SPE-04 Cleanup Station

SPE-04 cleanup station is designed for automatic cleanup of biological samples. Compared to SPE-01, SPE-04 has smaller sample volume and fraction volume and can process much larger number of samples per batch.

1. Features

1.1 Easy operation

The operation of SPE-04 is similar to SPE-01. It involves only 7 buttons. Below are typical routine operation procedures:

- Select method
- place sample columns and receiving containers on the tray
- Press start/stop button

1.2 Small footprint and computer-free operation

Like other SPE instrument from PromoChrom, SPE-04 has a very small footprint and does not need a computer. The elution solvents are placed on the top of the instrument. The compact design helps to save precious laboratory space.

1.3 Different flow rate for each elution steps

Different flow rates can be set for column conditioning, sample loading, and elution. Procedures that are not sensitive to flow rate (e.g. conditioning and blow dry) can use higher flow rate to save time.

1.4 Automatic needle wash

Sample needle is thoroughly washed before processing each sample. The tubing is also continuously washed to avoid cross contamination.

1.5 Upgradeable to advanced functions

SPE-04 can be upgraded to add online SPE and online derivatization function. It can also add function for auto sample injection for HPLC.

2. Specifications

Sample capacity	18, 26, or 41 per batch (Depending on the tray selected)
Maximum volume of sample	4, 8, or 20 mL (Depending on the tray selected)
Fraction collection	2 fractions with maximum volume 4, 15, or 50 mL
Material of wetted parts	Teflon, PEEK, Pyrex glass
System control	Micro controller with LCD and keypad
Method	Permanent storage of three methods
Method functions	Pre condition, load sample, elution with 4 solvents, blow dry of sorbent, fraction collection.
Pump flow rate	1 to 20 mL/min
Pressure limit of pump	6 bar
Pump reproducibility (C.V.%)	<1.5
Power supply	24 VDC
Current	< 1 A
Weight	7 Kg
Dimension (cm)	34 x 42 x 35 cm (width x depth x height)

3. Ordering Information

Part Number	Description	Price (US$)
SPE-04-01	Includes SPE-04 mainframe, 24V power supply, and user manual	

SPE-05 multi function SPE

SPE-05 multi function SPE is a flexible and versatile platform for automatic sample preparation. It can perform multiple tasks: offline SPE, online SPE, normal sample injection, and online derivatization with controlled temperature.

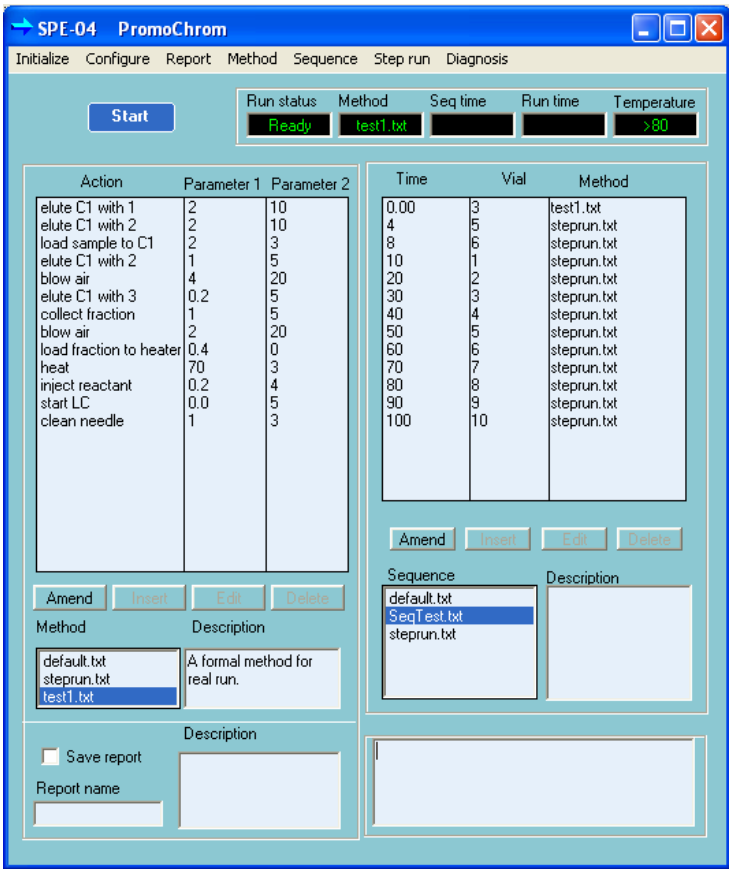
1. Features

1.1 Offline SPE

It can work like above described SPE-04 for offline column cleanup and fraction collection. When working in offline mode, computer is not necessary. Users can set up the instrument quickly using the 7 buttons.

1.2 Online SPE

In online mode, the collected fraction is directly injected into an HPLC or LC-MS for final determination. The control software for online SPE is user friendly and is compatible with most HPLC software.



The software uses methods and sequences for the automation. It has similar structure as Agilent Chemstation. Users of HPLC can easily understand the SPE-04 software.

The software can perform overlapped injection. When HPLC is performing an HPLC run, SPE-04 can start processing the next sample.

