Comprehensive Solutions for PFAS Analysis
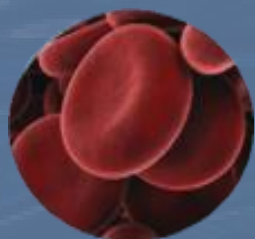
Blood

Vial

Soil

Water

Wastewater

Meat

From Sample to Vial
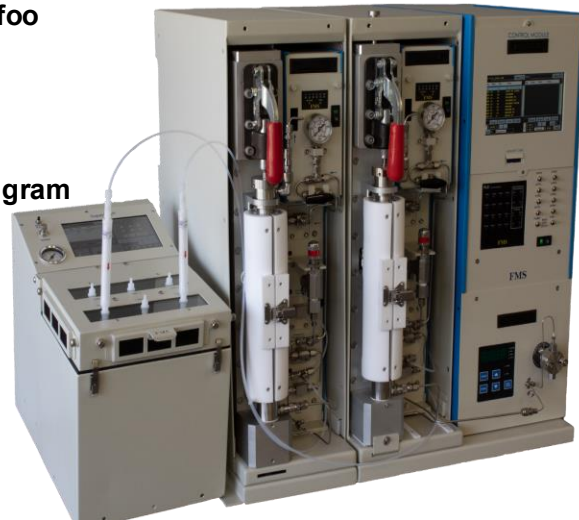
Extraction + Cleanup + Concentration

FMS
Fluid Management Systems

PLE®
Integrated One-Step Extraction, Cleanup, and Concentration of PFAS from Food Samples

Features:

- **Compliance**: Automates EPA - 3545A, 1633, extraction of PFAS in foo

- **Advanced:** Efficient Pressurized Liquid Extraction & Purification

- **One Step Prep**: Automate Extraction, Purification & Concentration

- **Extracts PFAS from Fatty Foods** :Fat Removal Capacity .25 ~2.0 gram

- **Fast:** Process 1 to 8 samples unattended in 1-2 hours

- **Safety:** Reduces human error to toxic Chemicals

- **Modular, expandable:** Expand from 1 to 8 samples

- **Clean Cartridges:** Low-background column & Cartridges

- **Robust and Reliable:** Consistent, durable performance.

- **Extraction Cell:** Flexible sample capacity. 5 to 100 ml

- **Real-Time Plotting:** Live data monitoring.

Integrated One-Step Extraction, Cleanup, and Concentration of PFAS

The PLE system combines three key steps into one efficient process. It starts with extracting PFAS from food samples in the extraction cell, followed by purification using Pure Wax-PFAS cleanup columns. The purified extract is then transferred to the SuperVap concentrator, resulting in a concentrated extract ready for LC-MS analysis. This integrated approach simplifies the workflow, ensuring thorough and efficient PFAS extraction, cleanup, and concentration in a single automated process.

Comprehensive Data Management:

Equipped with advanced software, PLE systems facilitate method development, real-time monitoring, and thorough data management, ensuring traceability and compliance with regulatory standards.

.Modular and Expandable Design:

The PLE system offers a flexible, modular setup that allows users to start with a single-sample unit and easily expand to accommodate up to 8 samples. This scalable design ensures laboratories can efficiently adjust operations as their workload increases, all while minimizing initial investment.

Controlled Positive Pressure Pumping:

This feature ensures precise solvent flow rates during the extraction process, enhancing recovery rates and achieving consistent, reproducible results across various food matrices.

Pressurized Liquid Extraction (PLE)

Pressurized Liquid Extraction (PLE) is a high-speed technique for extracting analytes like PFAS from solid and food matrices. By utilizing high pressure and temperature, PLE efficiently reduces both extraction time and solvent usage. The fully automated PLE™ system streamlines the process of extraction, purification and concentration of PFAS from food samples..

