

Screening for PFASs in Groundwater using XPS

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PFAS from firefighting foam

Technology Summary

Per- and polyfluoroalkyl substances (PFASs) are a class of non-stick, waterproof, stain-resistant compounds widely used in consumer products and industry since the 1950s. PFAS contamination is now widespread in the natural environment, impacting surface waters and groundwater. PFASs are associated with adverse human health effects, and drinking water sources are a primary exposure risk for the public. Conventional PFAS detection methods target only a small percent of known PFAS compounds. The disclosed method offers a comprehensive test for total PFASs - including unknown PFASs - in water at concentrations above 25 ng/l using x-ray photoelectron spectroscopy (XPS).

Application & Market Utility

The demand for PFAS analyses is likely to expand further as states and the EPA set enforceable maximum contaminant levels. Conventional analytical methods are costly and commercial laboratories have struggled to meet demand. This disclosed method costs significantly less than current method (~\$100 vs ~\$300), and can rapidly screen large batches of samples from public and private drinking water wells in areas of suspected PFAS contamination. Particularly vulnerable water sources include firefighter training sites, military bases, airports, and industrial operations.

Next Steps

This method has been validated at a former firefighter training site impacted by PFASs from aqueous film-forming foams. Additional testing on similar sites is pending. Seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL

4

Seeking

Investment | Licensing | Research

Keywords

- environmental protection
- water quality
- PFAS
- PFOS
- PFOA

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