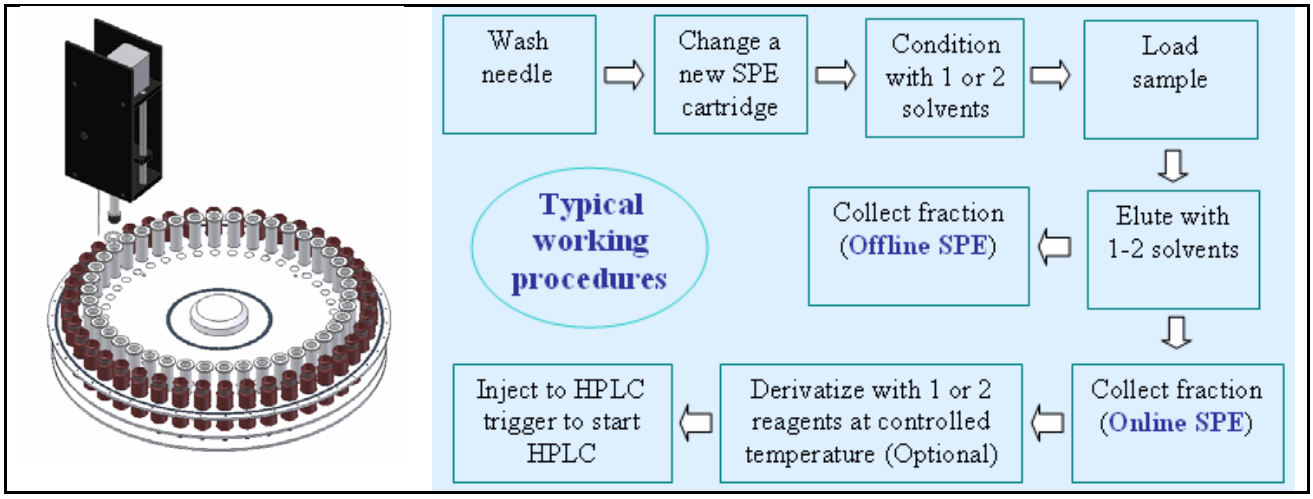
In online mode, SPE-05 can perform derivatization under controlled temperature. This function is very useful for analysis of amino acids, hormones, and some pesticides.

1.3 Direct sample injection

SPE-05 can work as an auto sampler. Therefore, the HPLC does not need to have another sample introduction device. This feature can reduce the cost of an HPLC system considerably.

2. Working principle

The following diagrams describe the structure and typical working procedures of the 3-in-1 model.

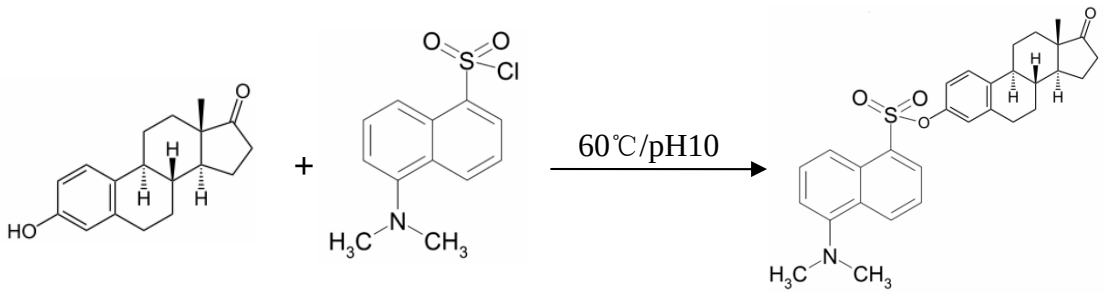


The plunger for SPE column can seal the column well. It can work with SPE columns from most suppliers. There is no need for a special cap or adapter.

3. Application example

Direct analysis of hormone in plasma sample:

1) Dilute plasma sample with 1% phosphoric acid at 1:1 ratio
2) Precondition a 3-mL/500-mg C18 SPE column with 2 mL methanol followed by 2 mL water
3) Load 2 mL sample and wash with 4 mL water+methanol (80:20)
4) Wash SPE column using methanol and collect 1 mL fraction



Estrone Dansyl chloride

5) Derivatize the fraction with dansyl chloride at 60 °C
6) HPLC analysis using a PCTsil C18 column and UV or fluorescence detection.

4. Specifications

Sample capacity	18, 26, or 41 per batch (Depending on the tray selected)
Maximum sample volume	4, 8, or 20 mL (Depending on the tray selected)
Material of wetted parts	Teflon, PEEK, Pyrex glass
System control	Computer or micro controller with LCD and keypad
Method functions	Pre condition, load sample, elution with 5 solvents, blow dry of sorbent, mix fraction with 1 or 2 derivatization reagents, heat up to 80 ℃.
Temperature for derivatization	Ambient to 80 ℃
Type of derivatization reagent	2
Pump flow rate	1 to 20 mL/min
Pressure limit of pump	6 bar
Pump reproducibility (C.V.%)	<1.5
Power supply	24 VDC
Current	< 1 A
Weight	7 Kg
Dimension (cm)	34 x 42 x 35 cm (width x depth x height)

5. Ordering Information

Part Number	Description	Price (US$)
SPE-05-01	Includes SPE-05 mainframe, sample injection module for HPLC, control software, remote cable for HPLC, 24V power supply, and user manual.	
SPE-05-02	Includes SPE-05 mainframe, sample injection function for HPLC, online derivatization module, and control software, remote cable for HPLC, 24V power supply, and user manual.	