputs/Outputs | 24 VDC, 2 amperes; RS232 serial port, Modbus protocol, 38.4k Baud maximum, All metals data plus machine diagnostic data available. |
| Options | Remote polling, additional elements, optimization for specific elements, and more |

