GL Sciences

Fully Automatic Solid Phase Extraction System for Water Analysis

ASPE900

The Ultimate Solution for PFAS Analysis

Compact Design, High Performance

With its advanced fully automatic features, the ASPE900 Solid Phase Extraction (SPE) system packs high performance into a compact design.

ASPE900

The ASPE900 is a fully automatic solid-phase extraction device, designed for the analysis of various water samples, including tap water, drinking water, and groundwater.

It combines high performance and accuracy with the ease of use that analysts value. The precise efficient extractions offered by ASPE900’s automation will revolutionize your lab.

Comprehensive Solid Phase Extraction Knowhow

Fully Automatic

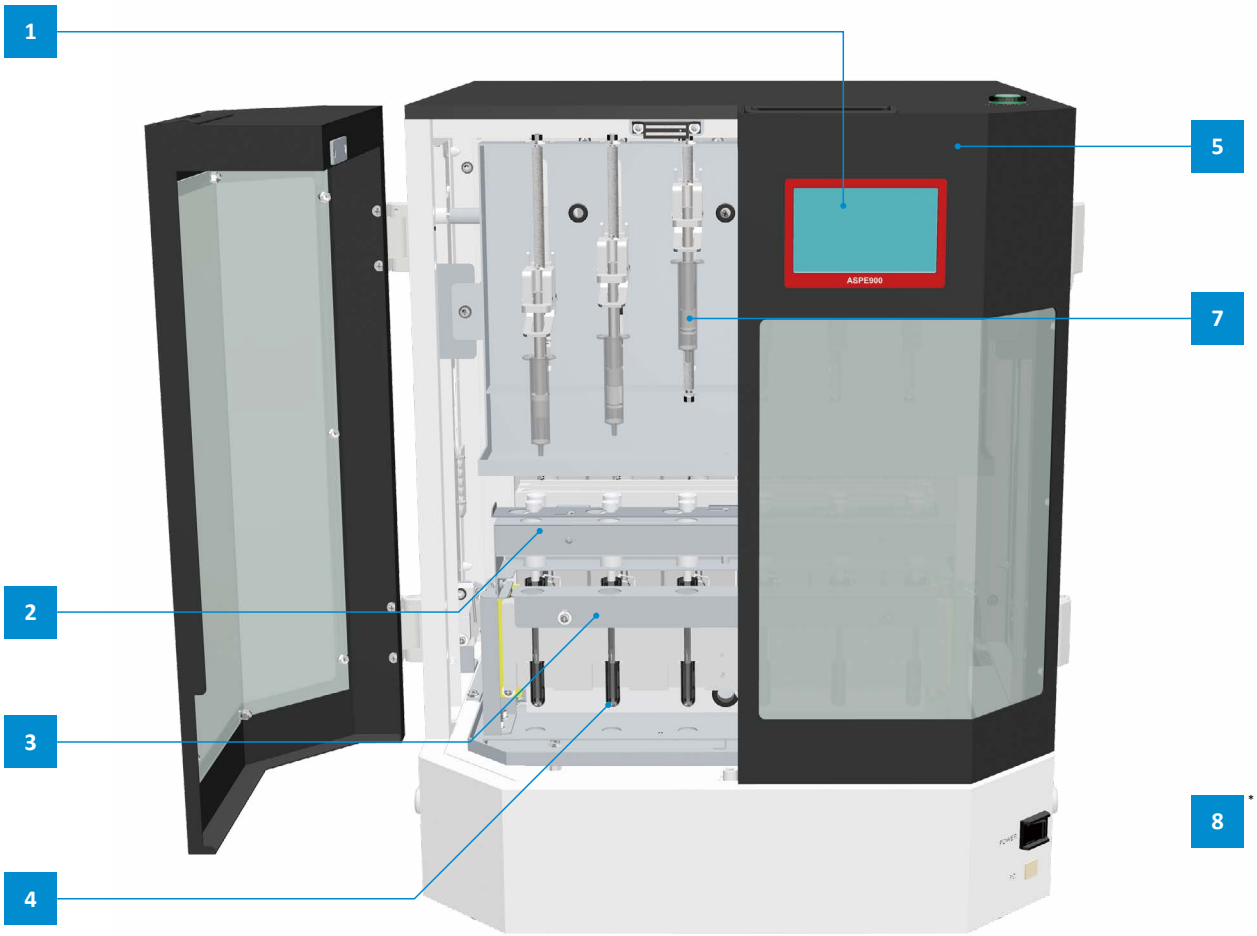
Solid Phase Extraction (SPE) can be a fully automated process. that saves the analysts from having to perform tedious routine tasks and helps streamline lab work.

