ENVIRONMENTAL ANALYSIS

ANALYSIS OF POLYFLUORINATED COMPOUNDS IN ENVIRONMENTAL SAMPLES USING THE AGILENT 6460 TRIPLE QUADRUPOLE LC/MS/MS SYSTEM

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Application Brief
Environmental

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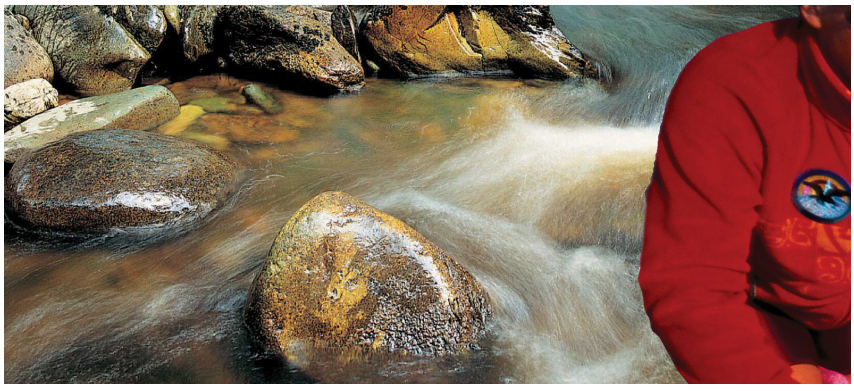
Polyfluorinated compounds (PFCs) have a wide industrial use as e.g. flame retardants, surfactants in fluoropolymer production, lubricants, or as stain and water repellents. Their exceptional stability prevents them from being degraded in the environment and therefore are considered to be persistent organic pollutants. Importantly, PFCs are bioaccumulative and some are associated with a variety of negative health effects.

Depending on the type of sample, quantification requires a sensitivity at sub-ppb levels (not including sample pre-concentration by e.g. SPE). Agilent answers this challenging requirement with its sensitive and robust Agilent 6460 Triple Quadrupole LC/MS/MS system in combination with the Agilent 1260 Infinity Binary LC system. This provides for up to 100 µL direct injection of water samples, without preconcentration, and allows quantification of the majority of PFCs, including the key compounds PFOS and PFOA, down to 20 pg/mL.



UHPLC-QQQ Setup

- Agilent 1260 Infinity Binary LC system
- Agilent 6460 Triple Quadrupole LC/MS/MS system
- Poroshell 120 EC-C18, 50 x 2.1 mm, 2.7 µm (Analytical and Trapping)
- Ammonium fluoride, Water, Methanol

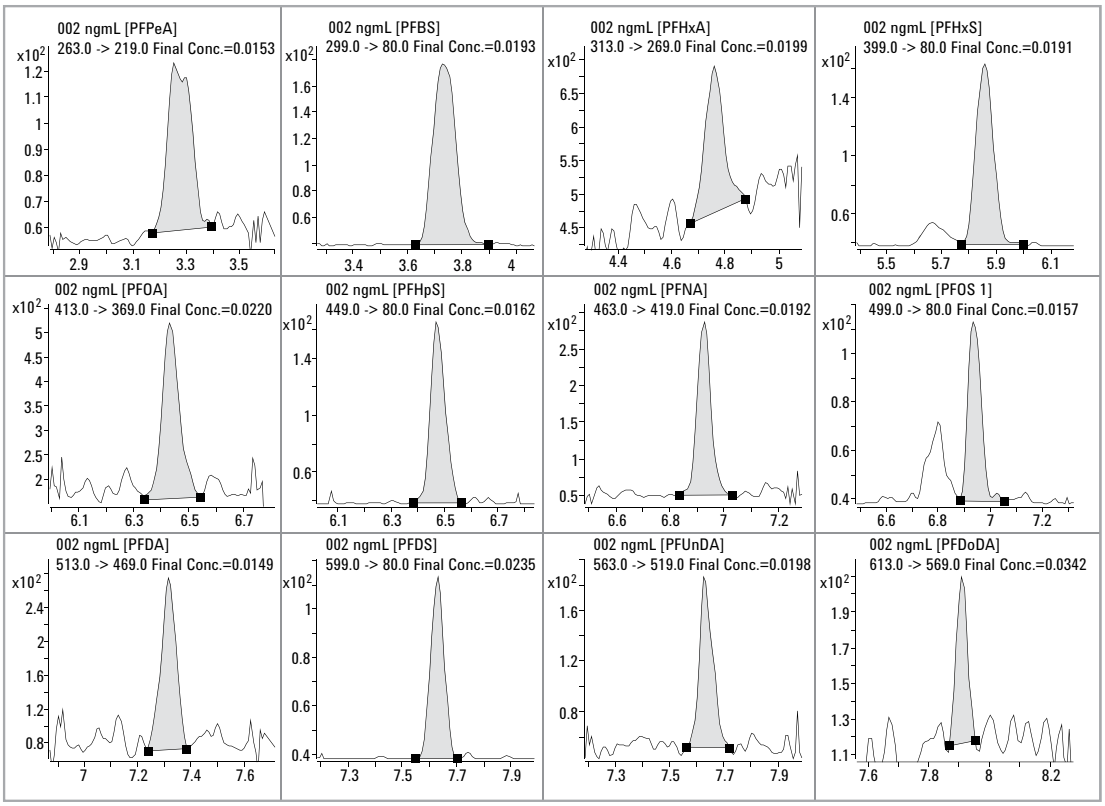


Figure 1: A water sample spiked with 0.02 ng/mL PFC, Compounds-at-a-Glance view for fast review of large amounts of analytes/samples.

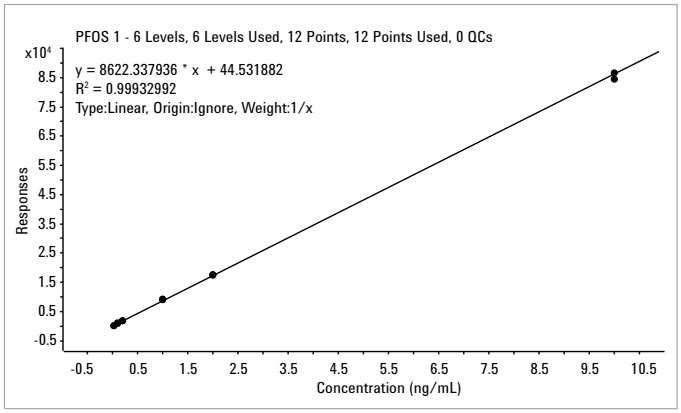


Figure 2: Linear Calibration of PFOS between 0.02 and 10 ng/mL.

Summary

Highly sensitive QQQ, flexible combination with different UHPLC systems and columns, and workflow-guided software make Agilent your trusted partner for you environmental analysis challenges.

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