

Power-Prep™ SPE Solid Phase Extraction

The Power-Prep SPE system replaces older techniques such as Liquid-Liquid Extraction (LLE) and automates existing manual SPE techniques.



The Power-Prep SPE automated One Step Extraction and Concentration System is built by design to simplify, improve and increase your productivity by automating the manual steps in your sample preparation process. Automating time consuming steps involved in sample extraction and concentration lowers your labor, solvent consumption and disposal costs as much as 90%.

The Power-Prep SPE is specifically designed to put your water, beverages or any other liquid samples in and pull your final extract out as quickly as possible.

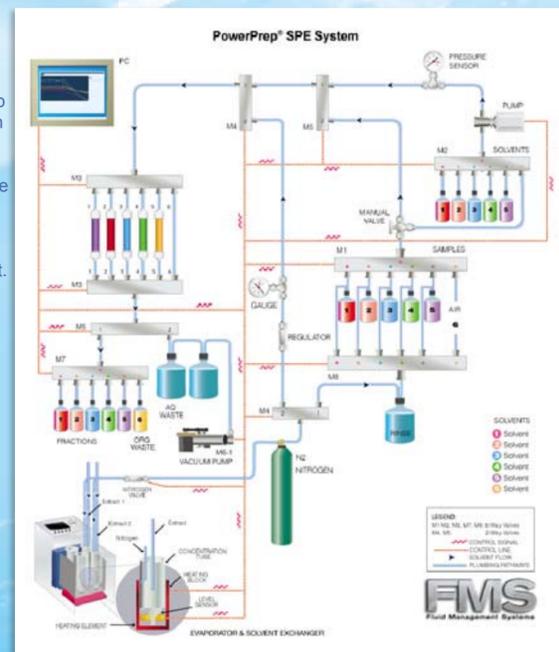
The Power-Prep SPE is designed to comply with regulatory guidance for SPE methods that are run throughout the world.

The Power-Prep SPE automates, integrates and documents the entire sample prep process eliminating the possibility of costly human error that can occur in manual sample prep methods and lower sample extraction reruns. It reduces solvent consumption, disposal costs and human exposure. Labor costs are slashed allowing the lab to focus on more profitable tasks. Expensive glassware is no longer required, reducing your environmental footprint. The Power-Prep SPE system is the only system that can be configured from 1 to 6 modules and can run in parallel and sequentially at the same time.

Each module can run 5 samples sequentially; configure up to 6 modules that can run in parallel. The result is 5 samples for each module set to run sequentially providing One Step Extraction, Drying and Concentration for 30 samples simultaneously and sequentially.

This allows the laboratory to setup everything once, start the process and return as the extracts reach final volume maximizing throughput.

The Power-Prep SPE system's flexibility allows it to grow from a one position system up to six as the laboratory's requirements increase.



Power-Prep™ EPH Fractionation System Solid Phase Extraction

High Throughput Sample Fractionation for aromatics and aliphatics

The Power-Prep™ EPH Fractionation system performs fractionation and sample clean-up for up to 30 samples in less than 1 hour, producing the highest recoveries and best results for aliphatic and aromatic hydrocarbon content. Easy to use window based software controls the system, is fully programmable and documents the method.



With the Power-Prep™ EPH system you have the option to expand from one module which will perform 5 sample fractionations to a six module system which will perform 30 sample fractionations.

