

Where Measurement Begins™

From the first field-tested CEM system to the most advanced Laboratory, Ambient and Natural Gas mercury monitoring instrumentation available, Tekran® sets the standard.



TEKRAN®
Instruments Corporation
a TSI company

Revolutionizing the World of Mercury

Tekran Instruments Corporation is the world's leading manufacturer of advanced systems for ambient and point-source mercury monitoring. With pioneering expertise in cold vapor atomic fluorescence and pure gold preconcentration detection, Tekran® has become the trusted source for accurately and reliably measuring ultra-trace levels of mercury. Tekran has provided more ambient and CEM systems than any other supplier worldwide.



Monitoring Since 1989

Now Powered by TSI

TSI is an international leader in environmental measurement technology, serving the needs of industry, government and research institutions with applications ranging from pure research to primary manufacturing. As a member of the TSI family, Tekran is backed by world-class design, manufacturing and customer support facilities that position us to meet the demands of a global market.

Technology

Tekran turns leading-edge technology into field-proven solutions. We revolutionized continuous mercury monitoring through the use of cold vapor atomic fluorescence spectrophotometry and patented pure gold preconcentration. Tekran's systems for ultra-trace measurement of mercury in ambient air, stack, aqueous samples and other environments are extraordinarily sensitive and robust with detection limits of less than 0.1 ng/m³ and practical immunity to interfering compounds.

Reliability

Tekran builds mercury analysis and environmental monitoring systems that go the distance. For almost two decades, we have improved their designs based on field trials and feedback from industry, government and academic institutions. Tekran is known worldwide for the accuracy and dependability of our equipment and will continue to measure up to customer expectations.

Trust

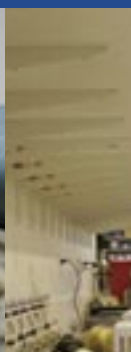
World-class environmental protection agencies like the US EPA and the Atmospheric Environment Service of Canada rely on Tekran to measure trace amounts of mercury in power plant emissions, ambient air, water, soil and vegetation. Tekran's reliability, technology and delivery capability provide every customer with field-tested solutions from beginning to end. With state-of-the-art production facilities and employees passionate about critical environmental measurement, you can depend on Tekran to meet your safety, research and regulatory compliance needs.

The chemical element mercury is a shiny metallic liquid. Its chemical symbol, Hg, is derived from the Greek word hydrargyrum, meaning "liquid silver" or "quick silver." Mercury is very heavy, weighing 13.6 times as much as an equal volume of water. Stone, iron, and even lead can float on its surface.



Technology Leadership — Tekran® Sets

Mercury measurement is just the beginning



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As innovators in the development of ultra-trace mercury measurement, we are committed to the production of leading-edge environmental monitoring solutions. The support of TSI (www.tsi.com) ensures that our Series 3300 CEMS is available for installation when and where you need it, anywhere around the globe.

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Frank Schaedlich and Dan Schneeberger
Founders and Vice Presidents of Research and Product Development



the Standard

Pioneers in Mercury Measurement

Research and development efforts are headed by mercury instrumentation pioneers Frank Schaedlich and Dan Schneeberger, Tekran co-founders and developers of patented mercury monitoring technology. Together with a continually growing staff of research technicians and engineers, Tekran continues to redefine the principles of ultra-trace materials measurement.

Tekran's leadership is demonstrated by its adaptation of innovative cold vapor atomic fluorescence and pure gold preconcentration technology to critical mercury assessment needs such as:

- Continuous emissions monitoring
- Detection at landfills and waste incinerators
- Localization of industrial sources through mobile surveying
- Monitoring of urban environments
- Seismic prediction through the detection of increased ground emissions

Tekran will continue advanced research, development and installation of mercury monitoring technology. Moreover, we will apply our measurement expertise to the search for other heavy metals ranging from arsenic to selenium. Plans for other applications include such markets as food chemistry, workplace safety (e.g., oil platforms and gold mining operations) and Appendix K Systems.

With a diversified portfolio of mercury measurement solutions, Tekran's technology is tested, proven and ready for use—today.



Mercury was among the first metals known, and its compounds have been used throughout history. In many civilizations, mercury was used to placate or chase away evil spirits. The alchemists thought that the substance, which they associated with the planet Mercury, had mystical properties and used it in their attempts to transmute base metals into gold.



Continuous Emissions Mercury Monitoring

Stay ahead of EPA compliance requirements...