Easy to Operate

Operability is completely intuitive with full visual control due to the LCD touchscreen graphical user interface.

Highly Accurate

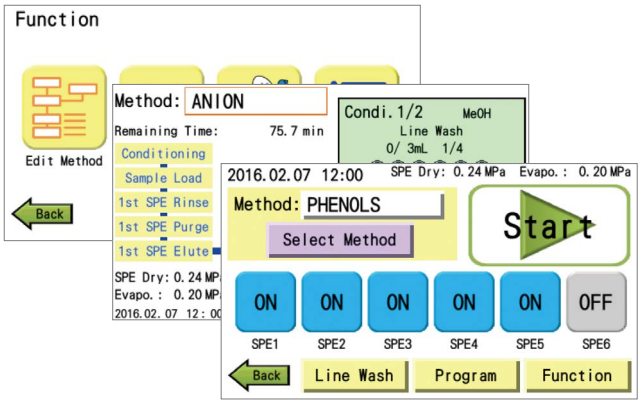
The high-precision pump and switching valve control the flow rate precisely for accurate and reproducible SPE.



*:Optional

1 Color LCD Touchscreen

ASPE900's color LCD touchscreen allows for complicated solid-phase extraction to be carried out with ease and without any specialized knowledge. The SPE method is displayed on screen and is managed via an intuitive graphical user interface that allows easy control of the various parameters.



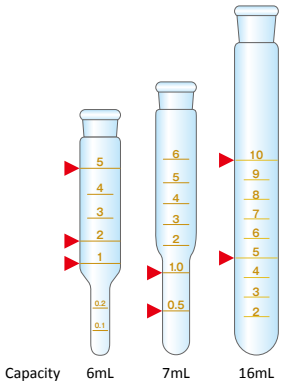
2 Excellent Dehydration Performance

The SPE cartridges are efficiently dehydrated by simultaneously purging with nitrogen while applying suction.

3 Graduated Concentration Tube

Concentrating the eluents is easily performed, allowing for collections in a GL-SPE graduated concentration tubes.

▶ : Graduation



4 Available with Various Solvents

During the automatic process, including conditioning, washing, cartridge drying, loading, collecting and concentration steps, all solvents used in the process are able to be used in the system.
The solvents can be n-heptane, diethyl ether, methanol, actonitrile, h-hexane, acetone, dichloromethane, etc.

5 Customizable SPE Methods

The SPE method can be customized, and up to 120 custom methods can be saved in the system.

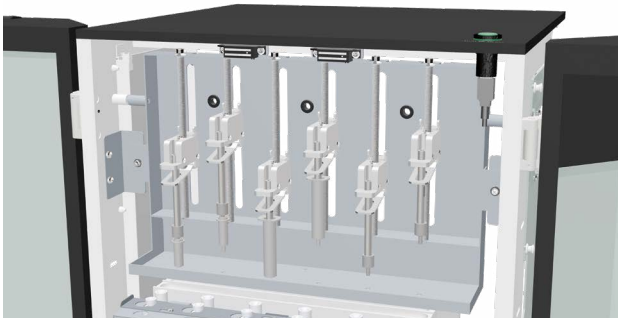
- Pesticides
- PFAS
- Phenols
- 1,4-Dioxane
- Geosmin, 2-Methylisoborneol

6 Low Carry-over

Because the sample line can be washed with toluene and organic solvents, carryover is low.

