Meeting the Demands of Methods 1631 and 245.7 in a Single Instrument with Dual Atomic Fluorescence Detectors

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Mercury is a ubiquitous element whose harmful effects on plants, animals and humans are well documented. Consequently, the need to measure mercury in a variety of sample types has become increasingly important. In addition, government regulations have pushed the detection limit requirements to the sub-part-per-trillion ranges, requiring analysts to approach their work from a new perspective.

In order to obtain the extremely low detection limits desired, analysts are turning to cold vapor generation coupled with gold amalgamation and atomic fluorescence detection. However, contamination becomes a more serious concern as detection limits decrease. Even if the analyst follows scrupulous analytical technique, the system can be contaminated by samples that have an unexpectedly high concentration of mercury.

In this presentation, we will discuss practical considerations in designing a cold vapor atomic fluorescence system with the ability to meet the analytical requirements of two fluorescence methods, U.S. EPA Methods 1631and 245.7. EPA guidelines for proper sample handling, contamination control and quality control will be included.

Speaker: Dave Pfeil is the Product Manager ICP &Hg products at Leeman Labs, Inc. He received his Bachelors degree in Chemistry from Northeastern University in 1971. His professional career began in Clinical Chemistry with the determination of lead in blood by atomic absorption spectroscopy. In 1978 he joined Instrumentation Laboratory, Inc. where he developed custom alloys for hollow cathode lamps. From 1980 through 1995 he worked as a Senior Research Scientist and contributed to the development of Smith-Hieftje background correction. He shares patents on galvanometer-driven lamp selection and a oil dilution system for ICP analysis.