Industry-leading Advantages:

- **Reliable:** Insensitive to the presence of SO₂, NO_x, CO, HCl and all other common combustion by-products in expected concentrations
- **Mercury control:** Provides real-time feedback to optimize mercury reduction technologies
- **High sensitivity:** Minimum detectable limit for total mercury of less than 0.05 ug/m³ with rapid response time to changes in concentration

Continuous Field Operation Since 2003

As the world leader in continuous mercury monitors, Tekran's CEM systems have been deployed and continuously operating at multiple sites in North America.



Nanticoke Generating Station

Ontario Power Generation

Installed in 2003, the first Tekran 3300 CEMS has run in unattended mode with only occasional visits by staff for routine checks. The system maintained a 97% availability in its first full year of operation. The plant runs a blend of PRB and EB coal, with a cold side ESP and SCR.



– The Reliable Solution

Tekran Series 3300 Speciating Mercury CEMS

Building on more than a decade of experience in mercury monitoring, Tekran has developed an answer for the challenges of continuous emissions monitoring measurement. In reliability, availability and analytical accuracy, Tekran’s CEM systems have outperformed all competitors in EPA and private tests on both wet and dry stacks. In fact, the EPA is using the Tekran Series 3300 to develop an instrumental reference method as a replacement for the cumbersome wet chemical “Ontario Hydro” RATA.

The Series 3300 can assess total, elemental and ionic mercury in virtually any combustion source. The system is sensitive enough to gauge levels at any coal fired power plant and is immune to the interferences that plague conventional mercury CEMs.

Field Tested. Field Proven. Field Ready.

EPA TEST CRITERIA	TEKRAN Instruments Corporation
7-Day Cal Error	Pass
Linearity	Pass
Converter Efficiency	Pass
Measurement Error	Pass
Zero/Upscale Drift	Pass
Cycle Time	Pass
RATA	Pass



We are proud to have hosted the first successful installation of a permanent CMM system on a coal fired plant in North America, as well as a CMM upgrade test facility; The CMM has been operating completely unattended... We appreciate the highly skilled support and the continued improvements that Tekran and its staff have provided. Continued around-the-clock use is planned.



Blair Seckington, Senior Advisor-Fossil Technology OPG



Saskatchewan Power

Poplar River Generating Station

As part of a new mercury reduction pilot project, two mercury CEMS were installed covering both the inlet and outlet of the plant. Since their installation in August 2004, the CEMS systems have required only local plant support. Poplar River Station burns lignite and has had inlet particulate loadings as high as 4,000 mg/m³.



The Clean Air Mercury Rule

The passage of the Clean Air Mercury Rule (CAMR) by the EPA on March 15, 2005 requires all major coal-fired plants to monitor and possibly reduce mercury (Hg) emissions. Mercury output will be reduced to 38 tons of Hg/yr by 2010 and 15 tons/yr by 2018. The regulations also create a market-based cap and trade system that provide an immediate financial incentive to deploy technologies that can help monitor and reduce emissions.



Tekran® Mercury Measurement – From mercury in the air, ground or water...Tekran Measures Up

Tekran is committed to the production of leading-edge environmental monitoring equipment. Our innovative cold vapor atomic fluorescence and patented pure gold preconcentration technology can be applied to many critical mercury measurement applications, including: continuous monitoring of ambient air levels, landfills and waste incinerators, mobile surveying of industrial sources, monitoring of levels in urban locations and seismic forecasting through the detection of increased ground emissions.



“ (Our division) has acquired mercury measuring technology from several vendors for use both in our laboratory and in the field...and has found the Tekran devices to be superior in concept, implementation and reliability. ”

Environmental Official, State of Florida, USA

The Trusted Source



Ambient Air

Tekran's patented Model 2537A is the cornerstone of its ambient air technologies. It provides precision analysis while opening up a vast array of applications that are too expensive, impractical or simply not possible using prior methods.

Capable of continuous long-term, unattended operation, the 2537A has become the worldwide standard for ambient mercury measurement, allowing for the monitoring of elemental reactive gaseous and particulate bound mercury. With a large range of accessories and conditioning systems, this analyzer can be adapted to numerous applications.

Laboratory

The Tekran® Series 2600 offers unparalleled performance and flexibility for those who require truly sensitive total mercury analysis. The system can implement a breadth of analytical techniques. Unlike conventional systems, the Series 2600 is available in multiple formats, with flexible pricing options. The system can perform virtually any type of ultra-trace total mercury analysis. The Series 2600 is designed for easy migration from a starter system to a fully automated, high throughput configuration.