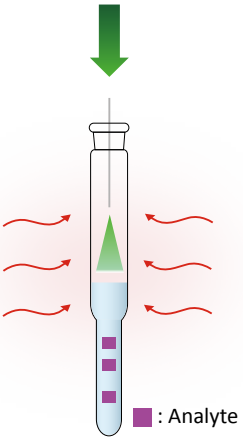
7 Compatible with a Wide Range of SPE Cartridges

SPE cartridges with either syringe-barrel or Luer connectors can be easily attached and detached.



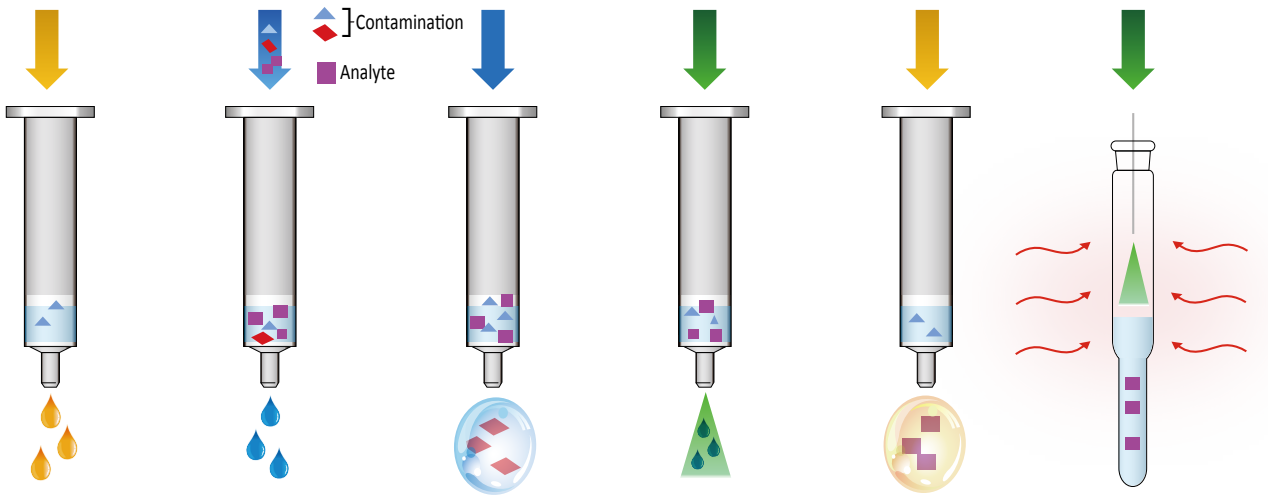
8 Evaporation (Heating + Nitrogen purge)

Evaporation is automatically performed in the system. The eluent is purged by nitrogen while being warmed by aluminum heating blocks (temperature range: 30 - 60 degrees) to shorten the concentration time. There is no need to transfer to an external evaporation system.
The outlet of the nitrogen gas is angled such that the flow is directed on the concentration tube wall, not directly on the sample, thus preventing the loss of volatile components.



Maximizes Accuracy by Automating All Processes

Automation of the time-consuming, labor-intensive tasks involved in water quality extractions, the ASPE900 boosts productivity. Tasks that normally require a skilled operator can be processed by the device, resulting in highly accurate extractions.

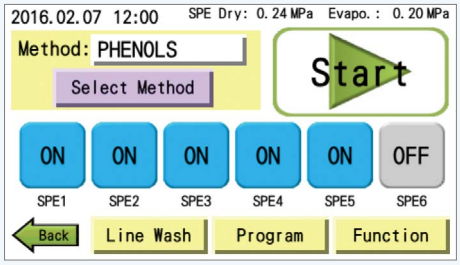


ASPE900 carries out all of these steps automatically.

User-friendly Operation

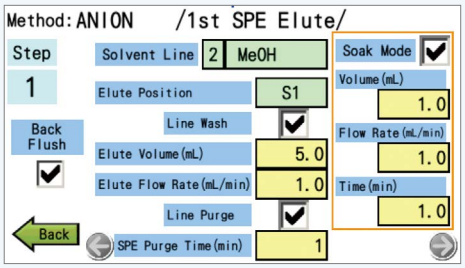
Quick Start

After installing ASPE900 with, the samples, solvents, and SPE cartridges, the extractions can be carried out simply by selecting the method and pressing the start button. Choosing which line to use is easy, and there a timer function to specify when to begin and end operation.



