International Conference on

Air Quality

Mercury, Trace Elements, and Particulate Matter

Exhibitor Directory
Baldwin Environmental, Inc.

Baldwin Environmental, Inc. is the leading manufacturer and service provider of stack gas emission monitoring components. We manufacture water removal systems that dry stack gas samples prior to entering analyzers, gas flow management systems for use with continuous emission monitoring systems, and sampling probes that withdraw and filter particulates from stack gas samples. Our main product lines include Heated Filter Probes, Electronic Water Condensers, Sample Conditioning Systems, and Flow Control Drawers.

We design and manufacture stack gas emission monitoring components by working in partnership with original equipment manufacturers (OEMs), system integrators, environmental regulators, and suppliers, which has enabled us to earn a reputation for offering exceptional service and superior product quality.

Recently, we have been developing new products to help provide high measurement accuracy in extremely low-NOₓ measurements that are now necessary because of the very low emissions of modern gas turbines and boilers. In addition, we have been developing products used in mercury monitoring systems and products to improve ammonia analyzer system performance.

We are actively involved with many air emissions monitoring associations, including the U.S. Environmental Protection Agency’s Environmental Technology Verification Program, Electric Power Research Institute (EPRI), the Institute of Clean Air Companies, the California Air Resources Board, and the Air & Waste Management Association.

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Clean Air Engineering

Environmental consultants offering a variety of air-related services including specialized continuous emission monitoring, instrument rental, source emission testing and monitoring, permitting, environmental audits, process optimization and troubleshooting, sampling equipment and supplies, and analytical services.

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Croll–Reynolds

Croll–Reynolds Clean Air Technologies’ mission is to help customers solve their air emissions problems. Whether customers need to meet required regulations, increase employee safety, recover valuable product, remove process impurities, or improve neighborhood relations, Croll–Reynolds integrates a variety of air pollution control technologies into an incremental pollution control system that can achieve 99.99% efficiency, zero plume, and clean water discharge for PM$_{2.5}$, acid mists, mercury metals, dioxin/furan, and almost any hazardous air pollutant.

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Energy & Environmental Research Center

With a staff of more than 230 talented scientists, engineers, and support personnel, the EERC is recognized internationally as an expert in scientifically advanced energy systems and the prevention and cleanup of air, water, and soil pollution.

Established as a federal research and development facility in 1951, the EERC has been part of the University of North Dakota (UND) since 1983.

The EERC has been designated a center of excellence for air toxic measurement and control, also referred to as the Center for Air Toxic Metals (CATM). CATM brings together the resources of government, industry, and academia to provide a coordinated, practical research effort at the EERC.

The EERC also has the trained personnel, analytical facilities, and laboratory and field-testing equipment needed to support a range of mercury projects. However, what makes EERC capabilities unique is the ability to do mercury sampling and analysis in the field. In doing so, the EERC maintains an exceptionally high level of quality control and quality assurance. The EERC has two fully equipped trailers that have been used for sampling activities at numerous power plants.

The EERC’s Mercury Research Laboratory (MRL) specializes in bench-scale systems studying mercury, $\text{SO}_x/\text{NO}_x$, catalysts, and capabilities for other similar work. The EERC has numerous analyzers and is familiar with many sampling and analytical standards and methods.

A thriving environment and sufficient energy are essential for a high quality of life. The future depends upon the ability to extract energy and other resources in a manner that does not jeopardize the integrity and stability of the environment. To do that, we need to understand the complex network of connections between energy and environment.

“Knowledge has replaced raw material and labor as society’s key resource. But even more important than knowledge is imagination,” says EERC Director Gerald Groenewold. “The EERC is a model for interdisciplinary teamwork, partnership building, and the development of imaginative solutions to critical issues.”

Available at the EERC booth will be a CD copy of “Status Review of Mercury Control Options for Coal-Fired Power Plants,” which has been accepted for publication in a special edition of Fuel Processing Technology.

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Electric Power Research Institute

EPRI, with 30 years of proven success, is recognized as a world leader in creating technology and environmental solutions for the energy industry and society.

Currently serving more than 1000 energy organizations worldwide, EPRI draws on a global network of scientific, technical, and business expertise. As a nonprofit organization, it is committed to help solve today’s toughest energy problems and provide the strategic vision and planning for a robust energy future. EPRI’s long-standing collaborative program builds on the company’s capability to bring together the full range of stakeholders necessary to address critical industrywide issues, to undertake precompetitive research & development, and to create the technology systems to support wide-ranging business strategies at play in today’s market. Companies and energy organizations can participate in EPRI’s entire program or purchase individual portions, according to their needs.

