



# Analytical Workflow Solutions for PFAS Analyses

Environmental contamination by per- and polyfluoroalkyl substances (PFAS) and rising concerns about its long-term impacts on the general population, have increased the urgency for wider PFAS analysis. Initially the focus was solely on environmental matrices but has now expanded into food analysis due to the risk to consumers. Accordingly, regulations and guidance documents have been released to assure the quality of water bodies, drinking water and most recently for food and feed. Here we describe the workflow of our sample-to-result approach for PFAS analysis that can be incorporated into any lab whether the focus is food, water or environmental.

## 1 Application Areas

Whether you are analyzing different types of water e.g., drinking water (EPA 533, 5371, EU 2020/2184), aqueous, solid, biosolids, and tissue samples (EPA 1633), food of animal origin (EU 2023/915), food from plant origin, food contact materials, cosmetics or biofluids, Waters provide turnkey comprehensive analytical workflows for the analysis of PFAS. Our experienced team of Analytical Professional Services can implement the workflows in your lab, so you can easily implement a reliable and robust PFAS analysis, without the need for extensive method development.



## 2 Sample Preparation

Depending on your application area for the determination of PFAS, our workflows provide the right solution to meet your analytical requirements, in terms of matrix complexity, regulatory methods and sensitivity. Sample preparation can range from simple dilute and shoot of drinking water to more advanced techniques when the method necessitates extraction or clean-up using solid phase extraction (SPE) cartridges, such as the new Oasis™ WAX/GCB or GCB/WAX for PFAS dual-phase cartridge that is tested by a third party accredited organization. Where appropriate, automate your SPE using the Andrew+ Extraction robot.





## 3 Separation - Liquid Chromatography

The use of ACQUITY™ Premier Columns with MaxPeak™ High Performance Surfaces (HPS) Technology gives you better sensitivity, analyte recovery and reproducibility by reducing analyte/surface interactions. Where absolute sensitivity is a necessity, e.g., to reach regulatory levels, this latest innovation can aid with peak shape and stable retention times even with large injection volumes. For PFAS analysis of drinking water, for example, the ACQUITY Premier BEH C<sub>18</sub> is recommended.



The ACQUITY Premier System is the next evolution of Performance LC Systems that excels at PFAS analysis. Along with the reliability, ruggedness, high quality, and configuration flexibility you expect from Waters LCs, the ACQUITY Premier System delivers a step change in chromatographic performance, lab efficiency, and risk control. To avoid and control contamination, originating from mobile phase or system components, the PFAS Solution Installation Kit, with the new isolator column Atlantis Premier BEH C<sub>18</sub> AX 50 mm column, is recommended with every UPLC.



## 4 Detection - Mass Spectrometry

Waters Xevo™ TQ Absolute achieves absolute confidence to reach lowest limits of quantification even for the most challenging PFAS compounds in complex matrices. It is designed with a small footprint and low power and gas consumption to help your lab be sustainable and reduce upkeep costs. All tandem quad mass spectrometers, of the Waters Xevo family, produce high quality analytical performance injection after injection for a reliable routine analysis. Enhance your PFAS sensitivity further with the option of UniSpray™ on any MS system.



## 5 Data Processing

Our new software waters\_connect™ for Quantitation reduces the time spent on data review and processing large sample batches. With data integrity tools built-in and intuitive software designed to reduce training burden, your laboratory can generate high-quality LC-MS/MS data and report results easier and faster.

waters\_connect