High-Speed Extraction for Rapid PFAS Analysis:

Utilizing elevated temperatures and pressures, PLE drastically reduces extraction times, enabling the processing of up to 8 samples in less than 2 hours. This fast turnaround is crucial for high-throughput laboratories focused on PFAS analysis, as it ensures that extraction, cleanup, and concentration are all completed efficiently within a single, integrated process.

Closed-Loop System for Safe PFAS Handling:

The PLE™ system functions automatically within a closed-loop design, significantly minimizing human exposure to toxic chemicals. By containing all processes—extraction, purification, and concentration—within the system, it reduces the need for manual intervention and safeguards laboratory personnel from hazardous substances.

Reduced Solvent Consumption:

PLE optimizes the solvent-to-sample ratio, reducing the amount of solvent needed for each extraction. This not only speeds up the process but also lowers environmental impact and operational costs..

FMS
Fluid Management Systems
Automated Sample Prep Solutions

TurboTrace® PFC System

Automated SPE for the Analysis of PFAS/PFOS in Water & Wastewater

Features:

- **Compliance:** Automates EPA Methods 525, 533, 537.1, 1633
- **One Step Prep:** Perform extraction, drying & concentration
- **Fast:** Process up to 8 samples in 1-2 hours
- **Reliable:** Reduces human error, enhances analysis quality
- **Robust:** Fast vacuum loading for tough matrices
- **Convenient:** Automatic bottle rinse
- **Advanced:** Nitrogen drying
- **Clean:** Separate waste outlets for samples and solvents
- **Direct:** Direct concentration into a tube
- **Versatile:** Adapts to all SPE cartridge sizes

Introduction:

The Positive Pressure and Vacuum-Based Automated SPE System is an advanced solution designed specifically for the efficient and accurate analysis of PFAS/PFOS in water and wastewater. This system integrates state-of-the-art automation with robust design, ensuring reliable and reproducible results while significantly reducing manual labor and processing time. Ideal for high-throughput laboratories, it supports critical EPA methods and offers unparalleled versatility in handling a wide range of sample types, making it a vital tool in modern environmental analysis.

Positive Pressure System:

Delivers consistent flow rates through SPE cartridges, crucial for reliable and reproducible extraction efficiency, especially in complex water matrices types, making it a vital tool in modern environmental analysis.

Vacuum-Assisted Sample Loading:

Accelerates the processing of large sample volumes, significantly reducing preparation time while maintaining high recovery rates for PFAS compounds.

Versatile and Flexible Operation:

Capable of handling various sample types, including challenging wastewater matrices, this system supports multiple EPA methods, making it adaptable to diverse laboratory requirements and regulatory standards.

One-Step Automated Preparation:

Integrates extraction, cleanup, and concentration into a single automated process, minimizing manual intervention and potential contamination, ensuring precise PFAS analysis, maintaining high recovery rates for PFAS compounds.

Robust and Durable Construction:

Designed for long-term use in demanding lab environments, the system ensures consistent performance and reliability across numerous sample runs, critical for high-throughput PFAS analysis.

Advanced Automation:

Features cutting-edge automation technology that reduces manual handling, lowers the risk of human error, and increases lab productivity, essential for accurate and efficient PFAS testing.

Applications

- **Drinking Water**
- **Wastewater**
- **Oil**
- **Blood**
- **Milk**
- **Urine**

FMS
Fluid Management Systems
Automated Sample Prep Solutions

EZPFC®

Simple and Quick Solid Phase Extraction for Water & Wastewater Analysis

Seamless Compliance with EPA Methods: Direct-to-Tube Concentration

Fast: Runs 6-12 Samples in 20 ~ 50 min

High Throughput: processes 6-12 simultaneously

Flexible: Uses All SPE Cartridge Sizes

Semi-Automated: Efficient and consistent extraction. & Valve

Dual Waste Separation: Separating Aqueous and Organic Waste

Quality Consumables: Guaranteed Certified Cartridges

Bottle Rinse: Automated Bottle Rinse

In-Line Drying: Nitrogen and Vacuum In-line Drying

Reliable: No Maintenance Required

Zero Cross-Contamination: No Shared Tubing & Fittings

Introduction:
The EZPFC system by FMS is a cutting-edge solution for simplifying solid phase extraction (SPE) processes in water and wastewater analysis. Designed to enhance laboratory efficiency, this system automates critical steps, ensuring high-quality results and reduced turnaround time for PFAS/PFOS/PFOA analysis.