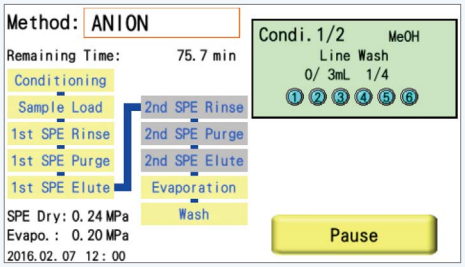
Method Edit

The entire SPE procedure is displayed on a single screen, and the extraction parameters can be easily edited and saved. If the procedure is modified, the total operating time is updated and displayed on the screen.



At-a-glance Status Indication

ASPE900 displays its progress in real time so it is easy to check the current process status. For instance, the screen displays the remaining time until the end of extraction.

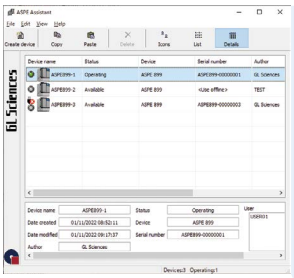


Smarter, More Convenient Functionality

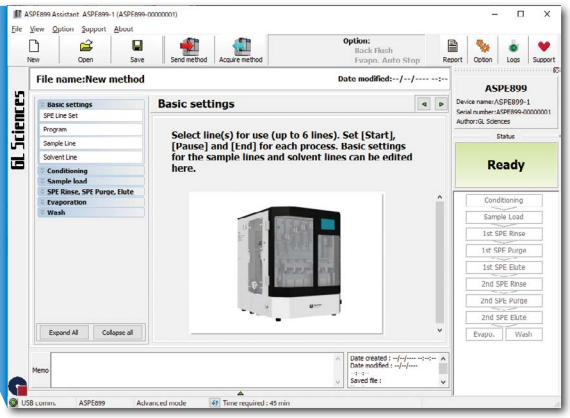
Method Editing Software

ASSISTANT is the method editing software that is a dedicated application that allows for the editing of methods using a PC.

Initial Screen / Device Selection Screen



Device selection screen

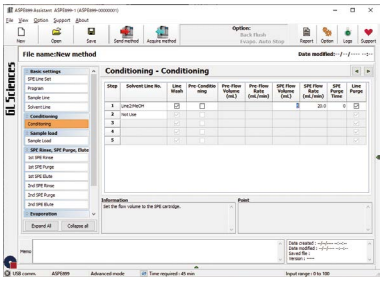


Initial screen

Lets the user to create methods, manage reports and logs, and check maintenance methods. By connecting ASPE900 to a PC, the user can check the status, upload and download methods, automatically acquire logs, and use the mail function.

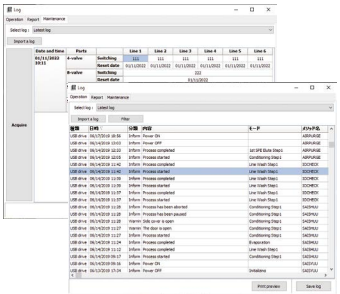
Note: A PC with an Internet connection is required.

Method Edit Screen



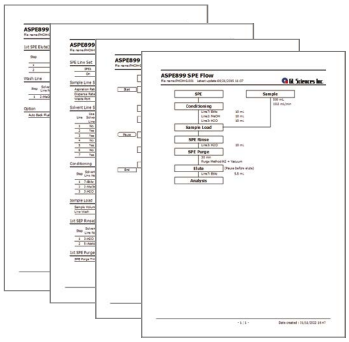
The user can select any process of the SPE method and edit its steps. Descriptions and setting points are displayed.

Log Screen



The logs allow the user to check the device's operation history and maintenance record.

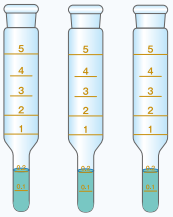
Report Function



The flow diagram for the method is automatically created and included in a report along with ASPE900's settings and processes. The user can include notes such as the type of SPE cartridges used, their lot numbers and water sampling locations. and add them to the report. These reports can be printed or saved as PDF documents.

