CHEMICAL FREE WATER ANALYSIS WITH NANOELECTRODE ARRAYS

TECHNOLOGY READINESS LEVEL: 6

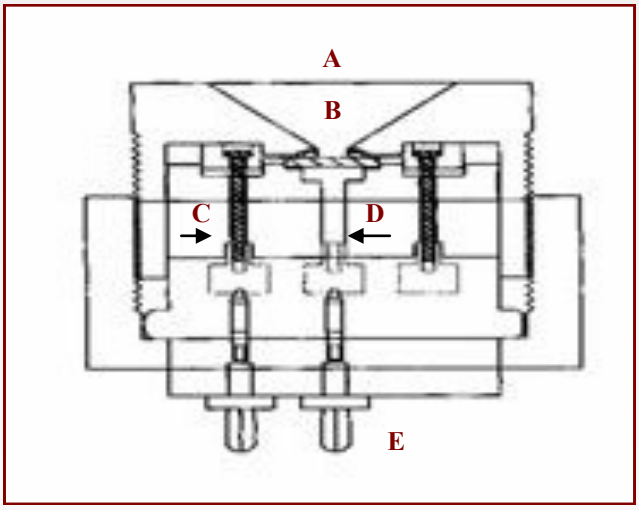
REPRESENTATIVE OF THE DELIVERABLE DEMONSTRATED IN RELEVANT ENVIRONMENTS.

US PATENT # 7,625,469

TECHNOLOGY SUMMARY

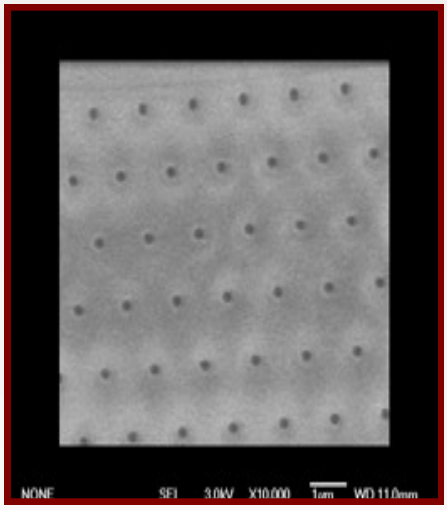
Electrochemical analysis is a highly sensitive, chemically selective method for identifying and quantifying many different chemicals in water. Previous art required field samples be transported to a laboratory where additional chemicals would be added before the analysis could be performed. Sandia National Laboratories has invented an electrochemical analysis method that has eliminated the need to add chemicals to the testing process while increasing the effectiveness and time efficiency of the process.

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).



Left
A. Small Volume Sample Stage **B.** Electrochemical Sensor consisting of nanoe-lectrode arrays of various and interchangeable materials **C.** Counter/Quasi-Reference Electrode Contact **D.** Working Electrode Contact
E. Connection Pins to Handheld Potentiostat

Right
Nanoelectrode Arrays



POTENTIAL APPLICATIONS

Water Supply

Public Safety

Environmental Testing

TECHNOLOGICAL BENEFITS

- Eliminates need for lab chemical additives
- Real-time, on-site test results
- Reduces Costs
- Provides Calibrated Results
- Parts-per-billion sampling sensitivity levels

TECHNOLOGY INQUIRY?

For more information or licensing opportunities contact us at

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Refer to SD # 7588

or visit
https://ip.sandia.gov

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