

CES

Xact™ 620 Ambient Metals Monitor (AMM)



Key Features

- High sensitivity: low pg/m^3 to $\mu\text{g}/\text{m}^3$ range
- Continuous, near-real time reporting
- Simultaneous measurement of up to 24 elements
- Non-destructive analysis allows for sample archiving
- 15 to 240 minute sampling and analysis times*
- Automatic quality assurance and control features

The Xact™ 620 is an automated multi-metals monitor based on reel-to-reel (RTR) filter tape sampling followed by nondestructive X-ray fluorescence analysis of metals in the resulting PM deposit. In the 620, ambient air is sampled through a PM size-selective inlet and drawn through a filter tape. The resulting PM deposit is then automatically advanced and analyzed by XRF for selected metals while the next sample is being collected. In the Xact 620, 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.

Highly-Sensitive, Continuous, Reliable, User Friendly Automated Metals Measurement System

The Xact 620 is capable of achieving detection limits as low as $10 \text{ pg}/\text{m}^3$ using four hour sampling times. With the exception of its sister monitor, the Xact 625 FLM™, the Xact 620 is the only viable multi-metals monitor capable of reporting continuous, near real time metal concentrations in ambient air. Remote access options are available.

With its ultra-low detection limits, the Xact 620 is ideal for measuring hazardous metal air pollutants in complex urban areas and could help establish baselines for health-based standards. It could also be used for sensitive source apportionment of hazardous metals using hybrid models based on both receptor and dispersion models.

The Xact 620 uses proven RTR/XRF technology that has been demonstrated on the ocean floor, Mars, and in thousands of beta attenuation monitors. The Xact 620 is based on our Xact 640 CEMS technology, which was approved by EPA for compliance demonstration in 2004 and received EPA's Clean Air Excellence Award in 2007.

Cooper Environmental Services LLC

10180 SW Nimbus Avenue Suite J6

Portland, OR 97223

503-670-9215 Fax 503-624-2120

www.cooperenvironmental.com

Applications

The Xact 620 is a powerful and cost-effective monitoring/source apportionment tool for accurately defining metal pollution exposures and sources of exposure. This automated metals field laboratory is adaptable to both stationary as well as mobile monitoring platforms and can be used to identify “hot spots” in complex urban airsheds. Time-resolved elemental concentration correlations with wind speed and direction provide powerful tools for source apportionment when combined with various models.

Product Specifications

Measurement Method	Based on EPA Method IO 3.3 – Determination of Metals in Ambient PM using XRF
Key Applicable Elements	Sb, As, Ba, Br, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mn, Ni, Se, Ag, Sn, Ti, Tl, V, Zn and more
Measurement Range	0 to 100 µg/dscm
Detection Limits (IF, EPA IO 3.3) ¹	As low as 10 pg/dscm with 240 minute sampling and analysis times
Sampling and Analysis Times	Selectable from 15 minutes to 240 minutes (*dependent on particulate concentrations)
Calibration Stability Check frequency	With each sample analyzed
Estimated Recalibration Frequency	About once per year in stable temperature environment (±3°C)
Upscale Drift, Zero Drift, & Flow Drift	Manual check required monthly
Sample Flow Rate	16.7 lpm
Linearity	Correlation coefficient greater than 0.98
Size and Weight	2' (W) x 2' (D) x 4' (H), 130 lbs, 483 mm rack mountable components
Required Operating Environment	Lab environment with temperature controlled to 20±3°C (68°F)
Power Requirements ²	120 VAC/60 Hz, 20 amps, (240 VAC/60 Hz, 10 amps with an optional power converter)
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, Change elements, Optimize elements, Remote Control, Enclosures, Inlets

Notes: 1. Detection limits are determined using interference free data
 2. Power must be condition to maintain a factory warrantee or service agreement.