Simple Operation:
The EZPFC system eliminates the need for computers or complex electronics, allowing for straightforward operation. Its intuitive design ensures quick setup and use, ideal for busy laboratories

Semi-Automated Process
The EZPFC includes automated vacuum sample loading and precise valve selection, effectively separating aqueous and organic waste. This automation reduces manual labor and minimizes errors in sample preparation.

Versatile Cartridge Use
The system is compatible with all SPE cartridge sizes, offering flexibility across different sample types and methods. This versatility makes it adaptable to a wide range of analytical needs.

Supports EPA Method 537 & 537.1
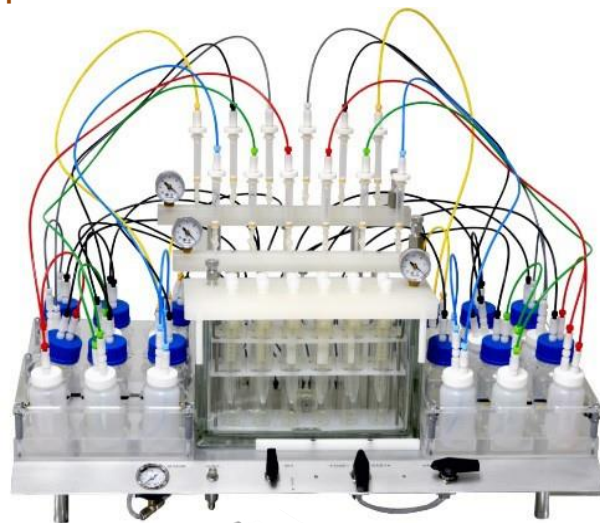
Applications:
Drinking Water
Waste Water
Blood
Milk
Beverages

FMS 537 Cartridge

FMS 537.1 Cartridge

Sample Bottle Filters

Cartridge Adapters PFAS

Efficient Filtration for High Particulate Samples
Boost your lab's efficiency with our Sample Bottle Filters, tailored for high particulate matrices. They provide consistent, reliable results, even with challenging environmental samples.

Zero Cross-Contamination
With independent tubing and fittings for each sample, the system ensures that there is no cross-contamination between samples. This feature is crucial for maintaining the integrity and accuracy of your results

The SuperVap® PFC

Family of Concentrators

- **Dry, Waterless**: No water, contamination-free operation.

- **Programmable**: Customizable tasks and sequences.

- **Multi-Sample Concentration**: Handles up to 24 samples.

- **Preheat & Ramp-Up**: Controlled temperature increase.

- **Auto Nitrogen Blowdown**: Efficient solvent evaporation.

- **Unattended Operation**: Concentration in centrifuge tubes.

Designed specifically for the concentration and evaporation of samples for PFAS analysis with no components that will contribute to PFAS background. The SuperVap® PFC 24 Concentrator is a dry, waterless system capable of automatically concentrating or evaporating up to 24 samples in 15-ml centrifuge tubes. The SuperVap® PFC 12 Concentrator can automatically concentrate or evaporate up to 12 samples in 50-ml centrifuge tubes. It can preheat as well as ramp up to the final temperature. It automatically starts the nitrogen blowdown and shuts off nitrogen and heat when the final programmed time is achieved. Samples can be concentrated directly in the centrifuge for unattended transfer, eliminating contamination and errors during manual transfer.

