SCIENCE MAKES
A WORLD OF DIFFERENCE

Environmental Testing Solutions

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For the Better

BETTER TESTING MEANS MORE PRODUCTIVITY *AND* PROFIT

The environmental analysis market is driven by change. Emerging contaminants, new methods, lower detection limits – these factors and more make it challenging to keep pace. At the same time, scientists performing environmental testing are dealing with increasing sample volumes and the need to deliver higher productivity with fewer resources.

We're committed to accelerating your environmental testing results, whatever your workflow looks like. We do it with turnkey solutions complete with analytical instrumentation, preset methods, workflows, and local-language capabilities, together with a robust consumables and accessories portfolio, informatics, service, and technical support – all coming together to help your lab meet new and evolving regulatory requirements.

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LEADERSHIP IN WATER TESTING

Our established workflow solutions save you time in method development and sample preparation and ensure your results are accurate and reliable. These easy-to-use, cost-effective solutions suit any workload – large numbers of routine samples, quick turnarounds and emergencies, even testing in the field and on the fly. These solutions help ensure your customers and stakeholders receive reliable and accurate analytical testing for surface water, groundwater, wastewater, and drinking water.

Key Applications

Toxics and trace metals, mercury, mineral content, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), oil and grease, carbamates, speciation, emerging contaminants of concern (PPCPs, PFAS, endocrine disrupting compounds, microplastics), cyanotoxins, radiochemistry, SARS-CoV-2 in wastewater

Key Technologies

Sample preparation, automated liquid handling, AA, GC, GC/MS, headspace sampling, hyphenated techniques, ICP-MS, ICP-OES, Fluorescence Spectroscopy, FT-IR, LC, LC/MS, liquid scintillation, purge and trap, UV/Vis, consumables

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STATE-OF-THE-ART AIR TESTING

Air toxics, ozone precursors, semivolatile organics, trace metals, and particulate matter – these are the targeted analytes and pollutants our air monitoring, sampling, and detection options address. This comprehensive portfolio of solutions, including headspace, automated thermal desorption and gas chromatography, infrared, and atomic spectroscopy technologies delivers the building blocks environmental analysts need to help achieve fast, reliable, accurate results.

Key Applications

Toxics, air particulate monitoring, ozone precursors, soil vapor intrusion (SVI), industrial hygiene, benzene, incident monitoring

Key Technologies

Sample preparation, ATD-GC, gamma counters, GC, GC/MS, ICP-MS, ICP-OES, liquid scintillation, informatics, consumables

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RELIABLE SOIL AND SOLIDS ANALYSIS

From everyday nutrient testing to complex contamination determination and monitoring at remediation sites, we have the soil analysis solutions for your areas of focus. Your lab will gain the ability to detect the smallest concentrations of regulated contaminants and pollutants of emerging concern. From trace metals testing to VOCs and SVOCs to in-field soils analysis, you'll get the job done reliably, efficiently, and in compliance.

Key Applications

Toxics and trace metals, hexavalent chromium, mercury, pesticides, herbicides, and PCBs, DRO/GRO, VOCs, SVOCs, oil and grease, carbamates, radiochemistry

Key Technologies

Sample preparation, automated liquid handling, AA, GC, GC/MS, portable GC/MS, hyphenated techniques, ICP-MS, ICP-OES, FT-IR, LC, LC/MS, liquid scintillation, thermal analysis, UV/Vis, informatics, consumables

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ELEMENTAL ANALYSIS

Whether through industrial or waste disposal operations, the breaking down of soils, lead pipes, or acid rain, environmental analysis involves detecting arsenic, copper, chromium, nickel, silver, selenium, mercury, and other elements in various matrices, even at ultralow concentrations. It's critical for environmental scientists to have reliable methods and instruments that can achieve results in compliance with established regulatory methods and detection limits.

Application Highlights

- Read about our **NexION® 2000 ICP-MS** for natural- and drinking-water analysis in accordance with U.S. EPA Method 200.8.
- The **Avio® 560 Max** fully simultaneous ICP-OES provides rapid wastewater analysis following the guidelines in U.S. EPA Method 200.7.
- Get more information on our **NexION ICP-MS** systems for analysis of liquid and solid waste in water and soil following U.S. EPA Method 6020B.
- See how the **PinAAcle™ 900T** spectrometer can be used for the analysis of major elemental components in drinking water.
- Read about the ion exchange method for the characterization of Cr^{6+} in potable drinking water using our **NexSAR™ HPLC-ICP-MS** speciation solution.