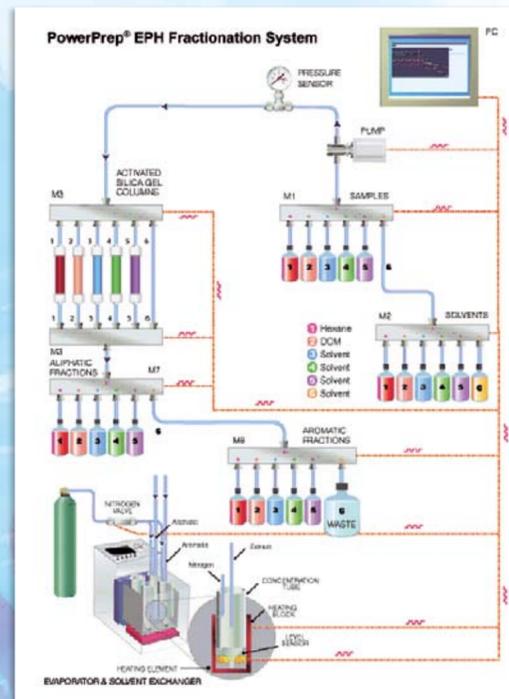
The Power-Prep™ EPH consistently conditions the columns, delivers the sample to the column, fractionates the sample the same way every time for reproducibility. The system increases sample throughput while reducing errors and poor recoveries. It also provides a cleaner background and eliminates contamination. Power-Prep™ EPH uses FMS's high quality and inexpensive Teflon based prepacked disposable columns which guarantee high recoveries, reduces errors and eliminates time associated to manual steps of column packing, gravimetric chromatography and glassware clean-up.

Cookbook Method

The powerful windows-based monitoring and control software offers a rich set of features and flexibility. It includes functions to develop and optimize methods.

Once the method is optimized it is saved and used for each run eliminating the need for creating method each time the system is run.

Input parameters includes flow rates, volumes, column selection, sample size, solvent selection and fraction collection.



Power-Sep™ Biomolecule separation & purification

The Power-Sep™ System is a fully automated liquid chromatography system, capable of automating the purification and production of biomolecules using chromatography techniques such as ion exchange, gel filtration and affinity chromatography.

The Power-Sep™ System has the unusual flexibility to run laboratory, pilot or full scale production employing the same basic unit. The Power-Sep™ System can be expanded to control multi-column and multi-sample applications. The DMS-6000 Data Management Software allows real time plotting and automatic documentation of purification data.

Cost Effective Automation of Manual Purification



Features

- Chromatography Cleanup
- Real-time plotting of UV, pH, Conductivity, and Temperature
- Purification parameters can be changed during the run.
- Ability to save UV, pH, conductivity and temperature data every 0.5 seconds
- Flow rate ranges 0.02 ml ~ 1000 ml/min
- Saved data can be reviewed and compressed.
- Method development tool
- Runs from small scale to production scale purification.

Precision

The heart of the Power-Sep™ System is FMS's patented calibration process. It is capable of learning the optimum purification conditions and reproducing the same purification conditions over and over again.

Flowrates & pumphead

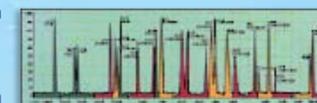
The Power-Sep™ System allows you to program a range of flow rates from 0.020 to 1000 ml/minutes with the same basic unit. For large scale purifications, higher flow rate pumps are available.

The Power-Sep™'s modular pumphead design allows you to choose the best size and type of pumphead for your primary process and optional pumpheads for other processes. We offer a variety of different pumphead materials including Teflon, ceramic, stainless steel, kynar and tygon. Pumpheads can be manually replaced in less than a minute.

Software: Graphs and Tables

The purification data; UV, pH, and conductivity, can be superimposed on one screen.

The Power-Sep™ DMS-6000 Software allows you to review saved data from up to four runs on your display screen at once. The saved data can be printed as a graph or a table along with the corresponding purification program.



Scale-up

Unlike other commercial systems, which have been marketed for either laboratory, pilot, or process scale purification, the Power-Sep™ System is designed to be used from laboratory to production scale purification with the same basic unit. The modularity of the Power-Sep™ allows the transition from small to large scale purification to be as easy as replacing the pump and the valve modules. This feature of the Power-Sep™ System saves money and makes the process development and scale-up an easier task.

Automated Sample-Prep systems for sample extraction, clean-up and concentration

Analysis of Dioxins, PCBs, PAHs, PBDEs and other persistent organic pollutants in virtually any kind of sample made easy!

