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AutoTrace 280

SPE Instrument



 **DIONEX**

Passion. Power. Productivity.

Looking for of extra

AutoTrace System Automates Large Volume Liquid-Liquid Extractions

The AutoTrace[®] instrument is an automated solid-phase extraction (SPE) system designed for use with large samples (20 mL–20 L) for the isolation of trace organics in water or aqueous matrices. The compounds of interest are trapped on SPE adsorbents (cartridge or disk format) and then eluted with strong solvents to generate an extract ready for analysis.

The AutoTrace saves time, solvent, and labor ensuring high reproducibility and productivity for analytical laboratories. The instrument can process up to 6 samples in 2–3 hours with only 15 minutes of operator involvement. The AutoTrace instrument uses powerful pumps (no check valves) and proven constant flow technology to efficiently process even the most difficult samples. With AutoTrace and Accelerated Solvent Extraction (ASE[®]) systems, laboratories can effectively automate the solvent-extraction process for liquid and solid matrices.

Features	Benefits/Values
Automated sample loading of liquids onto SPE cartridges	Allows unattended operation
Automated eluting of SPE cartridges with organic solvent	Allows unattended operation
Closed systems with fan to vent solvent vapors	Conserves valuable hood space since a fume hood is not required
SPE technology for liquid-liquid extraction	Reduces solvent usage and elimination of glassware for reduced operational cost
Positive pressure loading and elution of samples and solvents	Provides constant flow of liquids through SPE cartridges for improved analytical precision

AutoTrace Provides Reliability and Precision

With the AutoTrace instrument you can:

- Automate SPE steps
- Provide superior analytical precision by automation of the SPE process
- Get positive pressure constant flow for improved analytical precision

AutoTrace Offers Value

The AutoTrace instruments offer many advantages for sample preparation over traditional techniques such as:

- Solid-phase extraction technology to save time, solvent, and labor
- Decrease in analytical costs through savings of labor and solvents
- Increase in productivity or sample throughput from unattended operation
- Flexibility in operation: cartridges or 47 mm disks

Applications and Systems Performance

Current analytical methods that may require SPE preparation include GC, GC-MS, LC, and LC-MS, and cover the following sample matrices:

- Pesticides (OCP, OPP, diquats, and urea ionic pesticides)
- Pollutants (phenols, PCB, nitrosamines and dioxins)
- Personal care products (pharmaceuticals, steroids, and endocrine disruptors)
- Total petroleum hydrocarbons (DRO)
- Explosive residues
- Beverages and flavor components

Performance				
Pesticide Recovery Study N=6	AutoTrace SPE		Vacuum Manifold SPE	
Compound	Recovery %	%RSD	Recovery %	%RSD
Atrazine	88	1.8	54	12.2
Propazine	91	1.5	80	7.3
Alachlor	99	3.4	96	4.1
Metachlor	99	4.3	96	2.9

Table 1 shows a pesticide recovery study comparing the AutoTrace SPE and a vacuum manifold technique. The improvements in recovery and reproducibility are attributed to the microprocessor control of all the liquid flow rates—both sample and SPE reagents.

For a more economical and re... acting large volume liquid sam...

AutoTrace Instrument Operation

The AutoTrace instrument is suitable for a wide variety of matrices such as:

- Drinking water
- Ground or surface water
- Wastewater
- Beverages

Automation provides lower cost of analysis by reducing the amount of time an analyst has to spend on extraction. More than half of the sample preparation cost for a typical vacuum manifold extraction is from operator labor. The AutoTrace instrument provides unattended operation, thereby significantly reducing the cost of analysis.

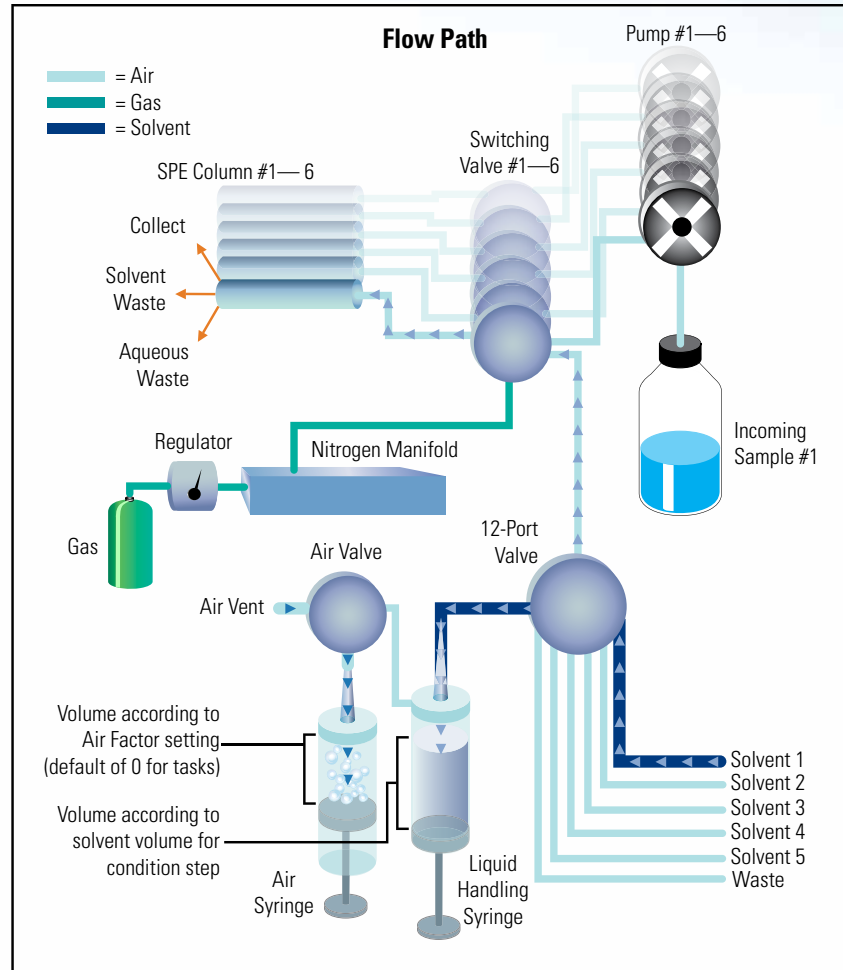
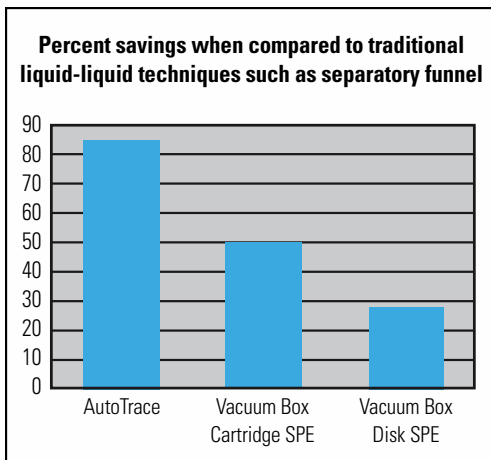