EPRI’s technical program consists of:
- Power Generation
- Distributed Resources
- Nuclear
- Environment
- Power Delivery and Markets

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M&C Products

M&C is the proven industry leader for extractive sampling systems and components for all combustion applications. On display will be an innovative sampling probe designed specifically for Hg applications. This probe has two channels for simultaneous measurements of Hg and HgCl₂.

M&C provides sampling equipment for hot-wet, dry-extractive, or dilution-extractive sampling protocols. We have all accessories required, from probe tip to analyzer inlet port.

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Met One Instruments possesses several strengths that provide advantages over its competitors:

1. Solutions
   We know our business – providing monitoring solutions for profit. The company is geared to the successful solution of the customer's problems. New products are based on customer input. We listen and work with the customer to refine or develop products better suited to their needs.

2. Service
   Our basic company philosophy is to stress service first; our company strives to distance itself from the competitors by constant application of a customer service mentality. The company has multiple repair locations, giving us the ability to do something that few other companies can do – provide in-depth service.

3. Speed
   We have the capability to design and fabricate special systems for customer requirements in a shorter period of time than our competitors. Environmental monitoring involves a combination of instruments and services, and Met One is unique in its ability to provide a very large variety of quality products made by us under a single roof.

4. Satisfaction
   Met One designs products to solve problems, not create problems. We never lose sight of whom we are working for… our customer.

MARKETS
Met One is in the environmental monitoring business; we make instruments that help people measure various characteristics of the air around us. We provide air monitoring products and services for industrial and research air quality products. Products are provided to end users, consultants, and original equipment manufacturer (OEM) resellers. Our products are used to help define pollution problems by measuring various atmospheric characteristics and particulate pollutants.

EPA monitoring guidelines require that plants creating toxic emissions must continuously monitor various air quality, particulate, and meteorological parameters. Our meteorological, particulate, and data acquisition product lines are specifically designed for this type of monitoring. EPA guidelines are often referenced in international sales specifications.

QUALITY CONTROL
Met One has a quality control system in place that is approved and regularly audited by the U.S. Department of Energy, the Nuclear Regulatory Commission, as well as a variety of nuclear power plants with which Met One does business. Met One is currently in the approval process for ISO-9000 certification, which will be completed by the first quarter of 2002.

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MSI products and services include continuous emission monitoring systems for process and compliance air monitoring. MSI products include the new BetaGuard PM beta gauge particulate monitor. MSI services include engineering, fabrication, and installation for new systems or upgrades of existing systems with experienced field service for start-up, training, certification, and long-term maintenance support.

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OhioLumex Company

We proudly present our line of portable and continuous emission mercury monitors. All monitors, based on atomic absorption technology with Zeeman background correction, provide interference-free ultralow mercury detection in real time without concentration on the gold trap.

Attachments for solid sample and liquid analysis enable real-field operation for mercury testing in any matrices without any sample preparation.

Continuous emission monitors do real-time low-level mercury analysis for total and speciated forms and employ dry thermal converters, preventing recombination of mercury and acid-gas species.

A wide variety of our instruments, meant for luminescent and photometric analysis, atomic absorption spectroscopy (AAS), mass spectrometry, infrared (IR) Fourier spectrometry, high performance liquid chromatography (HPLC), high performance capillary electrophoresis (HPCE), and microwave sample digestion techniques, are primarily intended for and are widely used in environmental, industrial, and research laboratories.

In early 2000, Lumex was certified for compliance with ISO 9000/94 Standard IQ-Net reg. #2000/13687 for the management of the quality assurance system for the design, production, quality control, and servicing of its analytical equipment.

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P S Analytical Ltd.

P S Analytical specializes in equipment for the determination of mercury and the hydride-forming elements (As, Se, Sb, Te, and Bi, etc.) and can offer systems for a wide range of sampling, including gases, liquids, and solids.

We have systems for the determination of mercury in the following:

- Stack gas – on-line total Hg
- Stack gas – on-line Hg speciation
- Stack gas – off-line using the Ontario Hydro method, Method 101A, and Method 29
- Coal and fly ash
- Wastewater – EPA 1631, 245.7, and 245.1, among others

We also have many systems for As and Se speciation in a wide range of samples, including soils and water.

