



Microsaic
Systems



Microsaic In-Field Screening

Chemicals of Emerging Concern

Protecting Human and Environmental Health at the Point-of-need

Chemicals of Emerging Concern

The next generation of water and soil contamination

What are they?

CECs are a relatively new phenomenon; many being developed only in the last twenty years. While now environmentally abundant, they are not yet fully regulated for in our water, and we do not understand fully their chronic environmental and human toxicity. Several categories of CEC exist, including steroids, pharmaceutical and personal care products, perfluorochemicals, pesticides, plasticisers, food additives and sweeteners.

Most chemicals of emerging concern are unregulated and difficult to control and monitor with current lab-based analysis.



How are they monitored today?

Expensive analysis, inefficient workflows

Typically, authorities demand that water is analysed using detailed chemical methods, so that we may understand what is happening in the environment at a fixed point in time. This analysis is performed on very expensive, very large laboratory equipment, in centralised facilities, often hundreds of miles away from the site of interest.

Errors in Sample collection

While sample collection and logistics are themselves regulated in terms of the methods used, the sample handling can introduce error through mishandling or incorrect site collection. All this can add days, sometimes over a week to the analysis. By which time, a decision on control or mitigation against a contamination event may be too late.

Introducing In-Field Screening

Microsaic's real time solution for CEC monitoring

What is the best solution for in-field screening and monitoring?

Our platform for real-time monitoring and screening allows you to characterise the key chemical contaminants that threaten whole ecosystems. Get the complete picture with both spatial and temporal analysis using single or multiple deployments of our small and portable platform.

- > Same sensitivity and capability as current lab-based methods
- > Achieve limits of detection for regulatory standards
- > Powerful AI delivering the ability to detect an array of targets in a single platform and with predictive alert capability
- > All at a fraction of the cost of capital equipment and analysis costs



PFAS – What and Why?

CECs – PFAS (or "forever chemicals")

What are they?

Per and Polyfluoroalkyl Substances (PFAS) or 'forever chemicals' bio-accumulate in our environment and in the human body. These compounds are man-made and were developed in the 1940s. Their useful properties include being non-stick and water resistant. With the range of products using PFAS, most people are being exposed to them on a daily basis. Some of these PFAS accumulate in the human body over time and can cause adverse health issues.



With no current regulation in place, guidelines can range from 100ppt to 10ppt. Luckily the **Microsaic in-field test solution** offers screening of PFAS with LOQs as low as 5ppt.

98%

PFAS is found in the blood of more than 98% of Americans

Need for Screening – WHY?

According to the Nordic council of Ministers, the cost of inaction regarding PFAS in the environment and for human health has been estimated at EUR 250Bn pa, in Europe alone. Although there are more countries implementing regulation for the monitoring of PFAS, there is still the need for real-time data of these compounds in wastewater treatment facilities. Remote analytical testing will help improve the monitoring and remediation of PFAS.

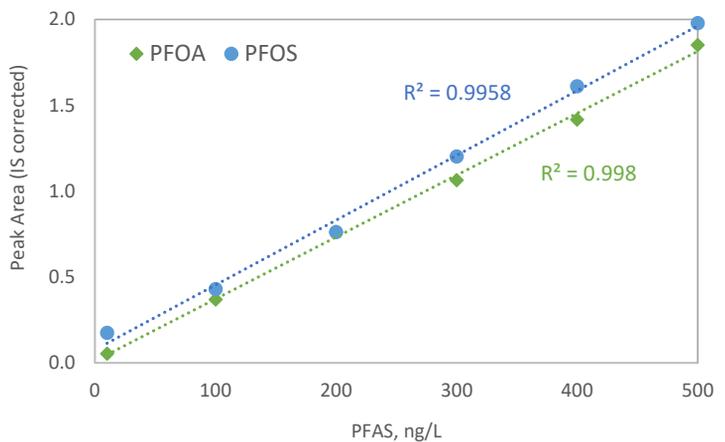
In-Field PFAS Screening

Fully automated in-field PFAS analysis for a fraction of the cost

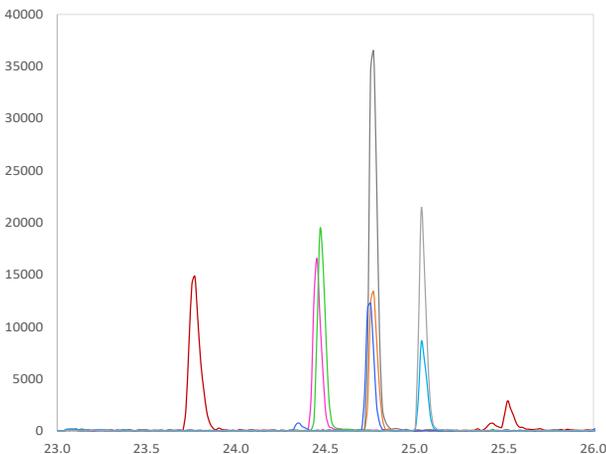
From the centralised lab, to in-field testing

Large, centralised labs already use analytical tools in the detection of PFAS with several methodologies readily available. Moving these detection tools to the point of need for soil and water analysis allows us to monitor whole ecosystems and map these issues spatially and temporally, in real-time. No need to take samples and ship them to a centralised laboratory.

Our technology achieves limits of detection as defined by regulatory standards, but at the point of need, and at a fraction of the cost of contemporary laboratory instruments. With percentage recoveries of 94% for PFOA and 90% for PFOS we can dramatically reduce your workflow for sample collection and logistics to the centralised laboratory. This enables immediate analysis to generate the data to inform decisions, fast.



Great linearity in calibration curve for PFOS and PFOA



Detection of multiple PFAS compounds in one analysis

U.S. EPA

Guidelines in drinking water 70 ppt and groundwater is 40 ppt

LOD

PFOA - 1.9 ppt ± 0.8
PFOS - 1.6 ppt ± 0.8

What's coming?

Microsaic Systems plc is committed to protecting human and environmental health at the point-of-need, and our next soil and water real-time screening solutions will include:

- > Antibiotics screening
- > Drugs of abuse
- > Pharmaceutical drugs
- > And other CECs

About Microsaic

Microsaic Systems plc is a high technology company developing chip-based, bench-top and point-of-analysis mass detectors that are designed to improve the efficiency of environmental testing, chemical reaction monitoring, and academic teaching. The Company is working with a range of established OEM partners, distributors and research organisations to co-develop and commercialise new solutions to improve productivity in environmental and human health.

Microsaic's core products are robust and compact MS systems, retaining the functionality of larger conventional MS systems, easier to use by non-specialists, consuming less energy and having lower running costs. For more information, please go to www.microsaic.com.

To find out more about the products and services

Contact us

 +44 (0) 1483 751 577

 info@microsaic.com

Head office

 Microsaic Systems plc, GMS House,
Boundary Road, Woking Surrey GU21 5BX, UK



Microsaic
Systems