Abstract

Mercury detection is of particular interest due to its toxicity, volatility, and the ease with which it can enter the food chain. Currently available technology includes several potentiometric mercury responsive electrodes. Some of these have detection limits as low as 2 ppm (parts per million). However, environmental mercury contamination needs to be detected in the ppb (parts per billion) range. The currently available competing sensors experience significant interference from ions with similar chemical characteristics to mercury, such as cadmium, lead and silver. This leads to false positive signal for mercury. They also have relatively short lifetimes of a few weeks due to rapid leaching of the mercury sensing agent. This invention, in contrast, is robust, rugged, low cost, has a very low power requirement and is designed for manufacturability.

This sensor, developed at Boise State University, addresses the challenges of mercury detection in fluid samples and overcomes the deficiencies in currently available methods. This method is a rapid response, real time, field applicable sensor, capable of detecting and reporting of mercury concentrations at the sub-ppm level. This sensor yields results comparable to laboratory-based instruments.

Advantages

- Very selective for mercury, nearly eliminating errors in measurements.
- The sensor is field portable and suitable for automated long-term deployment.
- Detects mercury in remote settings quickly without sending physical samples back to the lab.

Stage of Development

This technology is developed and a patent has issued.

Boise State is looking for a Licensee for this technology.

For More Information Contact:
Katy Ritter
Director, Office of Technology Transfer
Research and Economic Development
(208) 426-5765
KatyRitter@boisestate.edu