Power-Prep™ • Total-Rapid-Prep™ • Power-Prep™ PLE • Power-Prep™ GPC
Power-Prep™ SPE • Power-Prep™ EPH • Power-Sep™



Barrel in water

Meat

Spraying crops

Wheat

Soil

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Power-Prep™ Automated Sample Processing

The Power-Prep™ is a high speed sample processing workstation. It is designed to automate the extraction and cleanup of toxic compounds such as Dioxins, PCBs, Pesticides, and PAHs from environmental, biological and food samples.

Power-Prep processes from 1 to 10 samples in less than 1 hour, thereby, achieving high recoveries and excellent precision for all target compounds. The Power-Prep™ system fits into the smallest budget.

With its modular design, you can cost effectively automate your extraction and sample clean-up procedures by purchasing a 1-sample system and expand it to 5 or 10 samples as needed.



Automated Sample Clean-up

Power-Prep™ is changing the face of high speed sample processing in today's laboratories. The computer controlled liquid chromatography system performs simultaneous sample processing automatically and unattended. You need only to load your samples, snap on your pre-packed columns and press the start key.

The system performs the entire sample cleanup for six samples automatically including sample loading, washing, elution and fraction collection.

Sample Type: The Power-Prep purifies and separates Dioxins, PCBs, PAHs and Pesticides from a variety of sample extracts such as:

- Soils • Water • Fly Ash • Milk • Air • Waste • Human Serum
- Adipose Tissue • Fish Samples • Waste Water • Pulp & Paper

Affordable

The Power-Prep™ system fits into the smallest budget. With its modular design, you can cost effectively automate your extraction and sample clean-up procedures by purchasing a 1-sample system and expand it to 5 or 10 samples as needed. A one-sample Power-Prep system can be expanded up to a 10 sample configuration. Both expansion and module replacement are done via FMS's quick connect modules.



This feature reduces system down time and increases laboratory throughput.

The Power-Prep System uses prepacked disposable columns.

FMS's proprietary columns are made from teflon and contain multi layer silica, alumina, and carbon. FMS's prepacked columns are tested for purity and performance prior to shipment.

The DMS-6000 Editor allows multiple methods to be stored in the system. In each method parameters such as time, solvent volume and final temperature can be set for each step. Pressure and temperature as well as dispensed volumes are displayed every second and stored for future reference.

**The Power-Prep Automated Sample clean-up system:
Changing the face of today's laboratories!**

Total-Rapid-Prep™



FMS introduces the first and only "Total Solution" Sample Prep system that combines three sample prep processes into one economical package.

The TRP-Total-Rapid-Prep™ performs extraction, sample clean-up and concentration for six samples simultaneously in a few hours, producing the highest recoveries and best results for all analytes.

An easy to use Windows based software controls the system and is fully programmable.

With the TRP system you have the option to run a single sample prep process such as extraction, sample clean-up, concentration or run a variety of processes including extraction, clean-up and concentration all in one single step.

The TRP system increases sample throughput while reducing errors and poor recoveries. It also provides a cleaner background and eliminates cross contamination due to its advanced closed loop system design.

TRP uses FMS's high quality and inexpensive Teflon based prepacked disposable columns which guarantee high recoveries and eliminate glassware clean-up. Applications include Dioxins, PCBs, PAHs, PBDEs and Pesticides.

Power-Prep™ PLE Pressurized Liquid Extraction: FAST EXTRACTION

PLE™ is a high speed Pressurized Liquid Extraction system for Dioxins, PCBs, Pesticides, PAHs and BFRs analysis. With the PLE™, one just needs to load solid or liquid samples into the PLE Cartridges, and press the start key. The entire extraction is performed automatically and unattended producing excellent precision and high recoveries.

