



Environmental Science



PFOS and PFOA Analysis

Perfluorooctane sulphonate (PFOS) or its free acid, perfluorooctanesulphonic acid, is a stable, man-made fluorinated surfactant and a global pollutant. Not naturally found in the environment, PFOS is a persistent organic pollutant and classed as a priority hazardous substance by the EU and regulated by the Water Framework Directive. This means that PFOS must be phased out in the short term and also, EU member states are required to monitor concentrations in water and ensure environmental quality standards are met.

PFOS concentrations bioaccumulate in wildlife, are toxic to mammals and as well as being considered carcinogenic they are also associated with chronic kidney disease, endocrine disruption and neonatal mortality. PFOS accumulates primarily in the serum, kidney and liver and particularly high levels have been found in top of food chain mammals such as polar bears and dolphins.

PFOS, along with perfluorooctanoic acid (PFOA), have been used extensively in aqueous film forming foam (AFFF) fire-fighting products. AFFF products have been widely used to tackle oil and fuel based fires such as the Buncefield oil terminal disaster in 2005. It has also been used in the metal-plating industry and to a lesser extent, as a fabric and carpet protector, as well as in paper & packaging, paints, waxes and cleaning products. PFOS and PFOA-related compound production has been largely discontinued but they are still manufactured in China.

At i2 we can offer the following approaches to the analysis of PFOS and PFOA:

- We have a 'higher level' method utilising LC-MS which looks specifically for PFOS and PFOA at 0.05µg/l. This method is currently intended for submission to UKAS for accreditation in 2018.
- We also offer a method which will look for PFOS/PFOA amongst a wider suite of 16 other PFAS compounds to 0.1µg/l. Again, this will be submitted for UKAS accreditation in 2018
- Finally using LC-QQQ (LC-MS/MS) techniques we can offer low level PFOS and PFOA to 0.09ng/l (in freshwater) and 0.65ng/l (in effluent) in order to satisfy the EQS values set. This method is currently UKAS accredited

**For further information, please contact:
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