Figure 1. Sample and fluid handling pathway.

The AutoTrace instrument automates the SPE process. First, the sample cartridges or disks are conditioned with solvent or buffer. Next, the liquid or water samples are pumped from the sample container through the SPE cartridges or disks. As the sample passes through the

SPE material, analytes of interest are adsorbed and the liquid goes to aqueous waste. Then, the SPE material is rinsed to remove possible interferences. Finally, the analytes of interest are eluted from the SPE material with a strong solvent and collected.

Reliable way samples?



SPE Parameters	
Flow Rate	Range
Cond Flow	0.6–40.0 mL/min
Load Flow	1.0–30.0 mL/min (Cartridge version) 2.0–60.0 mL/min (Disk version)
Rinse Flow	0.6–40.0 mL/min
Elute Flow	0.6–40.0 mL/min
Cond Air Push	0.6–40.0 mL/min
Rinse Air Push	0.6–40.0 mL/min
Elute Air Push	0.6–40.0 mL/min
Push Delay	0–999 seconds

Key Specifications

Gas Regulator and Gas Gauge Range:

Output: 0–30 psi (0–1.4 bar)

Input: 100 psi (6.9 bar) maximum

Net Weight

95 lbs. (43.09 kg)

Dimensions (h × w × d)

23 x 25 x 27 in (57 x 63.5 x 69 cm)

Sample Rack: 8 x 16.5 x 13 in

Operating System Software

24 methods stored in the AutoTrace software

Unlimited number of methods stored in PC

Electrical

Voltage: 100, 120, 220, or 240 V ± 10%

Frequency: 47–63 Hz

Power: 150 Volt AC

Liquid Management

Air Syringe: One 10 mL air syringe

LH Syringe: One 10 mL liquid handling syringe

12-port Valve: Rotary, sliding Rulon® seal

Valves: 3-way, Teflon®

Nozzles: Stainless steel

Sample Inlet: TFE tubing, 1/16" ID, 6 total provided

Sample Pumps

Displacement: Positive

Accuracy: ± 2.5%

Tube Fitting: Kynar®

Piston and Liner: Ceramic

Non Use: Acetic acid, acetone

SPE Configurations

1 mL Syringe: Compatible cartridges

3 mL Syringe: Compatible cartridges

6 mL Syringe: Compatible cartridges

Disk Version: 47 mm SPE disk

ORDERING INFORMATION

To order, use the following part numbers and contact your local Dionex office or distributor nearest you. In the U.S., call (800) 346-6390. In other regions, refer to the phone numbers listed on the last page of this brochure. Please visit www.dionex.com to learn about our latest offering of cartridges and disks.

Description	P/N
AutoTrace 280 Automated Large Volume SPE for Disks	071386
AutoTrace 280 Automated Large Volume SPE for 6 mL Cartridges	071385
AutoTrace 280 Automated Large Volume SPE for 3 mL Cartridges	072605
AutoTrace 280 Automated Large Volume SPE for 1 mL Cartridges	072604
AutoTrace 280 Automated Large Volume SPE for 6 mL Glass Cartridge	072606

Dionex offers a wide array of products and tools that improve the sample preparation process through automated sample handling, increased sample throughput, and decreased preparation cost.

To learn more about our latest offering in cartridges and disks, please visit www.dionex.com.



Dionex Customer Support Centers are located in the United States, Europe, and Asia. These state-of-the-art laboratories are equipped with the full line of Dionex LC instrumentation and software capabilities. Support Centers provide accessible locations for advanced training and enhanced application development capabilities. Users can attend these laboratories to learn new skills in addressing challenging applications, receive training and support, and discover new, innovative HPLC and IC solutions.

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