Solvent Level Sensor

When the eluents are being concentrated, the sensor detects the liquid level and automatically stops the nitrogen purging to prevent excessive evaporation. The sensor can be set up to detect a liquid level between 0.1 to 5 mL, depending on the final concentration volume of the method.
For example: with the sensor set to detect liquid level at 1 mL, when sample volume reaches 1 mL, the system will automatically stop the gas flow and finish the evaporation process.



Specification

Solvent delivery method	Valveless Piston Pump
No. of Sample processed at the same time	6 lines in parallel
Operation unit	LCD touch panel
No. of solvent sets	Up to a maximum of 7
Test tube (can be concentrated)	GL-SPE Graduated Concentration Tube 6-mL, 7-mL GL-SPE Graduated Concentration Tube 10-mL (optional)
Test tube (cannot be concentrated)	Max. 16 mL
No. of savable methods	120 (Main unit) / 120 (USB memory)
PC connection	Available
SPE cartridge type	Luer Compartible Cartridge Syringe barrel type 6mL (Standard)
External input / output	Ready input, Stop output / Operation end / Error external output
Sample water flow volume setting range	10 - 99990 mL *
Dehydration method	Select from suction + nitrogen purge / suction / nitrogen purge
Concentration method	Select from aluminum heat block + nitrogen purge or nitrogen purge
Sample flow rate	0.5 - 80 mL/min **
Solvent level sensor	Yes (optional)
Log function	Power On / Off, Error, Start, Stop, Method used
Dimensions	480 (W) × 560 (D) × 615 (H) mm (exclude protrusions, include rubber feet)
Weight (standard specification)	Approx. 50 kg
Power requirements	AC 220 V ± 10%, 50/60 Hz, 240 VA

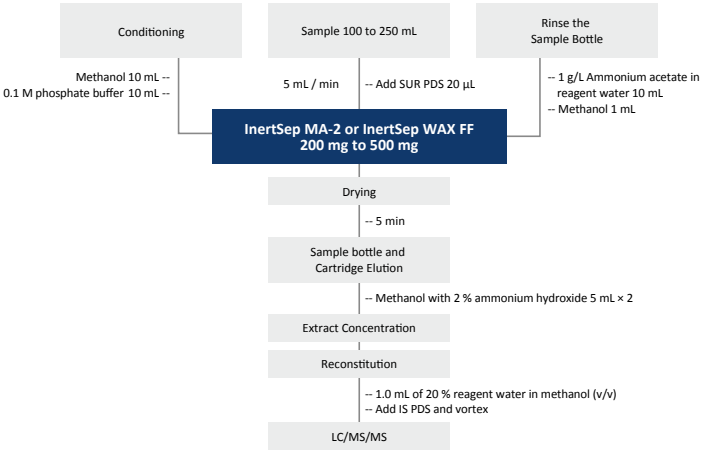
* Flow Volume Accuracy is less than ±2% (using ultrapure water, 20 mL/min draw/pump speed, with no loading)
** Elution Flow Rate and Soak Flow Rate at 1.0 to 80.0 mL/min

Application

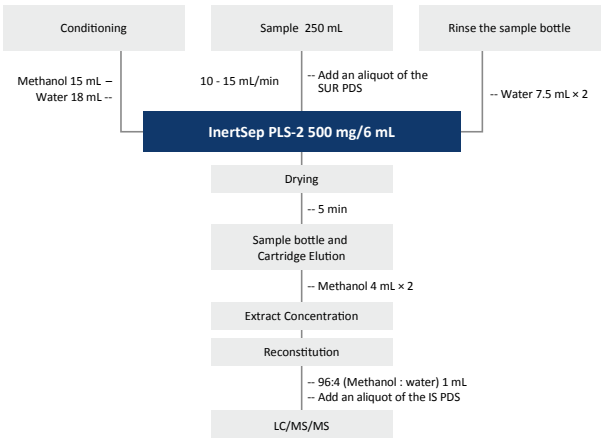
PFAS (Per- and Polyfluoroalkyl Substances)