Pressurized Liquid Extraction (PLE) is also known as Pressurized Solvent Extraction (PSE), also known as Accelerated Solvent Extraction (ASE), and also known as Pressurized Fluid Extraction (PFE)

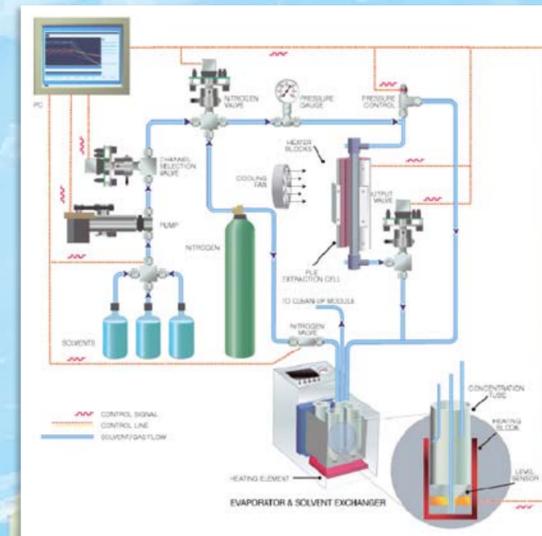
Principles of Operation

The PLE™ (Pressurized Liquid Extraction) works similar to Soxhlet extraction, with the exception that during the extraction process the solvents inside the PLE™ extraction cartridge are near their supercritical region which has high extraction properties.

The high temperature makes possible the high solubility and high diffusion rate while the high pressure keeps the solvent below its boiling point. At high pressures and high temperatures the solvents penetrate the solid samples at a much higher rate permitting a fast and efficient extraction process with minimal solvent usage.



PLE® Fast Extraction & Concentration System



To operate the PLE™, 5 to 100 grams of the sample is mixed with sodium sulfate, loaded in the extraction cartridge and capped with two disposable filtration end fittings. The extraction cartridges are clamped inside the unique and easy to use PLE™ cartridge seal cups.

Upon pressing the start key, the HPLC pump dispenses the organic solvent of choice, such as Hexane, DCM, Toluene, etc., into the extraction cartridges. The PLE™ control system then starts the pressurization and heating of the samples. The pressure is maintained at 1500-3000 PSI, and at temperature 70-200°C.

The extracted solvent containing target analytes is then transferred for either column clean up or collected and concentrated in FMS's evaporator & solvent exchanger.

Power-Prep™ GPC

The Power-Prep™ GPC system is a low cost automated Gelpermeation Chromatography system capable of separating synthetic macromolecules such as pesticides, PCBs, PAHs etc. from interfering compounds.

It uses glass or polypropylene columns packed with styrene-divinylbenzene resin beads, and can process from 1 to 30 samples sequentially. The samples are sequentially loaded into the column, then washed and collected in the appropriate fraction vessels. The Power-Prep / GPC™ system greatly simplifies sample cleanup through its unattended operation, increased speed and precision. Options such as different types of columns, a fraction collector, UV detector and a PC allow versatility in a sample type, automatic monitoring, data recording and programmable control over all aspects of the separation procedure.



Features

- Computer control of the entire separation procedure
- Individual programs for different settings of dump, wash and collect times for each sample
- Virtually unlimited program storage capacity.
- Real-time plotting and display of elution profiles
- Automatic documentation of separation data

Principles of operation

The GPC-Prep System can automate sample cleanup procedures specified by the US EPA and FDA methods. The modularity and expansion features of the GPC-Prep allow the user to expand the system for use in other applications such as the separation of Dioxins and PCBs from environmental and biological samples. The multi-column configuration (SPE option) allows automation of applications which require silica gel, alumina, florisil, C18 columns and other cartridges.

Affordable

The GPC-Prep System fits into the smallest budget. With its modular design, you can cost-effectively automate your sample clean-up procedure by purchasing a 5-sample system and expand it up to 10, 15 or 30 samples as needed. The GPC-Prep provides major savings in solvents and glassware as compared with the amounts typically required in manual procedures. With FMS's patented prepacked disposable Teflon columns (10 cm ID) the savings become more substantial. Optional upgrades include a PC, UV monitor, fraction collector, SPE module, additional column types, 5-sample expansion modules and a variety of DMS software packages.