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ORGANICS ANALYSIS

When it comes to organic pollutants, we stay current with applications and guidance for routine and emerging contaminants in water, soil and air, delivering solutions for a broad range of volatile and semivolatile methods.

Drinking water comes primarily from surface and groundwater sources that are susceptible to pollution by VOCs and SVOCs. Due to these compounds' detrimental effects on human and environment health, there are strict limits for their presence in water, wastewater, soil, and other wastes. We provide the precise, reliable, high-throughput testing capabilities and ultratrace-level detection essential for ensuring that drinking water sources meet regulatory standards.

Application Highlights

- We analyze low-level SVOCS in drinking water using liquid-liquid extraction with large-volume direct injection into a **Clarus® SQ 8 GC/MS**.
- Read how our **Clarus 690 GC/FID** efficiently quantifies fuel oxygenates in a variety of matrices with exceptional precision, recovery, and linearity.
- Many VOCs are regarded as highly toxic, refractory, and carcinogenic. Learn more about detection and determination of VOCs.
- Read how we extended the hydrocarbon range of Method TO-17 for soil gas above naphthalene and for fenceline monitoring.
- Learn how to identify oils using synchronous 2D and 3D fluorescence microscopy for environmental monitoring and oil exploration.

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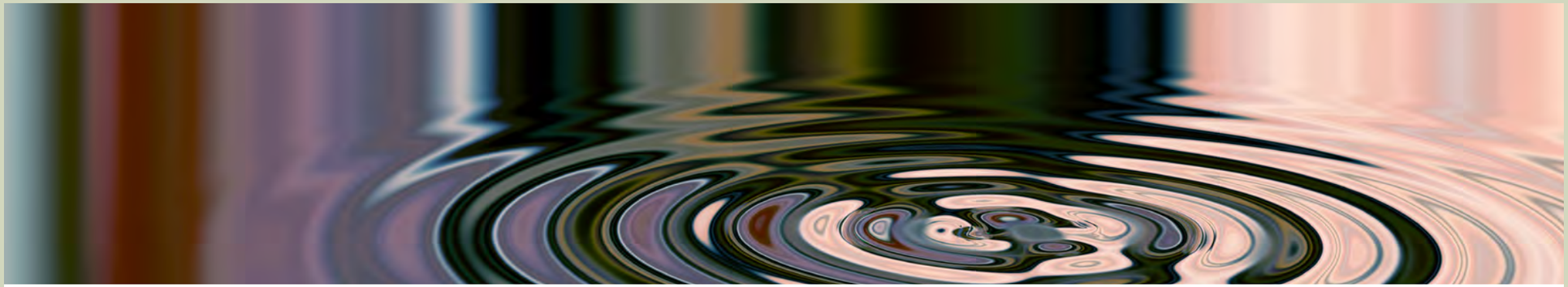

ANALYSIS OF CONTAMINANTS OF EMERGING CONCERN

Much of the environmental testing today is centered around compounds in everyday products, including medicines, personal care and household cleaning agents, and agricultural and lawn care products. These contaminants enter surface water, groundwater, and soil, making their way into drinking water sources and the aquatic ecosystem. They can also bioaccumulate up the food web, putting even nonaquatic species at risk from consumption of contaminated fish. The regulatory landscape for contaminants of emerging concern is dynamic, with advisory and maximum-contaminant levels being added at the state and federal levels and a move toward more stringent detection limits.

Application Highlights

- Read how our single-particle NexION ICP-MS enables fast, accurate analysis of nanoparticle size and concentration, plus ionic (dissolved) concentration, in a single analysis.
- FT-IR spectroscopy is an ideal analytical technique for the identification of polymers, with detection and identification of microplastics of only a few microns.
- Our LC/MS/MS systems provide a simple, rapid, sensitive, and cost-effective method for analyzing PFOA and PFOS in drinking and surface water samples at sub to low ng/L (ppt) levels.
- We provide an automated approach to detection of pharmaceutical and personal care products (PPCPs) that allows for significant and efficient analyte concentration.
- Learn about our flexible workflow for the biosurveillance of wastewater for the presence of SARS-CoV-2.

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RADIOCHEMICAL ANALYSIS

Radioactive particles are encountered at typically very low level in nature. Sources for naturally occurring radioactivity include minerals containing radioactive elements, background cosmic rays, solar flux, radon gas, radioactive materials in manufacturing, nuclear medicine, and industrial operations such as nuclear power plants, nuclear laboratories, and radioactive waste handling and disposal.