Automated Nitrogen Blow Down:

Automatically initiates nitrogen to evaporate solvents during sample concentration, ensuring consistent results.

Dry, Waterless System:

The SuperVap® PFC Concentrator operates without water, ensuring a dry environment for sample concentration.

Programmable:

Users can program the device to perform specific tasks and follow a set sequence of steps. This flexibility allows for customization based on the specific requirements of the samples being processed. All steps are programmed by time.

Preheating and Temperature Ramp-Up:

The concentrator can preheat and gradually ramp up to the final temperature needed for the concentration process. This feature may be helpful for sensitive samples that require controlled temperature conditions

Precision Extraction, Clean Cartridges, Superior Recoveries

Exceptional Recovery and Reliable Results

Designed for food, solids, and water testing, these cartridges deliver exceptional recovery rates, providing reliable and consistent results with every use. We guarantee the purity needed for demanding analytical applications, making FMS the trusted choice for superior PFAS extraction and recovery in complex matrices

Cleanroom Manufacturing for Superior PFAS Extraction

FMS columns and cartridges are meticulously manufactured in a cleanroom environment, ensuring minimal contamination and a clean background crucial for accurate PFAS extraction.

PFAS Cartridges for water & Waste water

Part Number	Description
SPE-CAR6-.5-DVB-PFC	SPE PFAS Cartridge .5-gram DVB 6ml
SPE-CAR6-150-WAX-PFC	SPE PFC Cartridge 150 mg WAX 6ml
SPE-CAR6-250-WAX-PFC	SPE PFC Cartridge 250 mg WAX 6ml
SPE-CAR25-250-WAX-PFC	SPE PFC Cartridge 250 mg WAX 25ml

PFAS Cartridges for food

Part Number	Fat Removal Capacity
PureWax-PFAS-0.5g	0.5 Gram
PureWax-PFAS-1g	1.0 Gram
PureWax-PFAS-2g	2.0 Gram

EPA Method 537.1 Recoveries

Compound	Recoveries (%)
PFBS	94
PFHxA	99
GenX	102
PFHpA	99
PFHxS	95
ADONA	90
PFOA	103
PFNA	95
PFOS	93
9Cl-PF3ONS	88
PFDA	91
N-MeFOSAA	93
PFUdA	93
N-EtFOSAA	95
11Cl-PF3OUDS	86
PFDoA	90
PFTrDA	86
PFTeDA (PFTA)	84

EPA Method 533 Recoveries

Compound	Recoveries (%)
11Cl-PF3OUdS	104.0
9Cl-PF3ONS	86.9
ADONA	80.2
HFPO-DA (GenX)	78.7
PFBA	101.2
PFBS	86.4
8:2FTS	96.0
PFDA	89.5
PFDoA	80.6
PFHpS	100.2
PFHpA	83.0
4:2FTS	98.0
PFHxS	92.0
PFHxA	101.2
PFNA	81.3
6:2FTS	99.0
PFOS	86.2
PFOA	85.7
PFPeA	104.3
PFPeS	92.8
PFUnA	101.6

EPA Method 1633 Recoveries

Compound	Recoveries (%)
13C2-4-2 FTSA	95
13C2-6-2 FTS	97
13C2-8-2 FTSA	91
13C2-PFDoDA	82
13C2-PFTDA	90
13C3-HFPO-DA	103
13C3-PFBS	89
13C3-PFHxS	96
13C4-PFBA	92
13C4-PFHpA	96
13C5-PFHxA	93
13C5-PFPeA	94
13C6-PFDA	82
13C7-PFUnA	84
13C8-PFOA	82
13C8-PFOS	94
13C8-PFOSA	90
13C9-PFNA	85
2H3-N-MeFOSA	88
2H3-N-MeFOSAA	96
2H5-N-EtFOSA	96
2H5-N-EtFOSAA	90
2H7-MeFOSE	93
2H9-EtFOSE	92

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