

Agilent Ultivo Triple Quadrupole LC/MS System

A New Solution for Environmental Testing



A variety of organic molecules such as pesticides, pharmaceuticals, personal care products, per- and polyfluorinated alkyl substances, and industrial chemicals used in daily life can be introduced into the environment.

For more information, visit:
www.agilent.com/Ultivo

Here, we show the benefits of rapid and sensitive analysis of TrOCs in drinking water using the Agilent Ultivo Triple Quadrupole LC/MS system.

Laboratory challenge

Rising number of samples per day

Test a higher volume of samples every week while adding multiresidue methods that require several hundred analytes in a single method.

New contaminants at lower levels of detection

Analyze emerging contaminants in the environment at low ng/L levels, which are several hundred times lower than traditional persistent organic pollutants.

Increased lab efficiency demands

Laboratory throughput demands requires keeping instrument downtime due to routine maintenance to a minimum.

Accurate measurements the first time

Improve data quality, accuracy, and reproducibility, while preventing sample reruns.

Sample capacity limitations

Improve ROI and sample throughput without increasing lab facility size.

Agilent Ultivo Triple Quadrupole LC/MS system solution

Increases sample throughput

The system's Vortex Collision Cell improves ion transmission, which enhances MS/MS performance

Produces better results

The system's Cyclone Ion Guide gets more ions to the detector for increased sensitivity, providing reproducible results.

Enhances productivity

VacShield enables lab personnel to quickly and seamlessly maintain the system, freeing up valuable time to perform other tasks such as sample extraction, standard preparation, and report generation.

Reduces instrument downtime

The system's intelligent diagnostics use intuitive readbacks to pinpoint issues quickly.

Maximizes laboratory real estate

Seventy percent smaller than similar systems, Ultivo can triple your lab's capacity in the same space.

Automated Online SPE/Tandem MS Analysis of Trace Organic Contaminants in Drinking Water

Using the online SPE capabilities of the Agilent 1290 Infinity II Flexible Cube with the analytical power of the Ultivo Triple Quadrupole LC/MS, we have demonstrated a rapid and sensitive method for automated analysis of trace organic contaminants in drinking water, without tedious offline enrichment, and requiring significantly less sample volume. Figure 1 illustrates highly linear calibration curves ($R^2 > 0.99$) for a quantitation range of 0.5, 1, 2, 5, 10, 20, 50, 100, and 200 ng/L after online SPE sample enrichment.

Analysis of Per/Polyfluoroalkyl Substances in Water

Drinking water samples were analyzed for 17 PFAS, including all in the USEPA method 537, using the extraction procedures in the method. Figure 2 depicts the presence of PFOA and PFOS detected at low ng/L levels in two samples along with the quantifier ion. The Ultivo Triple Quadrupole LC/MS could detect the presence of these low concentration per/polyfluoroalkyl substances, suggesting good sensitivity and robustness for the analysis of water samples.

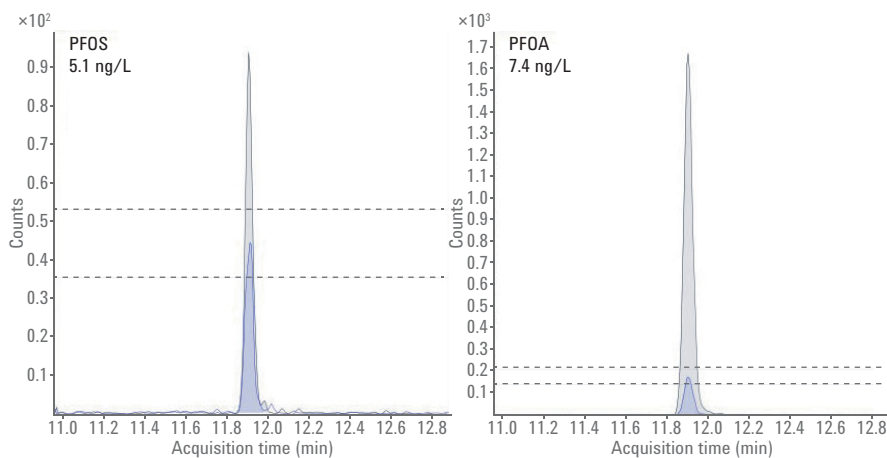


Figure 2. PFOA and PFOS detection at low ng/L levels in two samples.

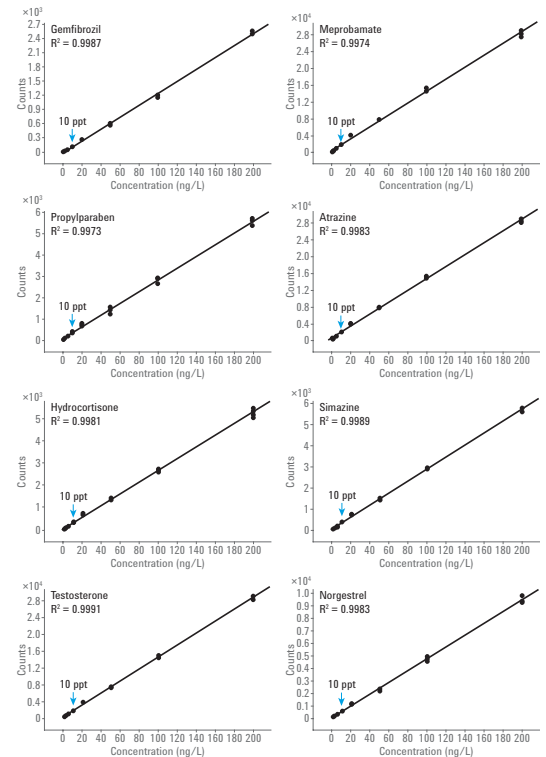


Figure 1. Selected calibration curves, demonstrating a high degree of sensitivity and linearity for quantitative analysis.