Regulatory agencies have set concentration limits, standards, and analytical testing methods to detect radioactivity in environmental matrices. Entities that deal with radioactive substances, and some suppliers of potable water or wastewater treatment (where required by authorities), must perform radioactivity-level determinations.

Application Highlights

Read how our systems meet European Council Directive 2013/51/Euratom updated recommendations for sampling rate, detection limits, and other parameters.

Read how our **NexION® ICP-MS** reduces ^{90}Sr analysis time from 14 days to 14 minutes, which is important when monitoring large sample volumes following a nuclear incident.

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TECHNOLOGY THAT SUPPORTS YOUR SCIENCE

Governments and laboratories around the world that perform environmental testing need to analyze increasingly complex samples under tighter regulatory requirements. So we've made it our mission to provide not only a comprehensive portfolio of instrumentation, software, and applications, but also consumables and accessories to support every variety of environmental testing method across every environmental matrix.

SEE MORE

NEXION® ICP-MS SYSTEMS

For testing labs conducting trace-elemental analyses, the NexION ICP-MS builds on a rich history of innovation, delivering accurate results to meet and exceed today's industry needs and regulatory requirements.

AVIO® 560 MAX ICP-OES

The Avio 560 Max system is a compact, fully simultaneous ICP-OES with a built-in HTS sample introduction module, taking 1.5-minute runs down to 30 seconds, ideal for commercial testing labs.

PINAACLE® 900T

For labs needing the best in both flame and THGA furnace atomic absorption, the PinAAcle 900T is a combined flame/longitudinal Zeeman-furnace system with the flexibility to switch between the two in seconds.

QSIGHT® LC/MS/MS

Our QSight systems provide exceptional sensitivity for difficult matrices in commercial testing labs and environmental analysis, with a self-cleaning design for maximum uptime.

CLARUS® SQ 8 GC/MS

It delivers high throughput, unsurpassed sensitivity, and unparalleled stability for identification and quantitation of VOCs and SVOCs.

SPECTRUM TWO™ FT-IR

Easy to use, powerful, compact, and robust, our Spectrum Two FT-IR delivers fully integrated, robust universal sampling for trouble-free measurements and portability options.

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SEE MORE

QUANTULUS™ GCT

Our liquid scintillation counter delivers ultralow-level sensitivity in a smaller benchtop footprint – perfect for detection of low level Alpha and Beta radioactivity.

SPOTLIGHT™ 400 FT-IR

The system incorporates ATR imaging technology that enables the collection of high-resolution infrared images of extremely small samples to visualize materials composition.

CLARUS 590/690 GC

Our sensitive, high-capacity, high-throughput Clarus 590/690 systems delivers a wide-range FID, a high-performance capillary injector, and options for liquid injection, headspace, and SPME on one instrument.

LC 300 HPLC/UHPLC

Our LC 300 platform provides the flexibility, performance, and efficiency to tackle challenging analytical demands, with simplified LC workflows and options to customize your system with a range of detectors and accessories.

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TECHNOLOGY THAT SUPPORTS YOUR SCIENCE

	APPLICATIONS					
	Trace Elements / Metals	Pesticides and Residues	VOCs and SVOCs	Hydrocarbons	Radiation / Radioactivity	Emerging Contaminants
Sample Preparation	✓	✓	✓	✓		✓
Automated Liquid Handling	✓	✓	✓	✓	✓	✓
AA	✓					
GC		✓	✓	✓		✓
GC/MS		✓	✓	✓		✓
ICP-OES	✓					✓
ICP-MS	✓					✓
IR			✓			✓
LC		✓				✓
LC/ICP-MS	✓					
LC/MS		✓				✓
Liquid Scintillation					✓	
UV/Vis	✓		✓	✓		
Consumables	✓	✓	✓	✓	✓	✓

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CONSUMABLES AND ACCESSORIES MAKE ALL THE DIFFERENCE

Find out more about these leading consumables, click on the links:

ATOMIC SPECTROSCOPY CONSUMABLES CATALOG

CHROMATOGRAPHY CONSUMABLES CATALOG

MATERIALS CHARACTERIZATION CONSUMABLES CATALOG

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For more information on our environmental solutions, visit www.perkinelmer.com/category/environmental

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