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Rupprecht & Patashnick

Rupprecht & Patashnick (R&P) is an ISO 9000 company that specializes in the development and manufacture of innovative instrumentation for the measurement of particulate matter (PM) mass and its chemical components in ambient air, mobile, and stationary sources. Products include U.S. EPA-designated PM$_{2.5}$/PM$_{10}$ Partisol air samplers and TEOM continuous PM monitors. R&P instrumentation is used worldwide.

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Spectra Gases

Spectra Gases Inc., an ISO 9001 facility, manufactures mercury calibration gas standards. SGI also produces calibration gas standards for many other air toxics, including multicomponent volatile organic compounds (VOC) standards for preferred alternative matrices (PAMs) and for Methods TO-14A, TO-15 and TO-17, as well as custom mixtures. Spectra Gases Inc. also manufactures U.S. EPA protocol gases, including low-level NO and NH$_3$, and produces HCl calibration standards including Methods 321 standard.

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Tekran Inc.

Tekran manufactures a wide range of ultratrace mercury analytical equipment. The Model 2537A continuous ambient air mercury analyzer features a detection limit of 0.1 ng/m³, an update rate of 2.5 minutes, and an internal calibration source. The Model 1130 atmospheric mercury speciation unit (patented) allows simultaneous quantitation of both elemental and ionic mercury species. The addition of Model 1135 provides independent, simultaneous measurement of particulate-bound mercury as well.

The Tekran Series 2600 allows automated sub-ppt total mercury determinations in liquid samples. It is U.S. EPA Method 1631- and 245.7-compliant. A range of accessories for calibration, atmospheric flux measurement, and other applications is available.

Typical applications include continuous monitoring of remote background levels, monitoring of landfills and waste incinerators, localization of industrial sources through mobile surveying, monitoring of levels in urban locations, and seismic prediction through the detection of increased ground emissions.

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Thermo Electron Corporation

Thermo Electron Corporation (NYSE:TMO) is a global technology company serving multiple markets, including the life sciences, telecommunications, food and beverage, chemical, and oil and gas industries, with instrumentation, information-management software, and worldwide service for a range of applications. The company’s products help scientists make the discoveries that will fight disease and prolong life. The products increase the speed and quality of communications, provide knowledge to ensure the quality and safety of materials used in manufacturing, improve industrial processes, and protect the environment.

Thermo’s Measurement and Control Sector provides virtually every industry with analytical, quality assurance/quality control, and process-control tools used in research, development, and manufacturing to solve specific analytical problems, improve productivity, and protect workers and the environment. Thermo is composed of the Process Instruments Division, the Temperature Control Division, and the Environmental Instruments Division.

The Environmental Instruments Division is composed of business units such as Thermo Environmental Instruments and Thermo Anderson. We manufacture compliance instruments and systems to monitor environmental pollutants generated by industrial and mobile sources. These include continuous gaseous and aerosol monitors for assessing ambient air quality and emissions from stationary sources. Specific compounds measured include oxides of nitrogen, sulfur dioxide, ozone, carbon monoxide, carbon dioxide, volatile organic compounds, fine particulates, total organic carbon, total organic halogens, and many other compounds of interest. Our Research and Development department is currently working on various new sample handling and analysis methods and analyzers to meet the challenge of precise and repeatable transport and accurate measurement of mercury, fine particulates, and trace elements.

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TRC Environmental Corporation

TRC Environmental Corporation provides technical, financial risk management, and construction services to industry and government, primarily in the U.S. market. The company’s main focus is in the areas of infrastructure improvements and expansions, environmental management, and power development and conservation. TRC’s focused marketing strategy, experienced management, and dedicated employees are all committed to enhancing the company’s growth and profitability, integrity, and leadership position by providing commercial and government customers with the finest value-added solutions that consistently meet or exceed expectations.

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URG Corporation

URG now offers the Ambient Ion Monitor (AIM) for the continuous direct measurement of particulate nitrate, nitrite, sulfate, and phosphate contained in PM$_{2.5}$, with optional measurements to include ammonium, sodium, calcium, potassium, and magnesium. Our outdoor/indoor monitors for simultaneous speciation of acid aerosols, particles, gases, organics, inorganics, and trace metals found in PM$_{2.5}$, PM$_{1}$, and PM$_{10}$ include the Annular Denuder System™, the Versatile Air Pollutant Sampler™, the Speciated Mercury Sampler™, and the Semivolatile Organic Sampler. Available for your air-sampling needs are a selection of cyclones with various flow rates and cut points, impactors, filter packs, and annular denuders.

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