Sandia National Laboratories

Chemical Free Water Analysis with Nanoelectrode Arrays

Summary

Electrochemical analysis is a highly sensitive, chemically selective method for identifying and quantifying many different chemicals in water. Trace detection of water impurities such as arsenic has previously tested with other chemicals. With Sandia's electrochemical analysis, we have eliminated the need to add chemicals to the testing process while increasing the effectiveness and time efficiency.

This unique nanoelectrode sensor array integrates into a small, integrated sensor system which allows for rapid, non-contaminating field analysis at the parts per billion level. The optimal electrode density provides ideal time response and on-site sampling without the need to add chemicals or transport samples to a laboratory. The sensors also provide real-time calibrated results through a subtractive anionic stripping voltametry (SASV).

BENEFITS

- Eliminates need of lab chemical additives
- Real-time, on-site test results
- Reduced costs
- Provides calibrated results
- Electronic sampling sensitive enough for parts-per-billion levels

COMMERCIAL MARKETS & APPLICATIONS

- Water supply
- Public safety
- Environmental testing

US Patents Issued:

- 7,625,469

SD#s:

- 7588

INTELLECTUAL PROPERTY & LICENSING CONTACT

Virginia Cleary
505.284.8902
vdclear@sandia.gov

Technology Readiness Level:

Sandia estimates the TRL at approximately 4-5. Proof-of-concept has been demonstrated and the sensors & drive electronics have been characterized.

Licensing & Partnering Status:

Various license and partnering options are available. Please contact the Intellectual Property department to discuss.

National Nuclear Security Administration

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