Sample Preparation Workflow

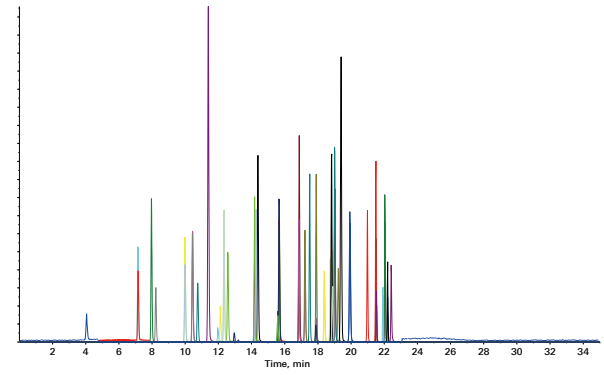
-EPA Method 533-



-EPA Method 537.1-

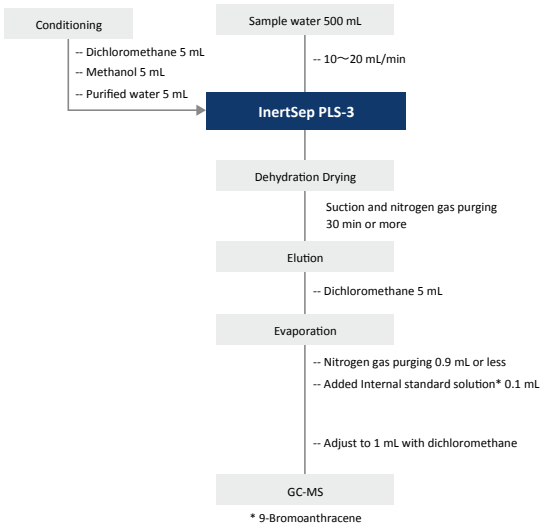


40 PFAS with 24 Surrogate Analysis by LC/MS/MS (each 1 ng/mL)



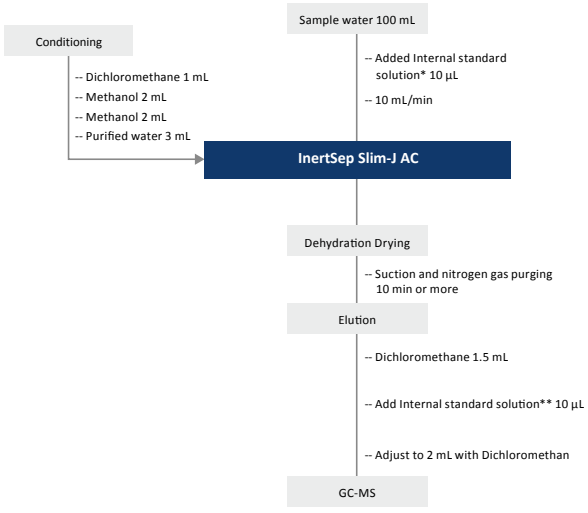
HPLC	Column	InertSustain AQ-C18 1.9 µm 2.1 × 100 mm (GL Sciences Inc.)								
	Delay Column	Delay Column for PFAS 3.0 × 30 mm (GL Sciences Inc.)								
	Mobile Phase: A	20 mmol/L aqueous ammonium acetate solution								
	: B	Methanol								
	Flow Program	min	0	0.5	3.0	16.0	18.0	20.0	22.0	25.0	35.0
		A %	95	95	60	20	20	5	5	95	95
		B %	5	5	40	80	80	95	95	5	5
	Flow Rate (mL/min)	0.25			Column Temp. (°C)			40		
	Injection Vol. (µL)	2			Sample Cooler (°C)			10		
MS	Ion Source	ESI								
	Mode	MRM								
	Polarity	Negative								
	CUR	40			TEM			300		
	CAD	12			Ion Source Gas1			50		
	IS	-4500			Source Gas2			30		

Pesticides



* 9-Bromoanthracene

1,4-Dioxane



* 1,4 -Dioxane- d_8
** Tetrahydrofuran-d8 (100 µg/mL)

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