Natural Gas

Tekran® provides a suite of products for mercury measurement in natural gas and similar process gases. A heated pressure reduction system allows gases to be safely sampled in the field. This system implements an enhanced version of ASTM Method D-6350. The system is also capable of measuring ambient air in accordance with the US EPA IO-5 recommendation.



Mercury researchers from around the world gathered in the Nevada desert to monitor mercury fluxes from naturally enriched soils. A total of twelve Tekran 2537A analyzers were employed. Despite the harsh conditions and extremes in temperature, the equipment operated flawlessly.

Oak Ridge National Laboratories has used mobile deployment of the Tekran Model 2537A. Mounted in a van, the unit was employed to monitor mercury emissions from soil covering a landfill in Florida.

The Tekran analyzer has been validated in a number of international equipment comparisons. One of the earliest of such studies took place at a waste treatment plant in Windsor, Ontario.

Tekran mercury measurement equipment has been aboard such research vessels as the Limnos. A ship-mounted unit helped researchers carry out environmental studies on the Great Lakes.



At 500° C, mercuric oxide decomposes into mercury and oxygen, a phenomenon that led to the discovery of oxygen by Joseph Priestley and Karl Scheele.



Joseph Priestley

The Resources, Tools and Service to

TSI Support Facilitates Large Scale Implementations

Providing a full range of complimentary environmental and analytical systems, TSI Incorporated provides Tekran with the ability to ramp up and deliver large scale mercury monitoring solutions to the electric power industry.

TSI designs and manufactures precision instruments used to measure flow, particulate and other key parameters in environments the world over. The company serves the needs of industry, governments and research institutions with environmental monitoring applications ranging from pure research to primary manufacturing.

TSI's scientific, manufacturing and financial backing will enable Tekran to meet the highest standards of system design, production and support.

Simplifying Monitoring and Compliance

ESC, another member of the TSI family, is a premier software technology provider to the power generation and manufacturing industries. ESC focuses on delivering the tools necessary for handling increasingly complex and stringent reporting requirements and emission regulations.

TSI will partner with ESC to incorporate its next-generation StackVision® software into the industry's best monitoring and compliance package.



“*Data availability has been exceptional... We appreciate the dedicated service and prompt response Tekran representatives have provided.*”

Jim Dunn
Shaw Environmental & Infrastructure, Inc.

Make a Difference

Technology. Reliability. Trust.

Professional service and support by any measure

Tekran markets its products through direct sales and via a growing network of global representatives. Units have been sold in the US, Canada, Europe, Asia and South America—over 30 countries throughout the world. Tekran is involved in an ongoing development program to improve existing products and to respond to the needs of its customers for new and innovative measurement methods.

Tekran's dedicated Customer Service team is responsible for assuring that our customers receive excellent care and a consistent level of support. Should your request involve expedited shipping of a spare part or answers to a complex technical question, our people define the industry standard of service from beginning to end.

We are the Standard

From developing the industry's first, proven mercury CEMS to being considered for the EPA CEMS reference method, Tekran has been at the forefront of the mercury measurement industry since 1992.

As an industry pioneer, Tekran has always been distinguished by its employee commitment to innovation, quality and customer service. As we look to future opportunities, we believe that Tekran Instruments has the people, technology and resources to measure up to your standards and ours.



Mercury occurs in only trace amounts in igneous rocks; sedimentary rocks are slightly richer. The element constitutes only 0.5 ppm of the earth's crust, making it more scarce than uranium but more plentiful than gold or silver.



Tekran...Ahead of our time

- 1989 Tekran founded
 - 1992 First Tekran Mercury Monitor introduced
 - 1995 Development of Tekran Mercury CEMS begins
 - 2003 Commercial Mercury CEMS product released by Tekran (installation still in operation)
 - 2004 EPA Mercury CEMS field trials begin
 - 2005 Series 3300 passes all Part 60 and 75 pre-qualification tests and RATA in EPA field trials
 - 2005 EPA's Clean Air Mercury Rule promulgated
 - 2005 Tekran acquired by TSI; manufacturing and service ramp-up begins
 - 2005 EPA purchases three Tekran series 3300 CEMS
 - 2009 January 1st, Mercury CEMS must be installed and certified



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