

Sample Device for Mobile Water Analysis

Inventors: [David Wahman](#)

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TRL 4

Context

Water analysis systems are used throughout the water industry in industrial, field, and applied research settings. Previous methodologies of water analysis relied on a photometric cuvette-based system, which is not readily portable, is limited to one sample and analyte per reading, and requires a technician to accurately pipette the sample into the cuvette. Water quality sampling performed with a photometric cuvette-based system is time intensive and prone to error.

Mobile water analysis is now available thanks to developments in the field. Specifically, the Hach SL1000 Portable Parallel Analyzer incorporates mobile water capabilities on a microfluidic-based chip that inserts into the device. Based on the makeup of the chip, the analyzer can assay multiple water quality measurements simultaneously. However, for all its improvements, the analyzer does not support analyzing multiple samples simultaneously.

Summary

EPA inventor David Wahman created the Sample Device for Mobile Water Analysis to support the analysis of multiple water samples simultaneously when using a mobile water analysis device. The Sample Device operates as an additional part on a mobile water analysis device and provides physical separation between water samples, allowing, for example, the quantification of chlorine in four water samples simultaneously. The Sample Device is easy to load and does not require precision tools. In prototype testing, using the Sample Device reduced analysis time by up to 75% (e.g., 5 minutes versus 20 minutes) when laboratory or on-site testing multiple samples simultaneously.

Potential Applications

- Mobile Water Quality Monitoring
- Method Development
- Research and Development

Contact

[Meghan Sheehan, JD, CLP](#)

Federal Technology Transfer Act (FTTA) Specialist

www.epa.gov/ftta



Sample Device in use on a mobile water analysis instrument.

